

CAMBRIDGE LANGUAGE SURVEYS

Australian Languages

R. M. W. Dixon

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AUSTRALIAN LANGUAGES

Aboriginal people have been in Australia for at least 40,000 years, speaking about 250 languages. Through examination of published and unpublished materials on each of the individual languages, Professor Dixon, a pioneering scholar in this field, surveys the ways in which the languages vary typologically and presents a profile of this long-established linguistic area. The parameters examined include phonological contrasts, types of nominal case marking, patterns of verb organisation, varieties of pronoun systems, the development and loss of bound pronouns and a prefixing profile, generic nouns, nominal classifiers and noun classes, and ergative/accusative characteristics. The areal distribution of most features is illustrated with more than thirty maps, showing that the languages tend to move in cyclic fashion with respect to many of the parameters. There is also an index of languages and language groups. Professor Dixon brings a unique perspective to this diverse and complex material which will appeal to researchers and students in linguistics as well as to anthropologists with linguistic interests.

R.M.W. DIXON is Director of the Research Centre for Linguistic Typology at La Trobe University. Professor Dixon's book publications include grammatical studies of five Australian languages, of a dialect of Fijian, and of English, as well as *Where have all the adjectives gone? and other essays in semantics and syntax* (1982), *Ergativity* (Cambridge, 1994), and *The rise and fall of languages* (Cambridge, 1997).

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AUSTRALIAN LANGUAGES

Their Nature and Development

R. M. W. DIXON

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for Michael Osborne
Vice-Chancellor with vision

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ABBREVIATIONS AND CONVENTIONS

A	transitive subject function	IMP	imperative inflection
ABL	ablative case	inc	inclusive (addressee included)
ABS	absolutive case	INCH	inchoative
ACC	accusative case	INDIC	indicative mood
ALL	allative case	INST	instrumental case
ANTIPASS	antipassive verbal derivational suffix	INTERROG	interrogative
APPLIC	applicative derivational affix	INTR, intr	intransitive
aug	augmented	LOC	locative case
AUX	auxiliary verb	M, m	masculine
AVERS	aversive case	min	minimal
BENEF	benefactive	NEG	negative
BP	before present	NEUT	neuter
CAT	catalyst	NOM	nominative case
CAUS	causal case	NP	noun phrase
CC	copula complement	n-f	non-feminine
COMIT	comitative affix	n-min	non-minimal
CONTIN	continuative affix	n-sg, n.sg	non-singular
CS	copula subject	O	transitive object function
DAT	dative case	OBJ	object (O function)
du	dual	OBL	oblique
ERG	ergative case	pX	proto-language for subgroup X
exc	exclusive (addressee excluded)	PERF	perfect aspect
F, f	feminine	PL, pl	plural
FUT	future	POS	positive
GEN	genitive affix	POSS	possessive
H	stop homorganic with preceding segment	POT	potential
		PRES	present tense
		PRIV	privative

PURP	purposive inflection (on nouns and verbs)	SUBORD	subordinate marking
RECIP	reciprocal	TAM	tense and/or aspect and/or modality and/or mood
REDUP	reduplicated		
REFL	reflexive	TR, tr	transitive
REL	relative clause marking	U	unstressed syllable
S	intransitive subject function; stressed syllable	ua	unit augmented
		1	first person
sg	singular	2	second person
		3	third person
SUBJ	subject (S and A functions)	-	affix boundary
		=	clitic boundary

PREFACE

I began the preface to *The languages of Australia* (*LoA*, published 1980) by stating that it was, in several ways, premature. By this I meant that more descriptions of languages would be forthcoming during the 1980s and 1990s (as, indeed, they have been), which would provide a surer basis for generalisation. I now realise that *LoA* was most importantly of all, conceptually premature.

I had learnt the principles of historical linguistics from my teachers Warren Cowgill and Calvert Watkins, and from reading Meillet, Benveniste and others. And I had assumed that the methodology which applies so well for the languages of Europe and North America and Oceania would also be appropriate for the linguistic situation in Australia. It is not, but it took me a long time to realise this.

I sometimes wondered whether my lack of success in applying the established methodology of historical linguistics to the Australian linguistic situation was a feature of that situation, or a reflection on my abilities. Then, in the 1990s, I did intensive field work on Jarawara, spoken in southern Amazonia, and undertook a comparative study of the six languages of the Arawá family, to which it belongs. I found that here the established methodology worked perfectly (it was like a dream, after my struggles with the Australian situation). I was able to establish correspondence sets, compare their distributions, and then to reconstruct the phoneme system, more than four hundred lexemes, quite a bit of morphology, and some of the syntax for proto-Arawá. This easy success with Arawá emphasised to me the unusual – and probably unique – nature of the language situation in Australia.

The languages of Australia show recurrent similarities, such that almost everyone who has studied several of them (beginning with Grey 1841) has inclined towards the opinion that they must all be related. Related how? Well, presumably in the way languages in other parts of the world are related, as one language family. I belonged to this band. There was, we assumed, likely to have been an ancestor language, proto-Australian. *LoA* was the first serious attempt to put forward a hypothesis concerning proto-Australian. But the procedure followed was flawed. I used a selection of data from the clearest and most accessible descriptions available, most of these being of non-prefixing languages. (In the late 1970s, when the book was completed, there were only a handful of descriptions available for prefixing languages; these were all made

full use of.) The method was selective; by comparing similar paradigms in a number of languages, I reconstructed proto-paradigms, which were certainly sound and valid with respect to the data employed. However, they did not justify the label ‘proto-Australian’.

In preparing the present volume I have made use of all the available material on each of the 240–50 autochthonous languages of mainland Australia, taking account not only of the sixty or so good grammars produced during the past twenty years, but also examining and analysing the old (and often far from satisfactory) materials on languages from southern regions, which fell out of use many years ago. It will be seen – from the surveys of phonological and grammatical features presented throughout this book – that no clear picture emerges of what the full inventory of lexical and grammatical forms could have been for a putative proto-Australian.

It is natural to work in terms of the prevailing body of opinion in any discipline. I began (in the 1970s) by hypothesising that the Australian languages were likely to constitute a genetic family (like Indo-European and Austronesian) and that ‘Pama-Nyungan’ was a high-level subgroup within it. But a subgroup may only be established on the basis of significant distinctive innovations. Although at the time I wanted ‘Pama-Nyungan’ to be a subgroup, it proved impossible to uncover sufficient distinctive innovations to justify this. On pages 255–6 of *LoA*, I stated: ‘Pama-Nyungan – although a useful label to cover the large class of Australian languages which have not undergone radical changes that involve the development of pronominal and other prefixes to the verb, and a generally polysynthetic structure – has not yet been shown to have any genetic significance.’

Some of the reviewers of *LoA* suggested that what I had reconstructed to be ‘proto-Australian’ was in fact better labelled ‘proto-Pama-Nyungan’. This is not so. For example, proponents of ‘Pama-Nyungan’ as a genetic group have typically taken ergative *-ngu* to be a diagnostic feature of ‘proto-Pama-Nyungan’. But forms relating to *-ngu* are found in only about one-third of the languages regarded as ‘Pama-Nyungan’ and this form cannot really be imputed to a ‘proto-Pama-Nyungan’. In a major contribution to comparative Australian studies, Sands (1996) showed that an original ergative form **-dhu* explains the great majority of modern ergative forms right across the continent (in both prefixing and non-prefixing languages, in both ‘Pama-Nyungan’ and ‘non-Pama-Nyungan’ languages).

As explained in the appendix to chapter 2, ‘Pama-Nyungan’ was first introduced within a lexicostatistic classification of Australian languages, in terms of a view that every language should be able to be placed on a fully articulated family tree. The validity of such a family tree was assumed; it was then just a matter of discovering the place on the tree appropriate for each language. Later, the ‘Pama-Nyungan’/‘non-Pama-Nyungan’ division was redefined in terms of languages without and with number-segmentable non-singular pronouns (see §7.2). Lexicostatistics has been shown to be based on non-sustainable premisses and to have limited usefulness anywhere in the world. It has the lowest applicability in Australia, where there is no distinction between ‘core’

and 'non-core' vocabulary in terms of borrowability. Yet this is one of the few parts of the world where people still have recourse to lexicostatistics, as an indicator of genetic relationships.

I have – over the past thirty and more years – experimented with many ways of accounting for the relationship between Australian languages. In this volume I work in terms of what appears to me to be the only appropriate model for this quite special language situation. My essay *The rise and fall of languages* (1997) was conceived as a prolegomenon for the present work. It suggests that – during the hundred thousand years or more during which humankind has had language – there have been, in each geographical region, long periods of equilibrium broken by short periods of punctuation. During punctuation there is expansion and split of peoples and of languages; here a family tree diagram will model what happens. During equilibrium periods the number of languages spoken within a given region will remain roughly constant; there will be diffusion of cultural and linguistic traits so that the cultures will become more similar and the languages will tend to converge towards a common prototype.

It is generally accepted that the first people settled in the Australia/New Guinea land mass at least forty thousand (and probably fifty thousand) years ago. The spread of people and languages around the continent would have been a period of punctuation, which a family tree diagram would have modelled. But this is likely to have been completed within a few thousand years. It is likely that for tens of millennia the non-mountainous/non-forested part of the Australia/New Guinea land mass has constituted a linguistic equilibrium area. It is this which has to be investigated and described. Interestingly, there are a number of putative low-level genetic subgroups, pointing to minor punctuations in quite recent times (some probably due to expansion into previously unoccupied territory, as water resources became more abundant). A number of these genetic groups have been established, by reconstruction of the proto-language and the systematic changes through which the modern languages have developed; for others this remains to be done. On the evidence available, it seems most unlikely that the low-level genetic groups will be relatable together in terms of higher-level genetic groups. The question of whether all Australian languages go back to a single ancestor is not answerable, because of the great time-depth involved. All that we can perceive is a well-established equilibrium situation, across the continent; this is what must be studied. The most notable feature about the languages of Australia is that they do, without doubt, constitute the longest-established linguistic area in the world.

A major finding of the work reported in this volume is that Australian languages tend to vary in terms of a number of typological parameters, and to change with respect to them in a cyclic fashion – moving from type A to B to C and then back to A (some parameters shift in only one direction while others may be bidirectional). These cyclic changes are discussed through the volume and summarised in the final chapter, 14.

The only definite dates in this book are those provided by geographers for things like the rise and fall of sea level and by archaeologists for things like the earliest trace

of humans, and of dingos. I will often comment that a certain feature appears to be of relatively recent origin, and that something else appears to be relatively ancient. What dates should be attached to recent versus ancient? Should it be a few hundred years versus a few thousand? Or a few thousand versus a few tens of thousand? I don't know.

This volume includes a number of maps, most of which show the isogloss for a linguistic feature. It will be noted that the isoglosses do not bunch. For ease of reference, the languages have been arranged in fifty groups (some genetic, some small linguistic areas, some simply geographical). The twelve groups relating to languages classified as 'non-Pama-Nyungan' are given a first letter N (NA–NL). This is to enable the reader to see that only one isogloss (that for number-segmentable non-singular pronouns) runs along the division between groups NA–NL, on the one hand, and the remaining groups (labelled A–Y and WA–WM), on the other hand. The 'Pama-Nyungan' idea is a pervasive one, used both by Australianists and by linguists at large. However, it is totally without foundation and must be discarded if any progress is to be made in studying the nature of the linguistic situation in Australia.

It should also be pointed out that comparison between work on Australian languages and work on languages from other parts of the world is otiose. For example, Crowley (1997: 275) offers the comment that 'an Australian Dempwolff has yet to arrive on the scene'. Now Dempwolff (1934–8) compared the vocabularies of a number of Austronesian languages and reconstructed the forms of more than 2,200 lexemes in proto-Austronesian. There is no way that anyone – 'a Dempwolff' or anyone else – could do this for Australia. Capell (1956: 85–93) recognised thirty-six recurrent lexical forms which he labelled 'common Australian'. In §4.2 below the inventory is expanded to about 120 recurrent lexemes, each of which is found beyond a single geographical region. Doubtless a number more could be added after intensive comparison of vocabularies from languages in different parts of the continent. But this is a long, long way short of 2,200. The language situation in Australia is simply unlike that of Austronesian; or of Indo-European or Uralic or Uto-Aztecan. It is unique.

The materials available on Australian languages are not of uniform quality; this applies to early materials from the nineteenth century and also to recent descriptions from the end of the twentieth century. Grammars vary in terms of their accessibility (how clearly organised they are, and how easy it is to find things in them) and – most importantly – in terms of their quality. When one examines some recent descriptions, one does not have full confidence that, for instance, the appropriate inventory of phonemes has been recognised, or that the morphological analysis has maximal explanatory power. It is a convention in academic society today (and perhaps slightly more in Australia than anywhere else in the world) that one should hesitate to criticise the work of colleagues. Indeed, there is a tendency on the part of many people to assume that EVERYTHING which has appeared in print is equally valid and correct. A close investigation shows that this is not the case. In some instances linguist A works on language X and publishes a slim grammar; then linguist B works on the same language and

produces a rich and exquisite description, revealing and explaining complications that had passed A by. In many cases only one linguist has worked on a language but it is not hard to assess – by the lack of internal consistency, and by the general way in which a grammar is written – that this work is of less than adequate quality.

In this volume I take account of all published and unpublished materials, but I have placed most reliance on those that are written in an accessible manner, and especially on those that I consider to be of good quality. For example, I look to see whether a writer provides explicit criteria for the analytic decisions they make rather than, say, assuming that the categories of traditional Latinate grammar (or those of some current formal theory) will apply.

The reader must be alerted to the fact that I have not attempted to provide an exhaustive survey of the literature. To have included a summary of every idea that has been put forward concerning the relationship between Australian languages would have added considerably to the length of this book, and would have made it less coherent and less readable. There are right indented and unjustified passages discussing a number of alternative analyses. In addition, references are provided within the text to good-quality discussions of points that I deal with. But I must ask the reader's indulgence for only including bibliographical references that are strictly relevant to the overall thesis which is developed in the volume.

A companion volume is in preparation (but still some way from completion): *Australian languages: a complete catalogue*. This will consist of a short account of each of the 240–50 languages, giving tribal and dialect names, traditional territory and current situation, plus a summary of the main phonological, morphological and syntactic features, and an annotated list of published and unpublished source materials.

The older one gets the more one learns; and, at the same time, the greater the realisation one has of the vast amount one does not know. A young scholar is likely to have confidence that relevant problems can be neatly stated and satisfactorily answered. As the years advance, one tries rather to clarify the nature of the problems, and to formulate some ideas towards their solution.

All scientific progress is cumulative but sometimes a discipline becomes enmeshed in a cul-de-sac of its own making. One needs to make a sidestep in order then to continue to move forward. I have tried, in this book, to provide something of the foundation for further work on the indigenous languages of Australia which, hopefully, will enable future generations of scholars more fully to understand the nature of these languages, and of their development and interrelations.

July 1996 (Canberra) – April 2001 (Melbourne)

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Over the past decades I have been helped by many people – by virtually everyone who has worked on Australian languages. The students whose theses I have supervised have, in their turn, educated me. My linguistic friends across the continent have become used to receiving questions (by phone or fax or letter); they have been unfailingly generous and courteous in providing answers. Over the years I have employed a variety of research assistants; the quality and quantity of their work has, of course, varied, but all have made useful contributions. The preparation of this volume has been greatly facilitated through the preparation of preliminary materials by Kristina Sands (concerning the morphology of nouns, verbs, pronouns, verbal forms, subordinate clauses and phonology); by Angela Terrill (on valency-changing derivations, moiety/section/sub-section systems, and in compiling the forms of twenty-two nominal lexemes across all languages of the continent); and by Lys Ford on the Daly River region as a small linguistic area.

The arrangement of languages into groups was done in collaboration with Kristina Sands and Angela Terrill for groups A–Y and WA–WM, and in collaboration with Rebecca Green, Ian Green and Kristina Sands for groups NA–NL.

Jennifer Elliott keyboarded a large part of the manuscript, Anya Woods checked the final draft and assisted with the indexes and Andrew Hardie drew the maps. I thank them for the skilful and intelligent way in which they performed these tasks. Kurt Lambeck and Tony Purcell were generous in supplying map 1.1, and the most up-to-date information concerning sea levels in times past.

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A great deal of the work for this book was done while I was at the Australian National University, from 1970 until 1999. During most of this period the ANU provided a fine work environment. From 2000 La Trobe University provided a new base for me, and for the Research Centre for Linguistic Typology. It is within this convivial and academically exciting environment that the volume has been brought to completion. My warmest thanks go to Professor Michael Osborne, Vice-Chancellor of La Trobe University, for inviting us to be a foundation unit within his Institute for Advanced Study, and for providing ideal working conditions within which the work of language description and comparison – and typological generalisation – can proceed apace.

CONVENTIONS FOLLOWED

Different scholars use different criteria and terminology. Plainly, in an integrated account such as the present volume, a consistent set of conventions must be adhered to. Inevitably I do, on occasion, describe and interpret the structures of an individual language in a way different from that of the linguist who wrote the grammar. I trust that my colleagues will appreciate that this is done not in a spirit of disagreement, but simply for pedagogic expediency and for consistency.

(1) The term LANGUAGE is used through this book in the technical sense of linguists: mutually intelligible forms of speech are regarded as dialects of a single language. It is feasible to produce an overall grammar of a language (in the linguistic sense) with notes on dialect variation. The other sense of 'language' treats the speech of each political group (in Australia: each tribe) as a distinct language; I refer to these as tribal dialects of languages (in the linguists' sense). Note that in the linguists' sense there are (or were) about 240–50 distinct languages in Australia (using 'language' in the political sense there would be at least seven hundred languages, possibly a thousand or more).

(2) The term SUBGROUP is here used in a special way. Generally, a subgroup is a lower-level genetic grouping within a genetically established larger group, a language family. No large genetic groups are recognisable within the Australian linguistic area, but there are a number of low-level genetic groups, mostly consisting of just two or three languages. Rather than describing each of these as a small language family, I refer to them as 'low-level genetic subgroups'. This leaves open the possibility that some of these subgroups may eventually be shown to be linked together in higher-level genetic groupings.

(3) I regard Australian languages as making up a large linguistic area, with the purpose of the present book being to try to characterise the Australian linguistic area. Within the larger area we can recognise a number of SMALL LINGUISTIC AREAS; the languages in each area have much greater similarity to other languages in the area than

to languages outside the area; but these are not sufficient to justify suggesting that they make up a genetic subgroup. I use the terms small linguistic area and AREAL GROUP interchangeably.

(4) There are so many indigenous languages in Australia that referring to them in a book of this sort poses problems. It would be mind-numbing to have to refer to each language as an individual entity in describing areal patterns. For ease of reference I have organised them into **fifty groups**, labelled A–Y, WA–WM (where W stands for west) and NA–NL (where N stands for north). Each group includes between one and twenty-three languages. These are distinguished by the use of lower case letters (for groups within groups) and then numbers. For only two groups are their labels mnemonic – Y for the Yolngu subgroup; and WD for the Western Desert language.

- Some of the groups are tentatively identified as low-level genetic subgroups and labelled ‘subgroup’. A few of them include further subgroups as branches. For example, subgroup B, North Cape York, consists of further subgroups Ba, Northern Paman, and Bc, Wik; and also Bb, which is a single language, Umpila. There are six languages in Bc – Bc1, Wik-Ngathan, Bc2, Wik-Me’nh, etc. An asterisk, *, after a letter indicates the likelihood that all the languages in this group can be shown to make up a low-level subgroup, e.g. B* shows that B is probably a subgroup and Ba* that Ba is probably a subgroup within B. If two languages within a group are probably genetically related then * is included after each of their numbers, e.g. 1* and 2* within De (there is insufficient information on De3 to be able to decide whether this belongs in the subgroup with De1 and De2, although it is possible that it does).

I sometimes refer to a form reconstructed for the proto-language of a subgroup. The abbreviations ‘pZ’ is then used for ‘proto-Z’, where Z is the identificatory code for the subgroup.

- Other groups are tentatively identified as small linguistic areas and labelled ‘areal group’. For example, areal group U, Lower Murray, consists of five languages – U1, Yalalde, U2, Ngayawang, etc.

- The remaining groups (labelled just as ‘group’) simply consist of languages grouped together on a geographical basis; for example D, the South-east Cape York Peninsula group.

It must be stressed that the identification of a group of languages as a subgroup or as an areal group is in almost all instances tentative, and may need to be rethought when more descriptive material is available, and when more comparative work has been completed. For some languages that are no longer spoken the material available is poor, and it is likely that it will never be possible to arrive at definitive judgements concerning their affiliation.

The system of using code letters and numbers to refer to groups and to languages is intended to assist in describing areal patterns, and to help the reader identify where a given language is (or was) spoken. But its use does require some persistence. A course of action recommended to assiduous readers is to photocopy the master map

(map 0.1) – and perhaps also the List of languages and language groups – and to keep these on the side when studying the volume. In this way, statements such as ‘feature so-and-so is found in languages from groups B–G, WH–WJ and NE–NG’ can easily be provided with a geographical reference.

(5) Through the book I shall often state that a certain category or form is found in a number of groups. For example, §4.2.6 states that a form *bula-* ‘two’ is found in groups H–R, T, V, E, WA–WB and WG. This indicates that the form is found in one or more languages from each of these groups, not (unless explicitly stated) in every language from each group.

(6) There is wide variation in orthographic conventions for writing Australian languages. For those sounds occurring across a fair range of languages I have used a practical orthography, which employs digraphs consisting just of letters of the roman alphabet (except that the velar nasal is always written as *ŋ*). This is set out in table 3.2 and in table 12.1. Other sounds which occur in just a small number of languages, are generally represented by IPA symbols (for example, *β*, *ɣ*, *ʔ*).

For stop series I generally use voiced (*b*, *g*, *dj*, *dh*, *d*, *rd*) or voiceless (*p*, *k*, *tj*, *th*, *t*, *rt*) symbols according to the convention normally followed for the language in question. In general and comparative discussion the voiced series is generally employed.

Vowels are written as *i*, *a*, *u* (plus *e*, *o*, where applicable). That is, I never write *u* as ‘oo’, or *i* as ‘ee’.

Material in Australian languages included in the text is generally in italics. Where italics are used this indicates that I believe the material is being given in phonemic form. Sometimes, material is quoted from an old source in the form in which it appears there (without any attempt to phonemicise it); it is then given in roman font within quotes, e.g. ‘possum’ is ‘pilla’ in WBb1, Parnkalla.

(7) In the introductory discussion (especially in parts of chapter 3) I have not hesitated to illustrate general points with data from languages I have worked on myself, since I am then certain of their appropriateness. In later chapters little data come from my own field work. If an example is taken from a published source (or a thesis), this is generally given (including the page on which it occurs in the source).

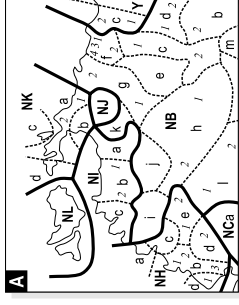
(8) My previous study, *The languages of Australia* (1980), began with a number of introductory chapters on the history of the study of Australian languages; tribe and language; speech and song styles (here briefly summarised in §3.4); and the role of language in Australian Aboriginal society today. These have dated very little and can still be read as a general orientation to the study of Australian languages. It did not seem appropriate to repeat them (in slightly revised form) here.

There is today great interest in assisting endangered languages to survive. And there is interest by communities whose language has ceased to be spoken in trying to start

speaking it all over again (even though, in most cases, the information recorded on the language – when it was still spoken – is limited). It did not seem appropriate, in a book of this nature, to comment on such projects.

The present volume is a reworking and extension of the typological survey in chapters 5–13 of the 1980 book. The great majority of points are new, but a few are the same as in the earlier survey. In such instances I have tried to use different examples to illustrate a point, rather than repeating an example given before. Only occasionally have I retained an earlier example.

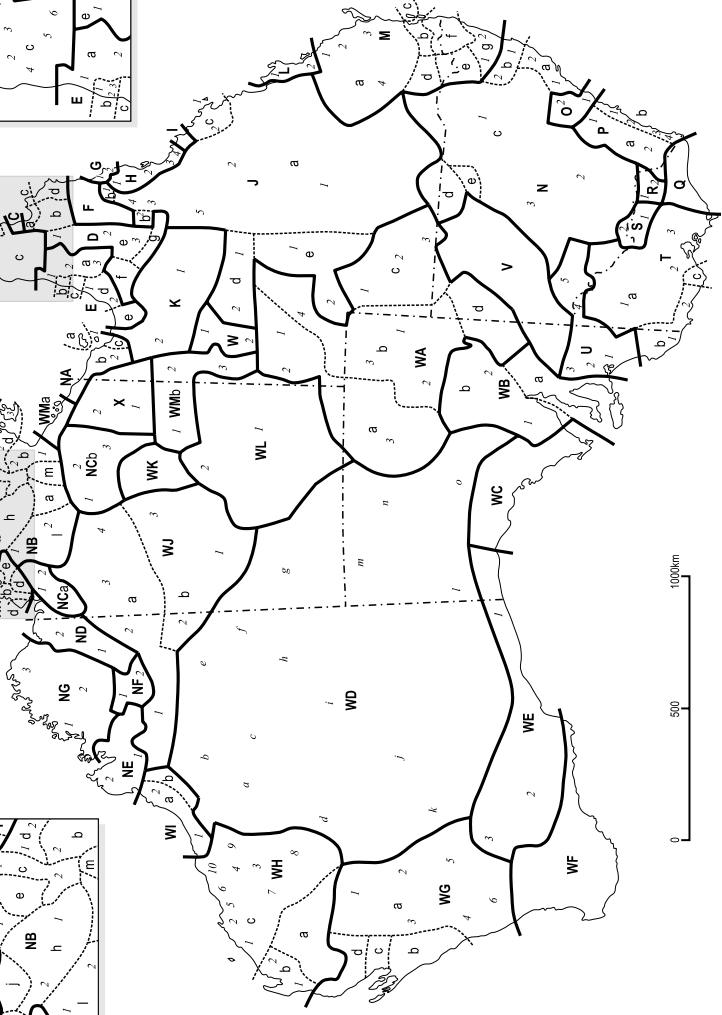
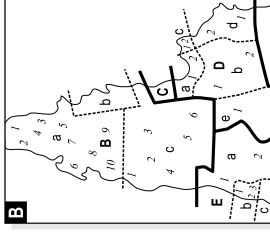
(9) Very little was recorded on the languages of Tasmania before they passed into disuse, and there is no reliable information that could be included in the present survey. A summary of the available information is in Crowley and Dixon (1981).



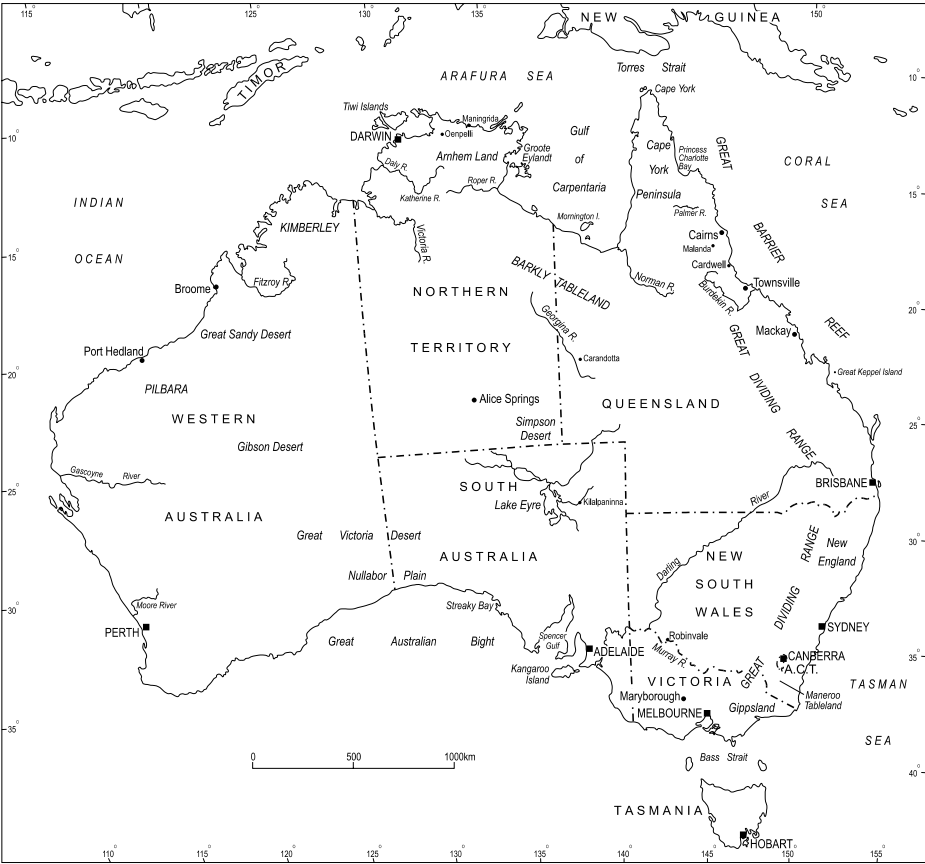
See inset A



See inset B



Map 0.1 Master map of language groups and languages



Map 0.2 Geographical regions, state boundaries and major cities

LANGUAGES AND LANGUAGE GROUPS

The fifty groups into which I have divided the languages are listed here, together with some of the dialects within languages. Note that I have not attempted to provide an exhaustive list of all dialects of all languages.

There is generally a name for each tribal dialect but often no name for a language (in the linguists' sense). In some such cases I have had to manufacture names – see §1.3. I have in most cases avoided names which appear to have been invented by White observers but had no validity for Aborigines in traditional times. For example, 'Kurnay' or 'Gaanay' (from the lexeme 'man') for the Gippsland language; I have preferred to label the language 'Muk-thang', the name of one of its dialects.

Language and dialect names are spelled in a variety of ways in the literature. I have generally spelled names according to the orthographic conventions followed in this book (see table 3.2 and table 12.1), but in some cases I have instead used a spelling that is well established in the literature. (Whichever spelling is used for a given language, it is likely that some people will applaud and others criticise.)

Some of the names for groups are taken over from the recent literature; for example, WL, Arandic, and WJb, Yapa. Others have been made up. The lexicostatic classification often uses the term for 'man' but in many cases the form used is found in only some of the languages of the group to which it is applied. For instance, subgroup WJa was labelled 'Ngumpin', although this form is only found in one of the four languages in the subgroup (WJa3, Gurindji); I have avoided such inappropriate labels.

In writing this volume I have attempted to make use of all available sources on each language. For a number of languages there is a full or fullish grammar of good or quite good quality, or else one or more important papers. These are listed below, for the languages or language groups to which they apply. Where no reference is given here, there are simply a number of minor sources, which will be listed in the relevant entry in the planned companion volume.

- A TORRES STRAIT GROUP** (These are Papuan languages, not closely related to each other. A1 has a significant Australian substratum. A2 has been

said to be genetically linked to the languages of the Fly River region of New Guinea but this is not proven.)

- A1 West Torres (also: Kalaw Kawaw Ya, Kala Lagaw Langgus, Yagar Yagar) – Ford and Ober (1986)
dialects on each island: Mabuiag, Badu, Dauan, Saibai, Boigu, Moa, Yam, Sue, Yorke and Coconut
- A2 East Torres (or Miriam or Meryam Mir) – Piper (1989)

B* NORTH CAPE YORK SUBGROUP

Ba* Northern Paman subgroup – Hale (1964, 1976b)

- Ba1 Gudang
dialects include: Djagaraga
- Ba2 Uradhi – Hale (1976c), Crowley (1983)
dialects: Angkamuthi, Yadhaykenu, Atampaya
- Ba3 Wuthathi
- Ba4 Luthigh
further dialect: Mpalitjanh
- Ba5 Yinwum
probable further dialect: Njuwadhui
- Ba6 Anguthimri – Hale (1966b), Crowley (1981)
dialects: Nggerikudi (or Yupungati), Tjungundji, Mpakwithi, Awngthim (with subdialects Mamngayt, Ntrwa'ngayth, Thyangngayth), Ntra'angith, Alngith, Linngithigh
- Ba7 Ngkoth
dialects: Tootj (or Kauwala); Ngaawangati (or Ungauwangati)
- Ba8 Aritinngithigh (or Aritinngayth)
further dialects: Latamngit
- Ba9 Mbiywom
- Ba10 Andjingith

Bb Umpila – Thompson (1988)

further dialects: Kuuku Yani, Uutaalnganu, Kuuku Ya'u, Kuuku Iyu, Kaantju

Bc* Wik subgroup

- Bc1 Wik-Ngathan (= Wik-Injtjenj) – Sutton (1978)
further dialect: Wik-Ngatharr (= Wik-Alken, = Wik-Elken)
- Bc2 Wik-Me'nh
further dialects: Wik-Ep (= Wik-Iit), Wik-Keyenganh
- Bc3 Wik-Mungknh (Wik-Munkan)
further dialect: Wik-Iiyanh (= Wik-Iiyenj, = Wik-Iiyanji, = Mungkanhu)
- Bc4 Kugu-Muminh (Wik-Muminh) (or Kugu/Wik-Nganhcara) – Smith and Johnson (2000)
further dialects (all preceded by Kugu/Wik-): Mu'inh, Uwanh, Ugbanh, Yi'anh, Mangk, Iyanh
- Bc5 Bakanha (or Ayabakan(u))
- Bc6 Ayabadhu

C Umbindhamu (or Umpithamu)

D SOUTH-EAST CAPE YORK PENINSULA GROUP

Da* Lama subgroup

- Da1 Morroba-Lama (or Umbuygamu)
- Da2 Lama-Lama (or Mba Rumbathama or Bakanambia or Wanbara)

Db Rimang-Gudinhma/Kuku-Wara group

Db1 Rimang-Gudinhma (or Rima-nggudinhma) – Godman (1993)

Db2 Kuku-Wara

Dc Bathurst Head group

Dc1 Flinders Island language (or Oko Wurriima)

Dc2 Marrett River language

Dd Guugu Yimidhirr/Barrow Point group

Dd1 Guugu Yimidhirr – Haviland (1979a)

dialects: Dhalun-dhiir, Waguur-ga

Dd2 Barrow Point language

De Thaypan/Mini subgroup

De1* Kuku-Thaypan

possible further dialect: Koko-Rarmul

De2* Kuku-Mini – Jolly (1989)

further dialects include (or some may be separate languages): Koko-Possum/Alngula, Ikarranggal, Aghu Tharrnggala

De3 Takalak

Df Walangama

Dg Mbara (and, possibly, Yanga; alternative names: Ambara, Bargal)

E WESTERN CAPE YORK PENINSULA AREAL GROUP**Ea Upper southwest Pama group**

Ea1 Kuuk Thaayorre – Hall (1972)

further dialects: Yak, Kirka, Thayem, Thayunth

Ea2 Oy kangand – Sommer (1969, 1972)

further dialects: Olgol(o), and possibly Koko-Wangkara

Ea3 Ogh-Undjan

further dialects: Kawarrang, Kokinj

Eb Coastal southwest Pama group

Eb1 Yir-Yoront (Yirr-Yorront, or Yirr-Thutjim) – Alpher (1991)

further dialects: Yirrk-Thangalkl (= Yirr(k)-Mel)

Eb2* Koko Bera (or Kok Kaber)

further dialects: Kok Peponk, Kok Wap, Koko Beberam

Eb3* Kok Thaw(a) (or Koko Petitj or Uw Inhal or Ogh Injigharr)

Ec Kok Narr (or Kok Nhang or Kundar)

Ed* Norman Pama subgroup

Ed1 Kurtjar (or Gunggara)

further dialect: Rip (or Ngarap or Areba)

Ed2 Kuthant

Ee Kukatj (or Kalibamu)

F Kuku-Yalanji – Patz (1982)

further dialects: Kuku-Njungkul, Kuku-Bididji, Kuku-Dungay, Kuku-Buyundji, Kuku-Kulunggur, Kuku-Yalaja (or Kuku-Yelandji), Koko-Walandja, (Kuku-)Wakura, (Kuku-)Wakaman, (Kuku-)Djangun, (Kuku-)Muluridji, Kuku-Jakandji

G* CAIRNS SUBGROUP

G1 Djabugay – Patz (1991)

further dialects: Yirrgay, Bulway, Guluy, Njagali

- G2 Yidinj – Dixon (1977a)
further dialects: Gunggay, Wanjurru(u), Madjay

H HERBERT RIVER GROUP

- H1 Dyirbal – Dixon (1972, 1990a)
dialects: Ngadjan, Waribarra Mamu, Dulgubarra Mamu, Jirrbal, Gulngay, Djirru, Girramay, Walmalbarra
H2 Warrgamay – Dixon (1981a)
further dialect: Biyay(giri)
H3 Nyawaygi – Dixon (1983)
H4 Manbara
possible dialect names: Mulgu, Buluguyban, Wulgurukaba, Coonambella, Nhawalgaba

I LOWER BURDEKIN GROUP

- I1 Cunningham, 'Lower Burdekin', in Curr (1886, Vol 2 pp 488–9)
I2 Gorton, 'Lower Burdekin', in Curr (1886, Vol 2 pp 490–1)
I3 O'Connor, 'Mouths of the Burdekin River', in Curr (1886, Vol 2 pp 454–5)

J GREATER MARIC GROUP

Ja Maric proper subgroup

- Ja1* Bidjara – Breen (1973, 1981a)
further dialects: Gungabula, Marrganj, Gunja, Wadjigu, Gayiri, Dharawala, Wadjalang, Wadjabangayi, Yiningayi, Yanjdjibara, Mandandanjdji, Guwamu, Gunggari, Ganulu, Gabulbara, Wadja, Nguri
Ja2* Biri (or Biria, Birigaba) – Beale (1974) (note that Terrill 1998 is a publication of some of Beale's materials)
further dialects: Gangulu, Wirri (or Widi), Yilba, Baradha, Yambina, Yetimarala, Garanjbal, Yangga
Ja3* Warungu – Sutton (1973), Tsunoda (1974)
further dialects: Gugu-Badhun, Gudjal(a)
Ja4 Ngayungu
Ja5 Yirandhali

Jb Mbabaram/Agwamin group

- Jb1 Mbabaram – Dixon (1991b)
Jb2 Agwamin (or Wamin)

Jc Proserpine group

- Jc1 Ngaro
Jc2 Giya (Bumbarra)

Jd Guwa/Yanda group

- Jd1 Guwa
Jd2 Yanda

Je Kungkari/Pirriya group

- Je1 Kungkari
possible further dialect: Gungadidji
Je2 Pirriya (or Bidia)

K* MAYIC SUBGROUP – Breen (1981b)

- K1 Ngawun
further dialects: Wunumara, Mayi-Thakurti, Mayi-Yapi, Mayi-Kulan
K2 Mayi-Kutuna

L ROCKHAMPTON/GLADSTONE GROUP

- L1 Darambal
further dialects: Kuinmabara, Karunbara, Rakiwara, Wapabara
L2 Bayali

M CENTRAL EAST COAST GROUP**Ma Waka-Gabi areal group**

- Ma1 Dappil
Ma2 Gureng-Gureng – Brasch (1975)
further dialect: Guweng-Guweng
Ma3 Gabi-Gabi (or Dippil)
further dialect: Badjala
Ma4 Waga-Waga – Kite (2000)
further dialects: Wuli-Wuli, Dala, Djakunda, Barunggam,
Duungidjauwu

- Mb Yagara
further dialects: Turubul (or Turrbal), Janday, Moonjan

Mc Guwar

Md Bigambal

Me Yugambal

further dialect: Ngarrabul (Ngarrbal)

- Mf Bandjalang – Cunningham (1969), Geytenbeek and Geytenbeek (1971), Crowley (1978)

further dialects include: Yugumbir, Nganduwal, Minjangbal, Njangbal, Biriin, Baryulgil, Waalubal, Dinggalbal, Wiyabal, Gidabal, Galibal, Wudjeebal

Mg* Gumbaynggirr/Yaygirr subgroup

- Mg1 Gumbaynggirr – Smythe (1948/9), Eades (1979)
further dialects: Baanbay, Gambalamam; possibly also Ngambaa
Mg2 Yaygirr – Crowley (1979)

N CENTRAL NEW SOUTH WALES GROUP**Na* Awabagal/Gadjang subgroup**

- Na1 Awabagal – Threlkeld (1834)
further dialects: Cameeragal, Wonarua
Na2 Gadjang (Kattang) – Holmer (1966)
further dialects: Warimi, Birbay

Nb* Djan-gadi/Nganjaywana subgroup

- Nb1 Djan-gadi (Thangatti) – Holmer (1966)
probable further dialect: Ngaagu
Nb2 Nganjaywana (Aneewan, Aniwan) – Crowley (1976)
dialects: Himberrong, Inuwon

Nc* Central inland New South Wales subgroup

- Nc1 Gamilaraay (Kamilaroi) – Williams (1980)
further dialects: Yuwaalaraay, Yuwaaliyaay (Euahlayi), Gunjbaraay,
Gawambaraay, Wirayaraay (or Wiriwiri), Walaraay
Nc2 Wiradhurri (or Wirratherie or Wirradgerry or Waradgery or
Woradgery, etc.) – H. Hale (1846), Günther (1892)
possible further dialect: Wiraiairi
Nc3 Ngiyambaa – Donaldson (1980)
dialects: Wangaaybuwan Ngiyambaa, Wayilwan (Wailwan) Ngiyambaa

- Nd Muruwarri (or Murawarri)
 Ne Barranbinja

O* SYDNEY SUBGROUP

- O1 Dharuk
 possible further dialect names: Gamaraygal, Iora
 O2 Darkinjung

P SOUTHERN NEW SOUTH WALES GROUP

- Pa Southern tablelands group**
 Pa1 Gundungurra (or Ngunawal, or Burragorang)
 Pa2 Ngarigo (or Ngarrugu)
Pb New South Wales south coast group
 Pb1 Dharawal (or Thurrawal, Turuwul)
 further dialect: Wodi-Wodi
 Pb2 Dhurga
 possible further dialects: Dharamba, Walbanga
 Pb3 Djirringanj
 Pb4 Thawa

- Q** Muk-thang (Gaanay, Kurnai, Kunnai)
 further dialects: Nulit, Thangquai, Bidhawal

R UPPER MURRAY GROUP

- R1 Pallanganmiddang
 R2 Dhudhuroa (Djining-middang tribe, possible further name: Yaithmathang)

S YOTA/YABALA AREAL GROUP

- S1 Yota-Yota (or Yorta-Yorta, spoken by Bangerang or Pine-gorine tribe)
 S2 Yabala-Yabala

T WEST VICTORIAN AREAL GROUP

- Ta* Kulin subgroup**
 Ta1 Wemba-Wemba – Hercus (1986)
 further dialects: Baraba-Baraba, Madhi-Madhi, Wadi-Wadi,
 Ladji-Ladji, Nari-Nari, Wergaya, Djadjala, Wutjabulak, Martijali,
 Buibatyalii, Nundatyalli, Jab-wurrung, Pirt-Koopan-Noot,
 Jaja-wurrung
 Ta2 Wadha-wurrung (or Wuddyawurru or Witouro, etc.) – Blake (1998)
 Ta3 Wuy-wurrung – Blake (1991)
 further dialects: Bun-wurrung, Dhagung-wurrung
Tb* Bungandik/Kuurn-Kopan-Noot subgroup
 Tb1 Bungandik (or Bundanditj)
 further dialects: Pinejunga, Mootatunga, Wichintunga, Polinjunga
 Tb2 Kuurn-Kopan-Noot (Gourmditch-Mara, Gu:nditj-mara)
 further dialects: Peek-Whurrung, Koort-Kirrup, Dhautgart (wurru),
 Tjarcote
 Tc Kolakngat (or Kolitjon)

U LOWER MURRAY AREAL GROUP

- U1 Yalalde (or Yalalde Tingar; or Ngarrindjeri or Narrinyeri) – Meyer (1843), Cerin (1994)
further dialects include: Tangane, Ramindjeri
- U2 Ngayawang
- U3 Yuyu (or Ngarrket)
- U4 Keramin (or Kureinji, etc.)
- U5 Yitha-Yitha
further dialect: Dardi-Dardi (Tati-Tati, Ta-tati)

- V** Baagandji – Hercus (1982)
further dialects: Gurnu (Guula), Naualko, Baarrundji, Wiljaali, Dhanggaali, Bulaali, Wanjubarlgu, Bandjigali, Barrindji, Marrawarra (Marawara, Maraaura)

W KALKATUNGU/YALARNGA AREAL GROUP

- W1 Kalkatungu (or Kalkutungu or Kalkadoon) – Blake (1979a)
- W2 Yalarnnga

X* WAANJI/GARRWA SUBGROUP

- X1 Waanji
- X2 Garrwa (or Garawa) – Furby and Furby (1977), Belfrage (1992)

Y* YOLNGU SUBGROUP**Ya* Southern Yolngu subgroup**

- Ya1 Dhuwal/Dhuwala (possibly also Dhuwaya) – Morphy (1991), Wilkinson (1991)
dialects include – (a) Dhuwala varieties (Yirritja moiety): Gupapuyngu, Gumatj; (b) Dhuwal varieties (Dhuwa moiety): Djambarrpuyngu, Djapu, Liyagalawumirr, Guyamirlili (Gwijamil)
- Ya2 Dhay'yi (may be one language with Ya1)
dialects: (a) Dhalwangu; (b) Djarrwark
- Ya3 Ritharngu (or Dhiyakuy) – Heath (1980a)
dialects include: (a) Dhiyakuy, Ritharngu; (b) Wagilak, Manggurra

Yb* Northern Yolngu subgroup

- Yb1 Nhangu
dialects include: (a) Gorlpa; (b) Yannhangu
- Yb2 Dhangu
dialects include: (a) Wan.gurri, Lamamirri; (b) Rirratjingu, Gaalpu, Ngayimil
- Yb3 Djangu
dialects include: Warramiri, Mandatja

Yc* Western Yolngu subgroup – Waters (1989)

- Yc1 Djinang
dialects: (a) Wurlaki, Djardiwitjibi, Mildjingi, Balmbi; (b) Marrangu, Murrungun, Manyarring
- Yc2 Djinba
dialects include: (a) Ganhalpuyngu; (b) Manjdjalpuyngu

WA LAKE EYRE BASIN AREAL GROUP**WAa North and west Lake Eyre Basin group** – Blake and Breen (1971)

WAa1* Pitta-Pitta (Pitha-Pitha) – Blake (1979b)

further dialects: Ringu-Ringu, Rakaya, Ngulupulu, Karanja, Kunkalanja, Mayawarli

WAa2* Wangka-yutjuru

further dialects: Rangwa (or Runga-Rungawa), Yurla-Yurlanja (or Ulaolinya), Lhanima (or Tharlimanha or Wangga-Manha)

WAa3 Arabana/Wangkangurru – Hercus (1994)

further dialects: Pilta-Palta, Wangkakupa, Midlaliri, Mikiri-nganha

WAb Central Lake Eyre Basin areal group

WAb1 Yandruwanhdha

further dialects: Yawarrawarra, Nhirrpi, Parlpa-Mardramardra, Matja

WAb2* Diyari – Austin (1981a)

further dialects: Dhirari, Pilardapa

WAb3* Ngamini

further dialects: Yaluyandi; Karangura

WAb4 Midhaga

further dialects: Karruwali, Marrulha (or Marrula)

WAc South-west Queensland group

WAc1 Wangkumara

further dialect: Punthamara

WAc2 Galali

WAc3 Badjiri

WAd Maljangapa

further dialects: Yardliyawara, Wardikali

WB SPENCER GULF BASIN AREAL GROUP**WBa** Kadli – Teichelmann and Schürmann (1840)

dialects: Kaurna, Nantuware, Ngadjuri, Narangka, Nukunu

WBb* Yura subgroup

WBb1 Parnkalla – Schürmann (1844)

WBb2 Adnjamathanha/Guyani – Schebeck (1974)

further dialect: Wailpi

WC Wirangu – Hercus (1999)

possible further dialect: Nhawu

WD The Western Desert language – Trudinger (1943), Douglas (1964), Glass and Hackett (1970), Marsh (1976), Hansen and Hansen (1978), Goddard (1985), Bowe (1990)

dialects: (a) Warnman, (b) Yulparitja, (c) Manjtijltjara (or Martu Wangka), (d) Kartutjarra, (e) Kukatja, (f) Pintupi, (g) Luritja, (h) Ngaatjatjarr, (i) Ngaaanjatjarra, (j) Wangkatha, (k) Wangatja, (l) Ngaliya, (m) Pitjantjatjarra, (n) Yankuntjatjarra, (o) Kukarta

WE WESTERN BIGHT GROUP

WE1 Mirming

WE2 Kalaaku (=Ngadjunmaya)

WE3 Karlamay

WF Nyungar

tribal names: Njunga, Wutjari, Koreng, Minang, Pipalman, Wartanti, Pindjarup, Whadjuk, Kaneang, Wilmen, Njaki-Njaki

WG **MOORE RIVER TO GASCOYNE RIVER GROUP**

WGa* **Watjarri/Parti-maya subgroup**

WGa1 Watjarri – Douglas (1981), Marmion (1996)
further dialects: Birdungu, Nhugarn; and possibly Ngarluwangka (or may be separate language)

WGa2 Parti-maya – Dunn (1988)

WGa3 Cheangwa language (may be called Thaagurda)

WGa4 Nana-karti

WGa5 Natingero

WGa6 Witjaari

WGb Nhanta – Blevins (2001)

further dialects: Watchandi, Amangu

WGc Malkana

WGd Yingkarta – Dench (1998)

possible further dialect: Maya

WH **GASCOYNE RIVER TO PILBARA AREAL GROUP**

WHa Mantharta

dialects: Tharrkari, Warriyangka, Tjiwarli, Thiin

WHb* **Kanjara subgroup**

WHb1 Payungu/Purduna

WHb2 Thalantji/Pinikura

WHc **Pilbara/Ngayarta areal group**

WHc1 Nhuwala

WHc2 Martuthunira – Dench (1995)

WHc3 Panyjima (Panjtjima) – Dench (1991)

dialects: Pantikura, Mitjaranjpa; and Yinhawangka (may be a separate language)

WHc4 Yinjtjiparnrti/Kurrama – Wordick (1982)

WHc5 Ngarluma (or Kymurra)

WHc6 Kariyarra (or Kariara or Ninjiburu or Kudjunguru)

WHc7 Tjurruru

WHc8 Palyku (or Mangguldulkara or Paljarri)/Njiyapali

WHc9 Nyamal

further dialects: Ibarga, Widugari

WHc10 Ngarla (or Kudjunguru)

WI **MANGUNJ AREAL GROUP**

WIa* **Marrngu subgroup**

WIa1 Njangumarta – Sharp (1998)

WIa2 Karatjarri

Wib Mangala

WJ* **NORTHERN DESERT FRINGE SUBGROUP**

WJa* **Edgar Range to Victoria River subgroup**

WJa1 Walmatjarri – Hudson (1978)

further dialects: Tjuwalinj, Pililuna

- WJa2 Djaru – Tsunoda (1981)
further dialects: Wawarl, Njininj
- WJa3 Gurindji (Kuurrinjti) – McConvell (ms.-a)
further dialects: Wanjdjirra, Malngin, Wurlayi, Ngarinman, Pilinara;
possibly also Kartangarurru
- WJa4 Mudbura
further dialects: Karranga, Pinkangarna
- WJb* Yapa subgroup**
- WJb1 Warlpiri – Hale (1973b, 1982a), Nash (1985), Simpson (1991)
further dialects: Ngaliya, Walmala, Ngardilpa, Eastern Warlpiri
- WJb2 Ngardi (or Ngardilj)
- WJb3 Warlmanpa

WK Warumungu – Simpson and Heath (1982)

WL ARANDIC AREAL GROUP

- WL1 Arrernte (Aranda) – Strehlow (1944), Wilkins (1989), Yallop (1977)
dialects: Anmatjirra (Anmatyerr), Aljawarra (Alyawarr), Ayerrerenge,
Antekerrepenhe, Ikngerripenhe (Eastern Aranda), Mparntwe Arrernte (Central
Aranda), Tyuretye Arrernte or Arrernte Alturlerenj (Western Aranda), Pertame
(Southern Aranda), Alenjerntarpe (Lower Aranda)
- WL2 Kaytetj (Kayteye)

WM* NGARNA SUBGROUP

- WMa Yanyuwa (or Yanyula or Wadirri) – Kirton (1967, 1970, 1971, 1978), Kirton
and Charlie (1996)
possible further dialect: Walu
- WMb* Southern Ngarna subgroup**
- WMb1 Wagaya
further dialect: Yindjilandji (or may be a separate language)
- WMb2 Bularnu
further dialect: Dhidhanu
- WMb3 Warluwara – Breen (1971)
further dialects: Kapula, Parnkarra

NA* TANGKIC SUBGROUP

- NAa Lardil – Hale (1997)
- NAb* Kayardild/Yukulta subgroup**
- NAb1 Kayardild – Evans (1995a)
further dialect: Yangkaal
- NAb2 Yukulta (or Yukulu, Kangkalita) – Keen (1983)
further dialect: Nguburindi
- NAc Minkin

NB ARNHEM LAND GROUP

- NBa Mangarrayi (or Ngarrabadji) – Merlan (1982a)
- NBb* Marra/Warndarrang subgroup**
- NBb1 Marra (or Marranbala) – Heath (1981a)
possible further dialect: Yugul
- NBb2 Warndarrang (or Wuyarrawala) – Heath (1980b)

NBc* Rembarrnga/Ngalakan subgroup

NBc1 Rembarrnga – McKay (1975)
dialect: Kaltuy'

NBc2 Ngalakan – Merlan (1983)

NBd Far east Arnhem Land group

NBd1 Ngandi – Heath (1978b)

NBd2 Nunggubuyu (or Wubuy or Yingkwira) – Heath (1984)

NBd3 Anindhilyagwa (or Yingguru) – Leeding (1989)

NBe Dalabon (or Dangbon or Ngalkbon or Buwan)

NBf* Maningrida subgroup

NBf1 Burarra – R. Green (1987)

dialects: Gun-narda, Gun-narta (collectively also known as
Gidjingali(ya) or Anbarra), Gun-nartpa (also known as Gudjarlabiya)

NBf2 Gurrongi (or Gungorrogone or Gudjartabiya) – R. Green (1995)

NBf3 Nakkara (or Gukariya) – Eather (1990)

NBf4 Ndjebbana (or Kunibidji/Gunavidji, or Ndeya, or Gidjiya) – McKay
(2000)

NBg Gunwinjgu-Gunbarlang group

NBg1 Gunwinjgu (or Mayali, or Bininj Gun-wok, or Neinggu) – Oates
(1964), Evans (1991, forthcoming)

further dialects include: Guninjku, Gundjeihmi, Kune,
Gundedjnjenghmi

NBg2 Gunbarlang – Coleman (1982)

dialects: Djimbilirri, Gurrigurri, Gumunggurdu, Marrabanggu,
Marranumbu, Gunguluwala

NBh Jawoyn-Warray group

NBh1 Jawoyn (or Jawonj or Adowen or Gun-djawan)

further dialects: Genhinj' mi, Ngarla' mi, Lhetburrit, Ngan-wirlang

NBh2 Warray – Harvey (1986)

possible further dialect: Wulwulam (or may be a distinct language)

NBi Gungarakanj – Parish (1983)

probable further dialect: Mukngirru

NBj Uwinjmil (or Awinjmil, Winjmil)

NBk Gaagudju – Harvey (1992)

NBI* Wagiman-Wardaman subgroup

NBI1 Wagiman – Cook (1987), Wilson (1999)

NBI2 Wardaman – Merlan (1994)

further dialects: Dagoman, Yangman

NBm Alawa (= Galawa, Warliburru) – Sharpe (1972)

NC* MINDI SUBGROUP**NCa* West Mindi subgroup**

NCa1 Djamindjung/Ngaliwuru – Cleverly (1968), Bolt, Hoddinott and
Kofod (1971a), Schultze-Berndt (2000).

NCa2 Nungali – Bolt, Hoddinott and Kofod (1971b)

NCb* East Mindi subgroup

NCb1 Djingulu (of Djingili people) – Pensalfini (1997)

NCb2 Ngarnga (=Ngarndji)

NCb3 Wambaya – Nordlinger (1998)

further dialects: Gudandji, Binbinka

ND* KITJA/MIRIWUNG SUBGROUP

- ND1 Kitja (=Lunga, Lungga)
possible further dialects: Kuluwarrang, Walgi
- ND2 Miriwung – Kofod (1978)
further dialect: Gajirrawung

NE* FITZROY RIVER SUBGROUP

- NE1 Njigina – Stokes (1982), Hosokawa (1991), McGregor (1994)
further dialects: Warrwa, Yawuru (or Yawur), Jukun
- NE2 Baardi (or Baard) – McGregor (1996), Aklif (1999)
further dialects: Djawi, Njul-Njul, Djabirr-Djabirr, Ngumbarl, Nimanburru

NF* SOUTH KIMBERLEY SUBGROUP

- NF1 Bunuba (Bunaba) – Rumsey (2000)
- NF2 Guniyandi (or Guniyan, Gooniyandi) – McGregor (1990)

NG NORTH KIMBERLEY AREAL GROUP

- NG1 Worrorra – Clendon (1994, 2000), Love (2000)
further dialects: Yawidjibara, Windjarumi, Unggumi, Unggarrangu, Umiida
- NG2 Ungarinjin – Rumsey (1982a)
further dialects: Guwidj (Orla), Waladja, Ngarnawu, Andadjin, Munumburru, Wolyamidi, Waladjanggarri
- NG3 Wunambal – McGregor (1993)
further dialects: Wilawila, Gamberre, Kwini (=Gunin), Ginan, Miwa (=Bagu), Yiidji (=Forrest River)

NH DALY RIVER AREAL GROUP

- NHa Patjtjamalh (=Wadjiginj, Wogait) – Ford (1990)
further dialect: Kandjerramalh (=Pungu-Pungu)
- NHb* Western Daly subgroup**
- NHb1 Emmi/Merranunggu(=Warrgat) – Ford (1998)
further dialects Menhthe (close to Emmi)
- NHb2 Marrithiyel – I. Green (1989)
further dialects: Marri Ammu, Marritjevin, Marridan, Marramanindjdi
- NHb3 Marri Ngarr
further dialect: Magati-ge
- NHc Malak-Malak – Birk (1976)
- NHd Southern Daly group**
- NHd1 Murrinh-patha – Walsh (1976), Street (1987)
- NHd2 Ngan.gi-tjemmerri – Reid (1990)
dialects: Ngan.gi-kurunggurr, Ngan.gi-wumeri, Ngan.gimmerri
- NHe* Eastern Daly subgroup**
- NHe1 Matngele – Zandvoort (1999)
- NHe2 Kamu – Harvey (ms.-d)

NI DARWIN REGION GROUP

- NIa Umpugarla
further dialects: Bugarndidja, Ngumbur

Nlb Limilngan-Wulna areal group

Nlb1 Limilngan (= Limit, Minitja)

Nlb2 Wuna (Wulna)

Nlc Larrakiya (=Gulumirrgin)

NJ Giimbiyu

dialects: Urningangk, Mengerddji, Erre

NK* NORTH-WEST ARNHEM LAND SUBGROUP

NKa* Mawung-Iwaydja subgroup

NKa1 Mawung (=Gun-marung) – Capell and Hinch (1970)
dialect: Mananggari (=Naragani)

NKa2 Iwaydja – Pym and Larrimore (1979)
further dialects: Ilgar, Garik

NKb Amurdag (=Wardadjbak. A'mooridiyu)
dialects: Urrirk, Didjorra

NKc Marrgu (=Terrutong, Yaako, Raffles Bay language, Croker Island language)

NKd Popham Bay language (= Iyi, Limpapiu)

NL Tiwi – Osborne (1974), Lee (1987)

The language situation in Australia

In this volume I attempt to characterise what the indigenous languages of Australia are like, how individual languages have developed their particular structural profiles, and the ways in which the languages are related. A portrait is provided of the Australian linguistic area, which is certainly the longest-established linguistic area in the world.

This first chapter briefly describes relevant aspects of traditional Aboriginal society, the language situation at the time of White invasion and then the prehistory of the continent. A final section deals with the diffusion of cultural traits. Chapter 2 discusses ways of modelling the language situation, and applies the Punctuated Equilibrium model (presented in Dixon 1997). An appendix reviews the status of the lexicostatistic classification and the ‘Pama-Nyungan’ idea, in its various manifestations.

Chapter 3 gets down to business, providing a typological overview of the parameters of grammatical and phonological variation across the continent. Individual topics are then dealt with in detail in the following chapters – vocabulary in chapter 4, case and other nominal affixes in chapter 5, verb systems and inflections in chapter 6, pronouns in chapter 7, bound pronouns in chapter 8, prefixing and fusion in chapter 9, classifiers and noun classes in chapter 10. In chapter 11 there is discussion of ergative and accusative profiles and how languages shift with respect to them. Chapter 12 deals with phonology. Chapter 13 discusses genetic subgroups, small linguistic areas, origin places and directions of expansion, and shifting isoglosses. Finally, chapter 14 ties together some conclusions.

First of all, we should take note of the variable nature of the evidence available.

1.1 A partial picture

The European invasion of Australia began in 1788 at Sydney Cove but did not extend to every area – to the deserts in the centre, or to parts of Arnhem Land in the north – until the middle of the twentieth century. The information we have on individual languages comes from different periods. By the time the first information was recorded on NBf2, Gurrioni, from the north coast, for instance, the language of Sydney (O1, Dharuk) had long ceased to be spoken.

Contact with White civilisation has led to the speedy extinction of Australian languages; in almost every instance, there are no longer any children learning the language within one hundred years of first contact (and often much sooner than that). As a result we have no time depth on any language. There are some reasonable grammars of languages of New South Wales from the 1840s and 1850s but these languages are no longer extant. In no case can we examine how the structure of a language has changed over a period of several generations.

Our knowledge of languages from certain parts of the continent is sketchy in the extreme. For instance, there appear to have been three distinct languages spoken around the mouth of the Burdekin River in North Queensland (my group I); we have just one short word list in each. It is very likely that a number of languages have passed into oblivion without a single word being recorded.

We know of about 240 or 250 languages that are or were spoken by the indigenous people of mainland Australia. More than half of these are no longer spoken or remembered (save for perhaps a sprinkling of words used within the English spoken by their tribal descendants). No more than twenty are currently being learnt by children. The remainder have just middle-aged or old speakers; each decade a few more of these languages cease to be spoken or remembered.

We have good or fairly good materials (a reasonable grammar, together with a dictionary or word list) for about ninety-five languages; these are almost all the result of work by professionally trained linguists, beginning in the 1960s. For about fifteen more languages, descriptions are in preparation. For about 110 languages there are grammatical and lexical materials of lower quality. These include: materials from amateurs of an earlier age (who did not have the idea of phoneme, etc.); work by modern-day linguists that is not of the first quality (and cannot be considered reliable); and materials by good linguists working with the last speaker of a language, who only remembered bits of it. For about twenty-five languages – all now extinct – only word lists are available (including, perhaps, a couple of pronouns).

The linguistic picture that emerges is uneven across the continent. For instance, there is no full description of any language from a twelve hundred kilometre stretch of the east coast, from Townsville to south of Brisbane. For only one of the twelve or so languages originally spoken in Victoria is there a reliable, modern description (this is Ta1, Wemba-Wemba). The language of the south-west corner of the continent (including Perth) is known mainly from an amateur grammar of around 1840 and a short account from the 1970s; the information they give is sometimes unclear and inconsistent (in fact, it is not clear that exactly the same language is being described).

It should be borne in mind, in the chapters that follow, that we are working with a partial picture. A grammatical marker that is attested in one or two languages may well

have occurred in several others, but these other languages were just not described, or not described in sufficient detail.

1.2 **Social organisation and lifestyle**

Before the European invasion there were probably around one million Aborigines in Australia, organised into about seven hundred political groups, which are commonly and conveniently referred to (by the Aboriginal people themselves) as tribes. Each had its own territory, system of social organisation, traditional oral literature and laws, song styles, and its own 'language' – just like the nations of Europe, but on a smaller scale. Aborigines identify themselves as belonging to a particular tribal group; they typically explain that the members of a tribe are 'all blooded', meaning that the normal expectation is to marry within one's own tribe (also see below).

Tribal boundaries typically (but not invariably) run along a mountain ridge or through a strip of barren country. A territory is often centred on some important water feature(s) and will frequently include a number of different ecological zones, with people moving around according to the season, following the pattern of food availability. Each Aboriginal family group has an association with a particular place, which they have a responsibility to take care of and maintain. Rumsey (1993) suggests that in Australia a language is linked to a tract of land; and a person is linked to a place, and hence to the language of that place. Thus, Jawoyn people are Jawoyn not because they speak Jawoyn, but because they are linked to places with which the Jawoyn language is associated. And **THUS** they speak Jawoyn.

The Australian Aborigines never developed agriculture. Like almost all hunter-gatherer communities across the world, there is no chief and no set of stratified social classes. Everyone in a tribe has specific social obligations towards everyone else, according to a finely articulated classificatory kinship system.

Aboriginal religion is, in large part, pragmatic. It is believed that ancestral spirits created the country, and the places and foodstuffs in it; knowledge about them is handed down from generation to generation. Religious practice involves understanding the sacred traditions of one's group, their relationship to the land and to totemic animals and the like, and organising one's life in the way that tradition demands. There are no gods, before whom one has to be humble, and no praying. Small wonder that Aborigines are said to have been one of the most difficult of the peoples of the world to convert to Christianity.

Related to their religious attitudes, Aborigines have a strong sense of history. They tell stories from the far distant past (see (7) in §1.4 below) and their kinship system distinguishes ancestors from each past generation. These are often organised in a cyclic pattern. For example, the same terms may be used for grandparents and grandchildren, with great-grandparents then being called by the same terms as one's children, and great-grandchildren by the same terms as one's parents and their siblings.

There is (or was) a classificatory kinship system, with every person in a community related to every other through a series of mathematical-like rules of equivalence. Each Australian community has strict conventions for how one should behave with each class of relatives. Certain classes constitute avoidance relationships – typically, classificatory mother-in-law and classificatory son-in-law. They should not look at each other, nor speak directly to each other. Indeed, in many communities there was a special speech style (sometimes called ‘mother-in-law language’ by bilingual Aborigines) which had to be used in the presence of an avoidance relative. This generally has the same phonology as the everyday language style, and usually the same grammar, but a different form for each of the most common lexemes (in a couple of instances, a different form for EVERY lexeme). See §3.4.

Young men were initiated at puberty. This involved circumcision and subincision over wide bands of territory down the centre of the continent (see map 1.3); and the cutting of cicatrices in some other areas. At this time they also underwent a lengthy period of instruction in traditional wisdom. A few groups had a special ‘initiation language’, which was taught to boys at that time and could only be used among initiated men. Among the Lardil of Mornington Island this employed a totally different phonetic system from the everyday language style (see §3.4).

Each tribe also had a number of song styles with distinctive musical format, accompaniment, scansion, subject-matter, and social role. Songs use some words from the spoken language style but there are often special words that only occur in songs, and also archaic words and other archaic features (see §3.4).

Every Australian tribe appears to have had more-or-less stable relationships with its neighbours. There would be regular trade of manufactured items; and periodic meetings between neighbouring groups to settle disputes by controlled bouts of fighting, to arrange marriages, and to exchange new songs and news. There could be varying degrees of hostility (with resulting fear) and some killings between neighbouring groups, but there are few reports of uncontrolled war and massacre (such as commonly occur in every other continent) in Aboriginal Australia.

A spouse would generally be taken from another group of the same tribe but sometimes from a neighbouring tribe – in the latter case, an exchange marriage in the opposite direction would often also be organised (man for woman, woman for man). Partly as a result of this, and partly because of a sociocultural habit of learning languages, most Aborigines were at least bilingual and many were multilingual – they could speak at least one language besides their own and would often understand several more.

1.3 The languages

The term ‘language’ is used in a number of different ways. One is as a marker of political identity – in this sense, each of the seven hundred or more tribal groups in

Australia has its own language. In this book I shall use the term 'language' in the technical sense of linguists – if two modes of speech are mutually intelligible they are said to constitute dialects of a single language. One can write an overall grammar of the whole language, with notes on dialectal variation.

On the linguistic criterion, there were about 240 or 250 indigenous languages known to have been spoken in Australia. Almost all of these had a number of distinct dialects, each associated with a tribal group, or with a subdivision within a tribe. For the people themselves it is the tribal dialect (= political language) that has a name (in all but a very few instances) – for example, Pitjantjatjarra, Yankuntjatjarra and Pintupi in the western deserts area. Speakers of Pitjantjatjarra, Yankuntjatjarra and Pintupi recognise that these are mutually intelligible and – once the linguistic sense of the term 'language' is explained to them – acknowledge that they are dialects of one language. But this language had no name, in traditional times. There is now an accepted label. 'The Western Desert language' is currently in use, by Aborigines and non-Aborigines, to describe a chain of dialects, each mutually intelligible with its neighbours, which extends over one and a quarter million square kilometres (one-sixth of the area of Australia).

In other situations no appropriate name has come into use. I have worked on a language in North Queensland that includes at least a dozen dialects (tribal languages) including Girramay, Djirru, Jirrbal, Gulngay, Mamu and Ngadjan. There is no accepted overall name. I have employed 'Dyirbal' as a label for this linguistic language; it is an alternative spelling of the name for a central dialect (Jirrbal) which had the most remaining speakers when I began linguistic work, in 1963. But speakers prefer to refer to their tribal language names – Girramay, Ngadjan, and so on. Throughout this work I have had to make up names (like Dyirbal) for what are languages on linguistic criteria; they are simply labels of convenience.

I have had to make decisions concerning 'what is a language (in the linguistic sense)' and 'what is a dialect'. Where there is a living language situation – such as for the Western Desert language – this is generally not a difficult matter. There will be the opinions of native speakers concerning intelligibility, and the detailed studies of linguists; these almost always give the same results.

In areas where languages are no longer spoken, one has to compare whatever information is available on vocabulary, phonology and grammar, and try to assess what the language situation was. In some instances there can be historical corroboration. For example, examination of materials from Jaja-wurrung, spoken around Franklingford and Maryborough in western Victoria, suggests that it was a dialect of the language I call Ta1, Wemba-Wemba, extending to the north and west. Wadha-wurrung (my Ta2) was spoken immediately to the south of Jaja-wurrung, around Lal Lal, Buntingdale and Bal-larat. Wadha-wurrung and Jaja-wurrung share about 45 per cent general vocabulary but show considerable grammatical differences, suggesting that they would not have been

intelligible, and belonged to distinct languages. This inference is supported by a report of E. S. Parker, Assistant Protector of Aborigines at Franklingford, who states that Rev. Mr Tuckfield from Buntingdale preached to his wards on 2 May 1842 but 'the Widouro [Wadha-wurrung] language, I found, was understood only by a few [bilingual] people, and Mr Tuckfield, who is acquainted only with that language, could not be understood by the majority. Many of the words are identical, but others so essentially different as to make the two dialects distinct languages' (Morrison 1966: 61).

In a few instances the patchy nature of documentation may make it hard to decide 'what is a language?'. First consider a situation for which we have good information. Within the Dyirbal language, H1, there is a chain of dialects running for about 150 km through the rain forest from Malanda down to Cardwell – including Ngadjan, Mamu, Gulngay, Jirrbal and Girramay. Each has 80–85 per cent vocabulary in common with neighbouring dialects and very similar grammar, clearly indicating that we do here have a single language. The end dialects, Ngadjan and Girramay, share only about 50 per cent general vocabulary but have a higher score for verbs and closely similar grammar. However, if all we had from this area were a short word list for Ngadjan and the same for Girramay, with no information on verbs or grammar, and no documentation of the intervening dialects, it would be impossible to recognise Ngadjan and Girramay as dialects of a single language. Indeed, on the 50 per cent lexical score, we would tentatively suggest that they constituted distinct languages. ('Tentatively' because of the patchy nature of the material available.)

In other areas, we do have patchy materials similar to those just imagined for Ngadjan and Girramay. For instance, there are data on five speech varieties in a region between Mount Mulgrave, Kalinga station and the Palmer River, North Queensland – Aghu-Tharrnggala, Ikarranggal, Koko-Possum and two varieties of Kuku-Mini (sharing only 46 per cent general vocabulary). Grammatical data are available only for Aghu-Tharrnggala. I have tentatively grouped all of these into one language (De2, Kuku-Mini), but if fuller information were available it might indicate that we have more than a single language here (probably not five, but possibly two or three). Similar remarks apply for WE2, Kalaaku, on the Bight.

As an example of the opposite sort, just north of Perth there is a set of tribal dialects for only two of which we have substantial data; almost certainly there were further dialects which disappeared without being recorded. I have tentatively recognised these as constituting six distinct languages, making up the Watjarri/Parti-maya subgroup, WGa. A case could be made out for WGa being a single language which consists of a long dialect chain. Or else something between one and six languages. In instances like this, where the data are scanty, inferences have to be tentative.

In summary, it is generally (although not universally) possible to decide on 'what is a language?' when full documentation is available. But in many parts of the conti-

nent the documentation is patchy. As a result, our estimate of the number of languages (recognised on linguistic, rather than on political, criteria) spoken in Australia at the time of the European invasion must be in the form of a range – probably somewhere between about 230 and about 300. There may, in addition, have been a few languages for which nothing was recorded. In some instances we just have a tribal/language name, but not even a short word list, and so cannot tell whether this group spoke a further dialect of an already recognised language, or some quite different language.

1.4 Prehistory

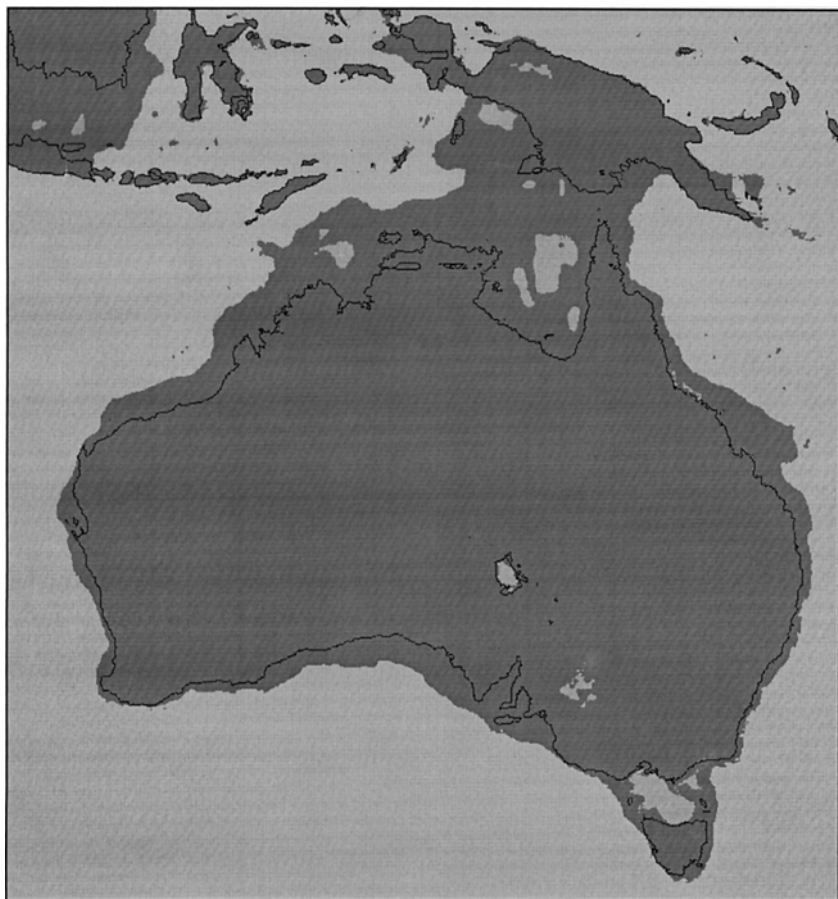
It is appropriate now to consider some relevant pieces of information concerning the prehistory of Australia, and of its Aboriginal population.

(1) *Land mass and sea levels.* From about 125,000 BP, Australia and New Guinea formed one land mass. There was fluctuation in sea levels and, consequently, in the coastline. For example, at about 50,000 BP there was just one land bridge, where the Torres Strait now lies. 25,000 years later there was a continuous land bridge across what is now the Torres Strait and the Arafura Sea; see map 1.1. The western portion of this bridge became submerged about 10,000 BP and with the Torres Strait following about 7,000 BP. By that time, the coastline of Australia was essentially as it is today.

Tasmania was isolated from Australia until about 40,000 BP, when two land bridges emerged, on the east and west of what is now Bass Strait. The western bridge probably disappeared around 17,000 BP with the eastern one following by about 14,000 BP, once more isolating Tasmania.

Map 1.1 (provided by Kurt Lambeck) shows the likely shape of the land mass at about 25,000 BP. At that time, the coastline was further out right around the continent; down the east coast it was about where the Great Barrier Reef now stands. A great deal of the Timor Sea region was land but there was at all times a water gap, of around 100 km or more, between the Australia/New Guinea land mass and Timor. Notice also the inland lakes – one in the middle of where Bass Strait now lies, several in what is now the Gulf of Carpentaria, and one just north of what is now Joseph Bonaparte Gulf (on the Northern Territory/Western Australia border). See Lambeck and Chappell (2001).

(2) *Changing water resources.* There have been profound physical changes in Australia within the past few tens of millennia. Geographers believe that – in terms of varying water resources – the land which supported perhaps one million Aboriginal people in 1788 would have provided for substantially less than that number twenty thousand years ago, but it could well have supported rather more than the 1788 population ten thousand years before that.



Map 1.1 Likely coastline (and maximal extent of inland lakes) for the Australia/New Guinea/Tasmania land mass at about 25,000 BP (with the modern coastline superimposed)

(3) *Human time-depth*. All archaeologists are agreed that people have been in the Australia/New Guinea land mass for at least forty thousand years; some would say fifty thousand years (and a few would opt for a longer occupation).

There is agreement that the first settlers are likely to have arrived from South-east Asia, simply because there is nowhere else from where they could conceivably have come. The sea level was relatively low on several occasions around 50,000 BP; at that time there would have been a number of short sea voyages necessary to travel from the South-east Asian land mass (which then extended to Bali) to Australia/New Guinea. Birdsell (1977) investigated a number of alternative 'island hopping' routes. For

instance, a route from Kalimantan via Sulawesi to New Guinea involved ten water gaps, the largest of 93 km, while a route from Bali to the Kimberley coast of Western Australia involved eight water gaps, one of 87 km, one of 29 km, one of 19 km, with the remainder each being less than 10 km. (Butlin 1989 discusses a similar scenario.) This presupposes good navigational skills, and fairly sophisticated water craft, which must have required cooperative effort to build.

Archaeologists tell us that there were people living in Tasmania by about 35,000 BP. This is soon after the date of 40,000 BP, given for the establishment of a land bridge with the mainland.

Food resources will not have been constant during the time that people have been in the Australia/New Guinea land mass. Types of available plant food will have varied with climatic changes. Archaeological investigations suggest that giant marsupials roamed Australia at the time of the first human settlement, not becoming extinct until 35,000 or 30,000 BP. It is not known to what extent (if any) their demise is related to their being hunted by early settlers.

(4) *Time needed to populate the continent.* When a group of humans comes into some unoccupied land they tend to reproduce and fill it within a fairly short time (witness the Maoris in New Zealand). Birdsell (1957) has shown that – where there is unlimited possibility for expansion in terms of land and food resources available – a population is likely to double each generation. On this basis, it might have taken little more than two thousand years from the arrival of the first immigrants in Australia for all parts of the continent to have been populated to the limits of their food-bearing resources.

There are different ways in which the Australia/Tasmania/New Guinea land mass could have been populated. The first people to arrive could have expanded and split and journeyed right across the continent. Or they could have travelled around the perimeter, fully populating the coastal regions and only at a later date venturing inland (see Bowdler 1977, 1990).

(5) *Non-continuous occupation.* Kangaroo Island (south-west of Adelaide) is known to have been occupied from about 16,000 BP until about 4,500 BP. After that time no one lived there, although it is a fertile and hospitable place; no explanation is known for this abandonment. (Note that Kangaroo Island is clearly visible from the adjacent mainland.)

No systematic information is available on the continuity or discontinuity of occupation for mainland areas. However, it is very likely that there were ebbs and flows in the population pattern. Once the continent had been fully populated it is likely that there would always have been people living along the coasts and major rivers. At times

when water resources were scarce – around 20,000 BP and probably also at other times – there may have been no one living in other inland areas; these would have been repopulated when the rainfall once more increased.

(6) *Physical homogeneity.* Aborigines appear to be relatively homogeneous in their physical type. There is no obvious evidence for several different races, which may have entered the continent at different times and perhaps by different routes (and, presumably, speaking different kinds of languages).

However, there is one small group of Aborigines which does stand out physically from the remainder. Tindale and Birdsell (1941) reported a distinct, pygmoid people in the eastern coastal and mountain region near Cairns. We shall discuss this in §2.3.

(7) *Legend as history.* All along the east and south-east coasts Aborigines have legends that clearly relate to historical facts (note that not all legends have an historical basis, but a number undoubtedly do). In 1850 Aborigines from the Melbourne area told a white settler that a long time in the past Port Phillip Bay was dry land, and described the path that the Yarra River then followed to the sea; this accords with what the geographical facts were about ten thousand years ago (McCrae 1934: 176; Blake 1991: 31–4 and further references given there). The Torres Strait islanders have legends that it was once possible to walk from Australia to New Guinea (Bani 1988). All down the east coast there are legends that the coast used to be further out. Along the Queensland coast it is said to have been where the Great Barrier Reef now stands – which is where it was, about ten thousand years ago.

In 1964 George Watson of the Dulgubarra Mamu tribe (speaking a dialect of H1, Dyirbal) recorded a Dreamtime story concerning the origins of Lakes Eacham, Barrine and Euramoo volcanic craters on the Atherton Tableland (this story is shared with the neighbouring Yidinj-speaking tribe). After two newly initiated men had broken a taboo and angered the rainbow serpent, ‘the camping place began to change, the earth under the camp roaring like thunder. The wind started to blow down, as if a cyclone were coming. The camping-place began to twist and crack. While this was happening there was in the sky a red cloud, of a hue never seen before. The people tried to run from side to side but were swallowed by a crack which opened in the ground . . .’ (Dixon 1972: 29).

This is a plausible description of a volcanic eruption; yet these craters are thought to have been formed at least seventeen thousand years ago. What is even more significant, after George Watson had recorded this story (in 1964), he remarked that when the lakes were formed the country around them was not rain forest, as it is today, but just open woodland. In 1968, Peter Kershaw (1970) showed, by a dated pollen sample from the organic sediments of Lake Euramoo, that the rain forest in the area is

only about 7,600 years old, providing scientific verification of what George Watson had recorded, in legend, four years earlier.

All this suggests that the indigenous inhabitants of Melbourne, the Torres Strait Islands, the east coast and the Atherton Tableland were continuously in occupation for over ten thousand years, or else that they took over historically based legends from such people as they displaced. We should also note that quite a few tribes have legends concerning where their ancestors came from, which in a fair proportion of cases do correlate with the direction of linguistic relatedness – see Dixon (1996); this is further discussed in §13.3.

(8) *Isolation.* The Aborigines of Australia and the Papuans of New Guinea were, of course, living in a single land mass until about seven thousand years ago. Since their separation there has been extensive invasion of people speaking Austronesian languages along several coastal regions of New Guinea (this took place between three and four thousand years ago). Somewhat surprisingly, there is no evidence of any Austronesian peoples having come to live permanently in Australia.

Macassans, speaking an Austronesian language, came on a seasonal basis to fish off Arnhem Land and had contact with coastal tribes there (Macknight 1972, 1976); some Aborigines went back with them and stayed for a year or two in Macassar. The Macassans did not, however, invade the country or attempt to settle. A number of Macassarese words were taken as loans into Australian languages (see Walker and Zorc 1981, Evans 1997c) but there was no substantial linguistic influence – almost all borrowings were nouns, with no grammatical morphemes and very few verbs (perhaps just ‘to count’, ‘to write’ and ‘to dive’, ‘to work’ and ‘to paddle, row’).

The Macassan contact is believed to have commenced around AD 1600 and was terminated by the Australian government in 1907. This is unlikely to have been a unique instance of occasional contact between Australians and other peoples. Indeed, it is probable that there were other episodes of this type, at various times after the initial colonisation of the Australia/New Guinea land mass.

(9) *The dingo.* The Australian dog, called the dingo (from the name for tame dog in O1, Dharuk, the language of Sydney) is a close relative of dogs in Thailand and nearby countries of South-east Asia, which arrived there about five thousand years ago. In Australia, archaeological sites with dates of up to about 3,500 BP show evidence of the dingo; older sites lack this. (Note also that there were no dingos in Tasmania.) See Corbett (1985).

There are several ways in which the dingo could have arrived. Aborigines could have travelled afield (as some later did, with the Macassans) and fetched dingos back. Or else some visitors (perhaps similar to the Macassans in later times) could have left a

pair of dingos. It is possible that the dingo came in with a wave of invaders but there is no corroborating evidence for such an event and it remains an unlikely hypothesis.

(10) *Susceptibility to disease.* Because of their long isolation, Aborigines (like Indians of the Americas, but unlike Africans) were particularly susceptible to new diseases – such as measles, influenza, smallpox and syphilis – to which they had no immunity. When smallpox was introduced into the Sydney region in 1789 it killed about half of the local people and it is believed to have spread to neighbouring tribes, maybe across much of the continent. Crosby (1986: 206) states that there were three more epidemics of smallpox in the nineteenth century. In many regions tribal population had fallen markedly – due to the rapid spread of introduced diseases – before the White invader arrived in person. (The invader dealt further blows through seizing hunting grounds for livestock, killing some of the people, and exiling many of the remainder to distant missions and government settlements.)

It is possible, even likely, that things like this happened in the past, causing a sudden drop in population. It would only need one boat to be shipwrecked on the Australian coast, containing someone with smallpox or measles or perhaps just a bad cold, for this to spread across the continent. In contrast, the shift in water resources would have produced a more gradual population change. We will return to these points in the discussion of a Punctuated Equilibrium model, in the next chapter.

Birdsell (1993) compared the physical characteristics of Aboriginal people from right across the continent. He noted one major discontinuity. 'The western tribal boundary of the Aranda [is] characterised by unusual steepness involving blood group genes A, and blood type N. In terms of population dynamics, this feature can only be interpreted as indicating the coming together of populations with very different demic genetic contents. Since the slope is steep, it implies that the event took place in fairly recent times past' (Birdsell 1993: 453). Birdsell is referring to the boundary between groups WL, the Arandic languages, and WD, the Western Desert language, on my map. His conclusion would be compatible with WD having originated near the west coast and expanded eastwards through the desert rather recently, eventually coming into contact with WL; this is discussed further in §13.3.

1.5 Diffusion of non-linguistic traits

Virtually all of the technological and sociological characteristics of Australian Aboriginal society each occurred over a continuous area, suggesting a pattern of diffusion. For example, Mulvaney (1975: 224–5) demonstrates how each of the various types of stone tools occurred over a continuous area.

Elkin (1954: 20) reports that the boomerang was found everywhere save in Tasmania, the west of South Australia (that is, south-eastern dialects of WD, the Western Desert

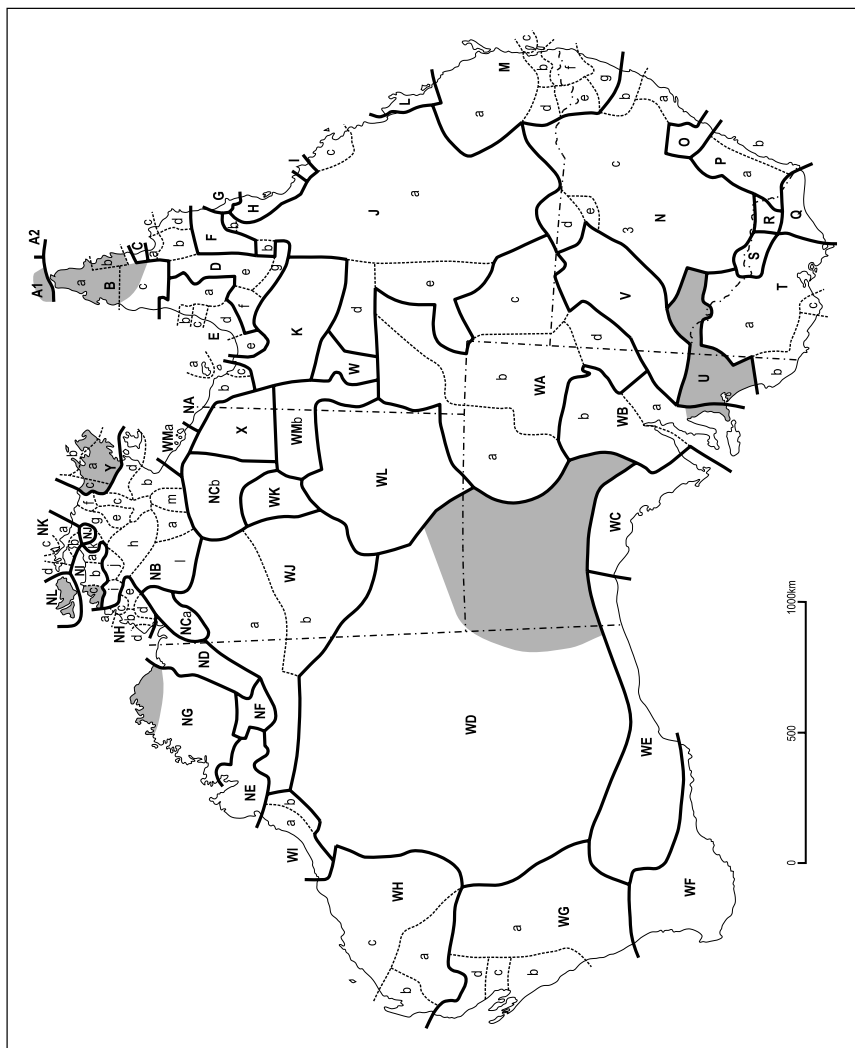
Language), the North Kimberley region of Western Australia (the northern part of group NG) and north-east Arnhem Land (subgroup Y). My comparative word lists suggest that a curved boomerang, used for hunting and fighting, was also absent from the northern tip of Queensland (groups A, Ba, Bb and part of Bc); from NL, Tiwi; from N1c, Larrakiya, at Darwin; from the Lower Murray areal group, U; and from the adjacent Kaurna dialect of WBa, at Adelaide (see also Jones 1996: 26, 46, 68, 80, 85, 104, 127). In the Yolngu region, the boomerang was used only in ceremonial contexts, and as clapsticks to accompany certain songs, not as a hunting or fighting weapon (the same may have applied in some Western Desert dialects – see Brokensha 1975 – and in some dialects of Wik languages, Bc).

Map 1.2 shows those places that are known to have lacked the curved boomerang as a hunting and fighting weapon at first contact with European invaders. Note that all but one of these are on the fringe of the continent, suggesting that use of the boomerang diffused over a continuous area but had not yet reached a few enclaves on the periphery. (In addition, the boomerang is missing from the Lower Murray areal group, U, which shows other archaic characteristics – see (I) in §13.2).

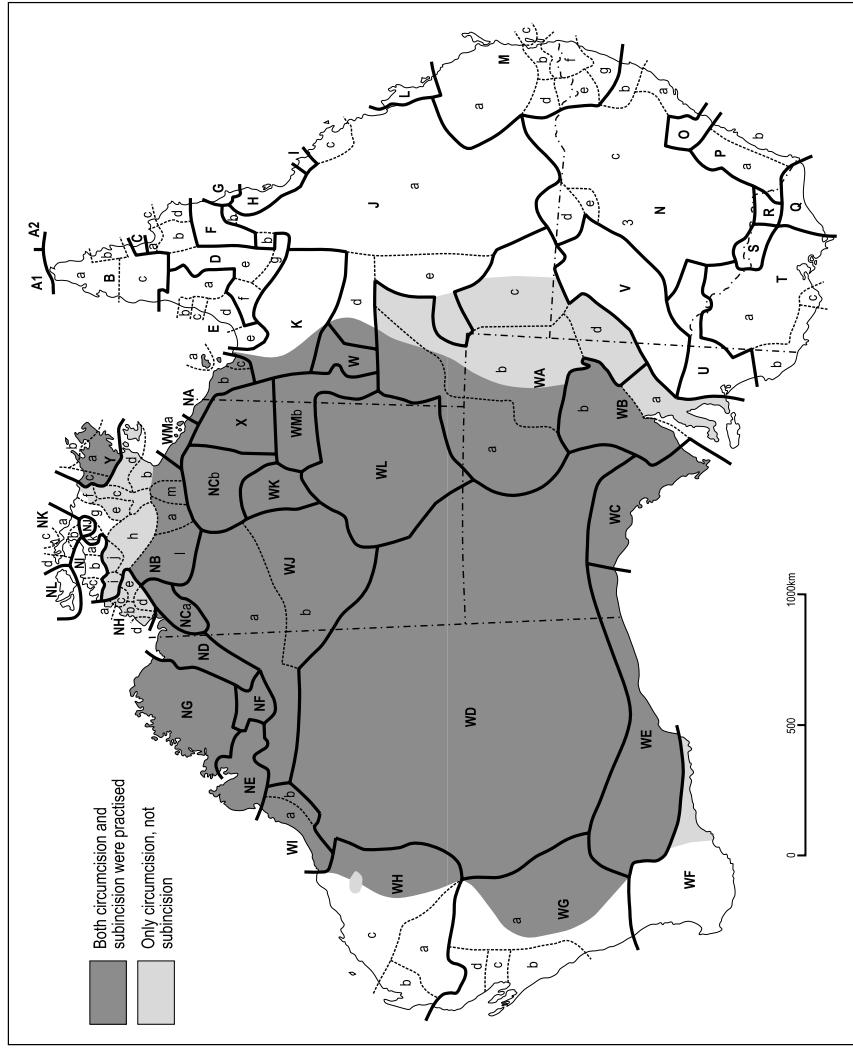
Indeed, this diffusion continued after the European invasion. Speakers of NG1, Worrorra, did not originally use the boomerang; however, after Worrorra men came to be employed in the cattle industry, and had contact with speakers of northern dialects of WD, the Western Desert language, they adopted the boomerang and the Western Desert name for it, *karli* (Mark Clendon, p.c.).

Sometimes we can identify the focus of diffusion for a feature. The use of dug-out canoes plainly permeated down from the Torres Strait as far as Princess Charlotte Bay and the Bloomfield River. Mulvaney (1975: 113) maps the distribution of baler shell ornaments, which came from the eastern coastal waters of the Cape York Peninsula and travelled as far as South Australia; and pearl shell ornaments from the Kimberley coast of north-western Australia, which were traded across to Queensland and South Australia.

Over a large part of Australia, initiation rites for young men included circumcision (cutting off the foreskin) and, at a later stage, subincision (slitting the underside of the penis to create a permanent opening into the urethra). Map 1.3 (based on Tindale 1974) shows the geographical extent of these two rituals. In the dark-shaded region, down the middle of the continent, both circumcision and subincision were performed. In the lighter-shaded areas, on the edge of the darker region, just circumcision was practised. Each of these rites applied over a continuous area and had plainly spread by diffusion; the diffusion was continuing at the time of White invasion. It will be seen that the boundaries of the circumcision and subincision areas run through the middle of a number of language groups – WH, WG and WF in the west; WB, WA, Jd and K in the east centre; and NBb and NBf in the north.



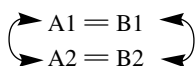
Map 1.2 Places known to have lacked the curved boomerang as a hunting and fighting weapon at the time of European invasion



Map 1.3 Areas in which circumcision and subincision were practised

It is useful to study maps showing the distribution of non-linguistic features, in order to facilitate comparison with the ways in which linguistic features diffuse, illustrated in later chapters. I include here one further map (1.4), showing the distribution of the several kinds of social organisation.

There are basically three types of social groupings in Australia. Some tribes have a system of two moieties, A and B; generally, a person from moiety A must marry someone from moiety B and the children will be the same moiety as the mother (in a matrilineal region), or the same moiety as the father (in a patrilineal region). The second type of system involves four sections; a woman from section A1 should preferentially marry a man from section B1; their children are A2 (in a matrilineal system) and should take a spouse from B2. That is, where = indicates marriageability and $\longleftrightarrow$ a parent-child link:

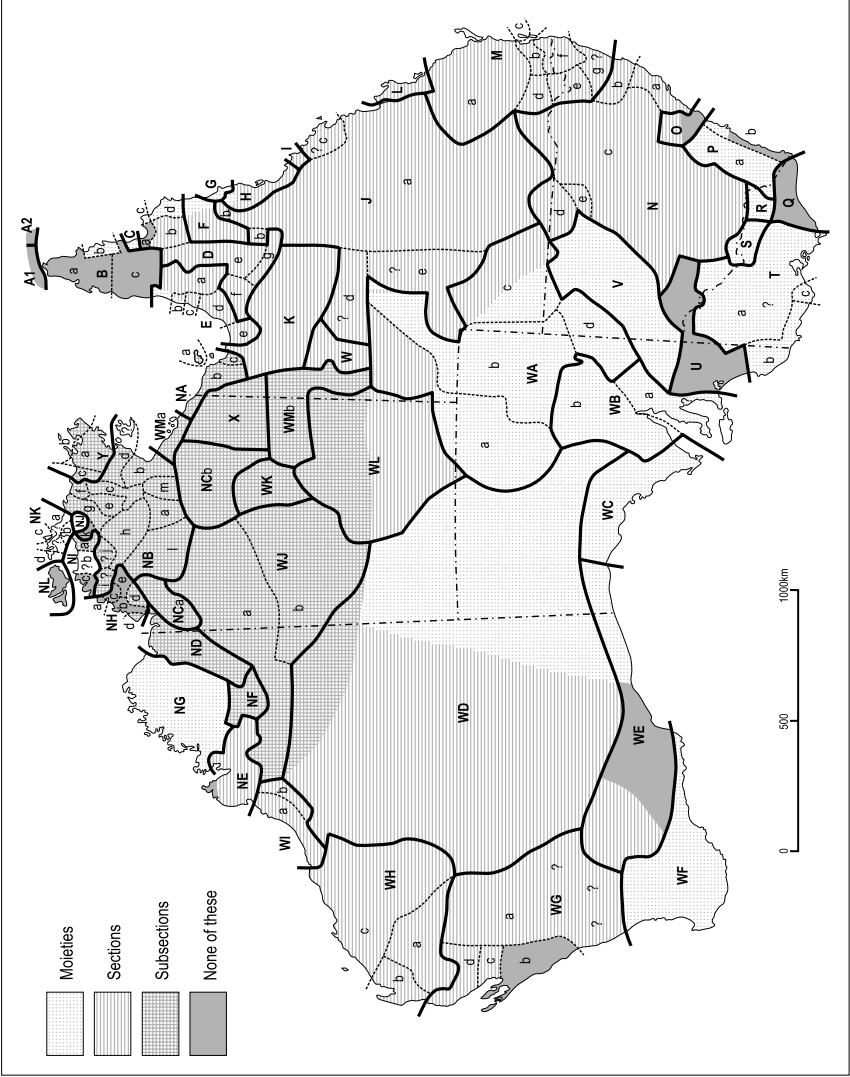


Effectively, each moiety is divided into two sections. In the third type, each section is again divided into two – we have eight subsections. Just a few tribes had none of these systems – no named divisions at all.

Map 1.4 summarises (with some simplifications and extrapolations) the geographical occurrence of these four possibilities. (Fuller details, including specification of patrilineal and matrilineal descent, will be found in Radcliffe-Brown 1931 and in Berndt and Berndt 1988: 40–68.)

The following points should be noted:

- (1) Subsections are found in a continuous area in the north-centre. McConvell (1985) undertook a detailed and perceptive study of the distribution of subsection systems and the names for the subsections. These names have masculine and feminine prefixes which McConvell identifies as originating in NCa2, Nungali, spoken just north of the lower Victoria River, Northern Territory. By examination of the forms of subsection terms he suggests that the system came about through the amalgamation of two existing section systems, one originating in the Pilbara region of Western Australia and the other originating south of Darwin. The two section systems may have been collated, to form a subsection system, through marriage exchange between different tribes. The system would have been innovated by the Nungali and then spread, by diffusion, to the south-west, south, south-east, east and north-east.
- (2) Sections (including also subsections) are found over a continuous area.
- (3) Moieties are, with one exception, found in peripheral areas, on or very near the coast. The exception comprises a big inland block involving languages in groups WA and WB.



Map 1.4 Approximate distribution of moiety, section and subsection systems

- (4) Areas where there are no named social divisions lie almost entirely along the coastal fringe. The only significant inland block is the Lower Murray areal group, U.

When we look at the actual terms for the social divisions we find that the same names recur for subsections in a high proportion of the tribes showing this kind of system. Section terms also tend to recur over a wide area, although there is less homogeneity than for subsection terms. Moiety terms show the greatest differentiation from language to language.

All this suggests that the moiety system came first. It probably began in one tribe and gradually diffused across almost the entire continent, failing to penetrate only a few peripheral enclaves, dark-shaded on the map. Then came the section system, again diffusing over a continuous area. And, most recently of all, a subsection system replaced a section (or a moiety) system over the continuous area shown by cross-hatching on the map. Indeed the subsection area was still expanding at the time of White contact and its spread can be dated. By 1912 it had reached the Upper Katherine and Upper Roper Rivers (my NBa and NB12) but did not get to Oenpelli (NBg2) until a little later (Elkin, Berndt and Berndt 1950–1: 260; see also Elkin 1950, 1970; Berndt and Berndt 1954: 8).

The point to note is that here, as in all other instances of diffusion, a particular feature spread without any regard for other social parameters or for the typological profile or genetic affiliation of languages. Indeed, the diffusion has sometimes reached only half-way across a language. The northern groups speaking WL1, Arrernte, and northern groups speaking WD, the Western Desert language, have subsections – like their neighbours to the north and east – while the southern WL1 and WD groups just have sections – like their neighbours to the west, south and east. The Ngadjan tribe, speaking the most northerly dialect of H1, Dyirbal, have moieties – like their neighbours to the north – while the southern tribes speaking dialects of Dyirbal have sections – like their neighbours to the west and south.

As the story of linguistic diffusion in Australia evolves in the remainder of this book, it will be seen that the distribution of linguistic features is typically continuous, similar to the patterns shown in the three maps presented here. And the geographical spread of one feature is seldom related to that of another.

Songs and ceremonies also diffuse. We even have one oft-quoted example where the rate of diffusion is documented. W. E. Roth described how the Molonga ceremony was first performed at Carandotta on the Georgina River in 1893, having been brought from the north-west. From there it diffused in three directions – west, east and south; by 1896 it had been performed at several localities up to 320 km distant from Carandotta. The ceremony was then reported at Alice Springs in 1901, at Kilalpaninna (800 km south of Carandotta) also in 1901, and was finally recorded by Daisy Bates in 1918 at

Streaky Bay (to the east of the Nullarbor Plain), 1,200 km from the place where Roth had witnessed it twenty-five years before. (See Roth 1897: 117–18; Bates 1930; Mulvaney 1976; Hercus 1980.)

All of the types of diffusion discussed so far have involved purposeful imitation of one's neighbours. There is also diffusion of another sort, the spread of genetic features. J. B. Birdsell (1950, 1993) investigated, among other topics, the distribution of a type of tawny hair among Aboriginal groups in the centre and west. The phenotype frequency is very high in some Western Desert tribes, and tails off as one moves in any direction from this focus. Birdsell suggests that tawny hair may be due to a partially dominant gene which could have begun with a single mutation; it then dispersed, moving at a fairly constant rate from one tribe to another as it was spread by inter-tribal marriage.

The remainder of this volume will study patterns of linguistic diffusion, which show considerable similarities to the patterns of diffusion of non-linguistic traits discussed above.

Modelling the language situation

This chapter outlines the methodological basis for those that follow. A large part of it summarises points from *The rise and fall of languages* (Dixon 1997) with a few sections being taken verbatim from that essay. For a fuller discussion the reader is referred to *Rise and fall*.

§2.1.1 lists the assumptions underlying this work, §2.1.2 discusses kinds of explanation for similarities between languages, and §2.1.3 assesses the applicability of the family tree model. §2.1.4 deals with different kinds of linguistic diffusion – phonetic and phonological; grammatical categories, construction types and techniques; grammatical forms; and lexemes. Then §2.1.5 explains how the ‘50 per cent equilibrium level’ of vocabulary similarity typically applies, in the Australian linguistic area, for languages which have been in contiguity for a considerable period of time.

§2.2 explains the Punctuated Equilibrium model. §2.3 deals with the language situation in Australia, New Guinea and Tasmania, which were one land mass for most of the time that languages have been spoken in this part of the world, and puts forward a tentative scenario for the development of the Australian language situation. Then §2.4.1 briefly mentions social conditions for languages to split, and §2.4.2 enquires whether it is possible for two languages to merge. The appendix deals with lexicostatistics and the ‘Pama-Nyungan’ hypothesis.

2.1 Preliminaries

2.1.1 Assumptions

In any scientific endeavour it is appropriate to set out the principles which are followed. I make the following five assumptions:

- (1) Every language, and every dialect within a language, is always in a state of change. The speech of each generation is slightly different from that of the preceding one.
- (2) The rate at which a language changes is not constant and is not predictable. Rather, it depends on many factors – these include what other languages speakers of the given language are in contact with,

and speakers' attitudes towards their own language and towards other languages.

- (3) Grammatical forms invariably change at a slower rate than lexical forms.
- (4) There is no universal principle that one portion of vocabulary always changes at a different rate from other portions. Two comments are needed on this.

Firstly, in many parts of the world it is possible to discern a small general core vocabulary (words of 'relatively stable character', Swadesh 1951) which is replaced at a slower rate than non-core vocabulary. This does not apply in Australia where counts of vocabulary similarity between languages give roughly constant results (to within about 5 per cent) whether two hundred words are compared or two thousand.

Secondly, in Australian languages verbs are replaced (generally through borrowing) at a slower rate than nouns. This is a characteristic of many language situations around the world but not of all; that is, it is not a universal.

- (5) In the normal course of spontaneous linguistic evolution, each language has a single parent. That is, when two groups of people – each speaking a distinct language – merge to form one community, with a single language, this will be a genetic descendant of just one of the original languages, not of both of them equally (it is, however, likely to have a sizeable substratum or superstratum from the second language). In §2.4.2 below we discuss a special case relative to this issue.

Thomason and Kaufman (1988) purport to give a number of counter-examples, where a language appears to have taken its grammar and lexicon almost equally from two source languages. However, these appear all to relate to non-spontaneous language evolution, where a particular group deliberately creates something in the nature of a mixed language to be a marker of their ethnic identity.

There are no instances reported from Australia of the purposeful engineering of a language which is the regular means of communication for a group. But there are special auxiliary languages that appear to have been deliberately created; these are briefly discussed in §3.4.

2.1.2 *Types of similarity*

Two languages can resemble each other (a) in the categories, constructions and types of meaning they use; and (b) in the forms they employ to describe these.

There are basically five types of explanation for (a) and (b). Two are fairly minor: universal properties (for example, the *mama/papa* trait, whereby words for 'mother' tend to involve a nasal and those for 'father' a stop – see Jakobson 1960); and chance resemblances (for example *dog* in English, which descended from *dogga* in Old

English, and the corresponding form *dog*, [dok], in Jb1, Mbabaram, a reflex of **gudaga* – see §12.4.4).

The more pervasive explanations for similarity are borrowing/diffusion, parallel development and genetic retention.

(I) *Borrowing or diffusion*. Two languages in contact – where a significant proportion of the speakers of one also have some competence in the other – will gradually become more like each other. This is discussed in §2.1.4.

(II) *Parallel development* (sometimes called ‘convergent development’). Two languages (of the same genetic group, or from the same linguistic area) may share an inner dynamic which propels them to change, independently, in the same way. One example is the independent development of the second person singular verbal ending *-st* in English and in German (Greenberg 1957: 46); there are further examples in Sapir (1921: 171–8).

There are a number of examples in Australia of changes which appear to reflect parallel development of languages within this long-established linguistic area, including many of the instances of cyclic change. These are discussed throughout the book and summarised in chapter 14.

(III) *Genetic retention*. If two languages descend from the same ancestor then they are likely to have similar categories, and meanings expressed by similar forms. The important thing to note here is that for some point of similarity to be recognised as a mark of genetic affiliation it must be of Type (b). That is, the forms and their meanings must either be identical or else easily relatable, through established rules for phonological change and semantic change in the languages.

Similarities of Type (a) – that is, similarities in categories, constructions and meanings, without similarities in the forms that express them – do not provide evidence of genetic connection. If, for example, two languages both have a system of tones, and a periphrastic future formation, and two varieties of passive (but without any concomitant formal correspondences) then they are simply in the same three typological classes, nothing more. (Dixon 1997: 31–4 mentions instances where typological similarities have, erroneously, been taken as indicators of genetic relationship.)

2.1.3 *Family trees*

A ‘family tree’ diagram is the most pervasive and perhaps the most satisfying metaphor for the relationship between languages. But it is by no means a sufficient model.

Let us first clarify what it is, and what it represents. If a number of languages are claimed to be related in a family tree it implies that they all descend from a common ancestor. This is not something which can just be asserted, like an opinion; it must be proved. There is only one strategy of proof. It is necessary to reconstruct a good

deal of the proto-language, and then set out the systematic changes through which each modern language developed from the proto-system. The reconstruction must cover the phonological system, a fair number of lexemes (relating to a wide range of semantic fields) and significant parts of the grammar, including pronouns, noun morphology and verb morphology (preferably relating to full paradigms rather than just isolated forms).

This is perhaps the most scientific aspect of linguistics. Genetic relationships can be proved, on a scientific basis; as they have been – for Indo-European, Uralic, Dravidian, Algonquian, Austronesian, and other families. However, there are a number of other collections of languages which are often referred to as ‘language families’ but which have not yet been proved; for example, Altaic, Niger-Congo, Nilo-Saharan and Macro-Jê. (At a different level – which transcends scientific worth to such an extent that it is at the fringe of idiocy – there have in recent years been promulgated a number of far-fetched ideas concerning ‘long-distance relationships’, such as ‘Nostratic’, ‘Sino-Caucasian’ and ‘Amerind’.)

The family tree model represents similarities of Type (III) from §2.1.2, due to genetic retention. But there are many similarities between languages which are due to (I) borrowing or diffusion, and to (II) parallel development in languages with the same inner dynamic. It is often hard – and sometimes impossible – to decide whether a particular piece of similarity between languages is due to borrowing, or to parallel development, or to shared retention. This happens often within the Australian linguistic area. One should never force a decision; sometimes the answer to a question concerning what the explanation is for a particular point of similarity has to be ‘we don’t know’.

The family tree idea is an important and useful model of one kind of linguistic relationship. It is appropriate for describing a period of population expansion and split, with concomitant split of languages. It is not, however, an appropriate model for dealing with every kind of language situation. Unfortunately, some people have assumed that it is – that all languages which are related must be related in family trees, and that there must then be family trees of family trees (going back, presumably, to some reconstructable proto-World). This is discussed further in §2.2.

Proving that a group of languages comprise one language family is not an easy matter. But harder still is establishing subgroups within the family (intermediate nodes on the family tree). The languages making up a subgroup must show a number of shared innovations – things which are unlikely to have arisen in each language by chance, or to be the result of parallel development, or of areal diffusion into each language.

Associated with a family tree is the question of dating. What age can be assigned to a reconstructed proto-language? If we approach this question in a scientific manner, there is in most cases little that may be clearly concluded. Archaeologists can use carbon dating and other techniques to establish the age of human and animal remains,

and of artefacts. Unfortunately, the results of their excavations do not include lexemes and grammatical paradigms.

There is, indeed, a tradition of assigning dates to postulated proto-languages, but it appears to be highly subjective. For Indo-European the received date of around 7,000 BP involves correlation with a certain pottery style and with the domestication of animals. But why not around 10,000 BP, correlating with the introduction of agriculture into this part of the world? There seems to be no defensible link between the knowledge that about three thousand years have elapsed between the earliest Indo-Aryan inscriptions and modern languages such as Hindi and Bengali, and the idea that the development from proto-Indo-European to early Indo-Aryan required about four thousand years.

For other language families there may be different kinds of evidence for dating. For example, proto-Polynesian, an intermediate node on the Austronesian family tree, is sensibly dated to the first human occupation of that part of the Pacific (getting on for three thousand years ago). But too often a date is assigned to a proto-language by analogy with that which is accepted for proto-Indo-European or proto-Uralic, on the basis that a similar degree of diversity will require a similar time-span to develop (or half as much diversity would require half the time-span, etc.). This is erecting supposition upon speculation. Languages change at different rates and if we did have full temporal calibration for one language family, it would be of little direct help in dating another.

A set of studies showing the inadequacy of the family tree model as the major representation of relationship between languages in several parts of the world – together with discussion of alternative models – is in Aikhenvald and Dixon (2001).

Lexicostatistics, as a short cut for discovering family trees (taking it as axiomatic that these are always there to be discovered), is dealt with in the appendix to this chapter.

2.1.4 *Diffusion*

If two languages are in contact – some of the speakers of each having a degree of competence in the other – they are likely to borrow lexemes, grammatical categories and techniques and some grammatical forms (in at least one direction, often in both directions) and gradually become more similar. If a number of languages are spoken in a geographically continuous area – which contains no physical or social impediments to cross-cultural communication – there will in each language community be a degree of multilingualism. A number of linguistic traits will diffuse from language to language until each applies across a considerable region within the geographical area, some-

times across the whole area. The languages then constitute a 'linguistic area'; this term was introduced by Emeneau (1956) in reference to the Indian subcontinent and there have since been a number of studies on linguistic areas in other parts of the world (see Aikhenvald and Dixon 2001 and further references therein).

Australia provides a prototypical instance of a linguistic area. It has considerable time-depth, fairly uniform terrain leading to ease of interaction and communication, a fair proportion of reciprocal exogamous marriages, rampant multilingualism, and an open attitude to borrowing. In §1.5 we discussed the diffusion of non-linguistic traits. In a similar manner, every type of linguistic feature appears to have diffused over one (sometimes over several) continuous regions in Australia.

There is a basic uniformity to Australian languages which is the natural result of a long period of diffusion. Generally (there are always a few exceptions) we find: syllable structure CV(C), no fricatives, a nasal corresponding to each stop, three numbers in pronouns, case suffixes on nouns, a single inflectional category on verbs combining tense, aspect and imperative mood, and so on. There are variations on the basic patterns but almost all of these have an areal distribution, being due to diffusion. It is useful to distinguish between the various types of borrowing.

(a) *Phonetic and phonological.* Types of phonological contrasts and phonotactic structures readily diffuse, as do habits of pronunciation (one tends to accommodate one's speech to that of the people with whom one comes into contact). Areal features within Australia include: a contrast between two laminal series; a contrast between two apical stop–nasal series; a contrast between two series of stops; glottalisation (as a syllable prosody); the occurrence of one or of several lateral phonemes; the addition of vowel phonemes to a standard three-term inventory; and initial dropping. There can also be areal diffusion of the loss of a contrast, e.g. the loss of vowel length. All of these are discussed in chapter 12.

(b) *Grammatical categories, construction types and techniques.* The way in which a grammar is organised (but not necessarily the forms themselves) will always tend to shift so as to become more similar to the grammars of other languages of which some speakers have an active knowledge (and this will happen spontaneously, without any awareness of what is taking place).

Grammatical patterns which have diffused across areas of Australia include: the development of bound pronominal clitics or affixes from free form pronouns; the development of a morphologically marked system of noun classes (partly by grammaticalisation of classifiers or generic nouns); and the development of switch-reference marking in clause combinations. In each instance it is just the grammatical category which is borrowed, not the forms used to mark it. That is, as a rule each language

develops its own bound pronouns from its free pronouns, its own markers of 'same subject' and 'different subject' from its own internal resources, and so on.

Across Australia there are a number of different types of verbal organisation. Some languages have a small number of inflecting verbs, each of which may be used with one of a set of non-inflecting coverbs. Others have a larger set of inflecting verbs just a small selection of which are used a great deal in compounds with coverbs. A further set has many inflecting verbs and very few compounds. These types are organised on an areal basis (see §6.3).

Sometimes a rather specific category may be borrowed – for instance, having a special pronoun for 'you and me'. In such an instance the actual form may be borrowed as well; note the wide areal distribution of the pronoun *ŋali*, described in (f) of §7.3.1.

A shift in morphological profile may diffuse. Over an area in the central north we have the development of prefixing leading to a polysynthetic verbal structure, sometimes shifting the familiar Australian agglutinative profile towards fusion. Detailed examination of languages on the fringe of the prefixing area shows the profile is gradually expanding its scope; some languages have recently acquired it while others appear to be on the point of doing so. Some – but not all – of the languages with prefixing on verbs have also developed prefixing on nouns. Again, it is only the grammatical structure that diffuses; the actual prefixal forms develop on a language-internal basis.

(c) *Grammatical forms*. Within the Australian linguistic area, grammatical elements which have the status of words are frequently borrowed – particularly free pronouns and some particles. Grammatical affixes and clitics are less likely to be borrowed although this does happen. Weinreich (1953: 41) – and Heath (1978a), specifically for an area of north Australia – mention that grammatical morphemes are most likely to be borrowed when they are at least one syllable in extent, unfunctional, and so on. Still, grammatical forms are borrowed much less readily than grammatical categories, construction types, and the like.

(d) *Lexemes*. Any member of an open lexical class (nouns, adjectives or verbs) is at risk of being replaced – by shift of meaning of an existing lexeme in the language; by creation of a new compound, again within the language; or, most frequently, by borrowing of a form from a contact language. In addition, when a new tool or plant or animal or idea comes within the purview of a community they will often take over the name which it already has in a contact language. This type of borrowing is particularly common when one culture comes into contact with another that has drastically different lifestyle and ideas. It took place at the European invasion of Australia, with loans flowing in both directions (words like *boomerang*, *waratah* and *wombat* entering English, and words based on *bullock*, *musket* and *work* being taken into

indigenous languages). However, it is likely to have applied only to a very minor extent in preinvasion days.

In Australia, as in many other parts of the world, the name of a recently deceased person may not be pronounced, nor may any lexical or grammatical word which is similar to it. For example, on the death of a Yolngu man named Bitjingu the word *bithiwul* 'no, nothing' dropped out of use (the lamino-palatal stop *tj* being here regarded as equivalent to the lamino-dental stop *th*; see §12.2); and on the death of a Ngaanjatjarra (Western Desert language) man called Ngayunja, the 1sg pronoun *ṇayu* ceased to be used for a time. (See Dixon 1980: 28–9, 122, 151.) There are different ways of dealing with this tabooing. Some languages have a special form which is substituted for a lexeme that is under temporary interdiction because of a death taboo (see Nash and Simpson 1981). In some cases a synonym from within the language may be used (see §2.4.2 below), and in others a form is borrowed from a neighbouring language. In most instances the original word returns to use after a certain period, but this does not always happen. Over a long period (and in the Australian linguistic situation we are dealing with long periods of time) the occasional replacement of a tabooed word by a form from a neighbouring language will gradually add up to significant vocabulary change.

Right across Australia we find that the names of plants and animals have diffused across a group of contiguous languages. Interestingly, no form is found outside one smallish geographical area. The only fauna/flora terms to occur in a scattering of languages right across the continent are *mayi*, a generic term 'vegetable food' and *guya*, a generic term 'fish'. We do find pan-continental distribution for a number of terms for body parts, kin relations and natural phenomena, as well as a handful of adjectives and a fair number of verbs; these are presented in §4.2 below.

2.1.5 *The 50 per cent equilibrium level*

In parts of the world, such as Australia, where every type of lexeme can be freely borrowed, two contiguous languages are likely – given sufficient time – to achieve an 'equilibrium level' of around 50 per cent shared vocabulary.

There are two basic types of historical scenario. In the first, two languages with a low level of shared vocabulary will come into contact. Each will replace vocabulary at a steady rate, partly by borrowing from the other. Their level of shared vocabulary will gradually rise until it levels out at around 50 per cent. In the second scenario, two dialects of one language will diverge until they lose intelligibility and become distinct languages. At first they will show a high level of shared vocabulary. As each replaces some of its lexemes it is more likely to borrow from other neighbours than from the close relative (with whom many lexemes are shared). As a consequence, the percentage of shared vocabulary will gradually drop until it stabilises at the equilibrium level of around 50 per cent.

The way in which this happens can be illustrated with a hypothetical (and somewhat simplified) example. Suppose that in a narrow coastal strip, bounded by the sea on one side and by a high mountain range on the other, there are five languages – from north to south, A, B, C, D and E. Suppose that each has 50 per cent vocabulary in common with its neighbours to north and south except that B has only 20 per cent in common with C. Suppose that in T years each language replaces 1 per cent of its total vocabulary by borrowing from its neighbours; suppose also that each language borrows equally (or almost equally) frequently from the north and from the south. Now of the 1 per cent lost by C one-fifth will be vocabulary that was in common with B; similarly for the 1 per cent lost by B. But of the 1 per cent gained by C, about 50 per cent is likely to be borrowed from B, and similarly for the 1 per cent gained by B. Thus, after T years, the vocabulary common to B and C will be $20 - 0.2 - 0.2 + 0.5 + 0.5 = 20.6\%$. But for C and D half the proscribed vocabulary will be material that was common to C and D, and half the gain will be new common vocabulary. After T years C and D's common vocabulary will be $50 - 0.5 - 0.5 + 0.5 + 0.5 = 50\%$. The percentage of vocabulary shared by B and C has increased, and will continue to increase until it reaches about 50 per cent. The percentage shared by C and D, being already at the stable 50 per cent level, does not alter.

Now consider the other case: suppose that each language shares 50 per cent with its neighbours save for B and C, which this time share 70 per cent. After T years B and C will now share $70 - 0.7 - 0.7 + 0.5 + 0.5 = 69.6\%$; the vocabulary shared by these two dialects will continue to drop until it reaches about 50 per cent.

In fact, of course, a language is not likely to borrow equally frequently from each direction. For instance, if C shares a certain word with B, and the item is proscribed in C, then it presumably must borrow from D. Thus, it would seem that if C has a higher percentage of vocabulary in common with B than with D, then it is likely to borrow rather more often from D than from B. Under this more realistic scenario vocabulary scores between languages of more than 50 per cent and also of less than 50 per cent are likely to converge on the 50 per cent equilibrium level at a slightly faster rate than calculated above. (More detailed mathematical modelling will be found in Dixon 1972: 333–5.)

This argumentation assumes that lexemes will flow freely between each pair of languages. There may, however, be some phonological impediment to borrowing. Suppose that language A has prototypical Australian phonotactics, with each word beginning with a single consonant and ending with a consonant or a vowel but that language B has a non-prototypical profile, allowing either a single consonant or a consonant cluster at the beginning and a vowel or a consonant or a consonant cluster at the end of a word. Language B will be able to borrow freely from A since every word in A has a phonological form that is permitted in B. But only some words in B (those that lack

an initial or final cluster) are seriously at risk of being borrowed into A. That is, A is – on phonological grounds – more likely to borrow from its other neighbours, which have prototypical phonotactics, than from B.

Now, as mentioned in §2.1.1, grammatical forms invariably change at a slower rate than lexical forms. And, within the Australian linguistic area, verbs are less likely to be borrowed than nouns. That is, if two dialects of a language split and become distinct languages, the percentage of general vocabulary they share will gradually decrease in the direction of 50 per cent but the percentage of verbs they share will be consistently higher than the score for general vocabulary, and the percentage of grammatical forms they share will be higher still. In the other scenario, when two languages with dissimilar systems come together, their shared general vocabulary will gradually increase towards 50 per cent, but the percentage of shared verbs is likely to be lower, and the percentage of shared grammatical forms lower still.

I have quoted an equilibrium figure of about 50 per cent. In practice we are likely to encounter a range, perhaps from about 40 per cent to about 60 per cent. It is now possible to distinguish the following three types of situation.

(a) Two contiguous languages share more than about 60 per cent general vocabulary. This is an indication that they are likely to be closely genetically related, in a low-level subgroup. As tentative confirmation of this, they should show a higher level of similarities between their verbs, and a higher level still between their grammatical forms.

Note that this is only a diagnostic, on which a hypothesis concerning genetic relationship can be erected and then verified. Vocabulary counts never constitute proof of genetic relationship. As emphasised in §2.1.3, the only way of proving a genetic relationship is by reconstructing a good deal of the proto-language, and the systematic changes by which each modern language developed from this. Occasionally, diagnostics do suggest a picture that proves not to be sustainable. That is, we could encounter a high shared vocabulary between two languages which do not bear any close genetic connection, due to factors beyond those mentioned here. Each particular language situation must be studied in depth and subjected to scientific analysis. Almost all those that have been studied do conform to the template given here, but it is unlikely that there will be no exceptional cases.

(b) Two contiguous languages share less than about 40 per cent general vocabulary. It is most likely that the languages are not closely genetically related. As partial confirmation of this, we would expect there to be fewer similarities between verbs than between general vocabulary, and less similarity still between grammatical forms.

Study of the vocabulary similarities between a given language and each language which it borders often carries a suggestion that the language has been in contact with

some neighbours for a relatively short time, and with others for a much longer period. Some case studies are discussed in §13.3 below.

(c) *Two contiguous dialects share between about 40 per cent and about 60 per cent general vocabulary.* On the general vocabulary score alone it is here unwise to hazard a guess as to whether or not they may be closely genetically related. However, once verb scores and similarities in grammatical forms are added to the comparison a clearer idea may emerge.

For example, G1, Djabugay, and G2, Yidinj (spoken to the north and south of Cairns, North Queensland), share about 53 per cent general vocabulary. When verbs are compared the score is about 58 per cent, not a lot higher but enough to be significant in this instance. And grammatical forms are very similar. A fair amount of proto-G can be reconstructed, showing that these two languages do make up a low-level subgroup; see (2) in §13.1 below.

An example of the other sort involves H1, Dyirbal, and Ja3, Warungu, which share about 45 per cent general vocabulary. However, the score for verbs is only about 32 per cent and grammatical forms show fewer similarities. There is clearly no close genetic link between the two languages.

At the beginning of this discussion we supposed that two contiguous languages might replace 1 per cent of their vocabulary over *T* years. It is natural to ask what kind of figure might be placed on *T*. I have absolutely no idea. There is nothing against which it could be calibrated. All that can be said is that the Australian linguistic area may have been in existence for around forty thousand years. And, of course, the rate of vocabulary replacement is never constant. The value of *T* is likely to vary depending on time and place, the nature of the languages, attitudes of speakers towards their own and towards other languages and, doubtless, on other factors besides these.

Alpher and Nash (1999) discuss the ideas presented above and maintain that I have overstated the degree to which lexeme replacement is by borrowing. They conclude (p 28) 'the equilibrium rate is very unlikely to exceed 25 per cent, and quite likely to have been less than this'. This would imply that languages with more than about 30 per cent shared general vocabulary should be likely to be more similar in respect of verbs and more similar still in grammatical forms. There may be some, exceptional, instances of this in Australia but they are very greatly outnumbered by language contact situations which conform to the pattern presented above. A high proportion of long-term contact situations do show 40–60 per cent shared vocabulary, that is, the empirical facts support the model given above.

2.2 The Punctuated Equilibrium model

There is a tendency among many linguists to assume that all language situations should be described in a similar way to the Indo-European language family. It is generally agreed that there is likely to have been a unique ancestor language, proto-Indo-European, that gave rise to the modern Indo-European languages, which are more than one hundred in number. As mentioned in §2.1.3, a time-depth of about seven thousand years is customarily assigned to the Indo-European family tree.

Now archaeologists and human biologists believe that humankind developed language at least one hundred thousand years ago (many would prefer a date much further in the past). There are about sixteen spans of seven thousand years in a one hundred thousand year period. The Indo-European family generated more than 10^2 languages in, let us say, seven thousand years. If all language development were on this basis, a putative proto-language should spawn more than $10^{2 \times 16} = 10^{32}$ – that is, more than a hundred thousand billion billion billion – languages over one hundred thousand years. Even if we took the age of proto-Indo-European to be ten thousand years we would still expect a single proto-language for the world to produce, on the Indo-European model, $10^{2 \times 10} = 10^{20}$ (a thousand billion billion modern languages). In fact there are at most five thousand languages in the world today.

In §1.4, I reported the received opinion that Aborigines have been in the Australia/New-Guinea land mass for at least forty thousand and probably fifty thousand years. On the Indo-European model, with one ancestor producing at least a hundred descendants in seven thousand years, a putative unique proto-Australian/New-Guinean should have given rise to around $10^{2 \times 6} = 10^{12}$ (a thousand billion) modern languages. In fact there were, at the time of European invasion, about 250 languages in Australia and (leaving aside the recent Austronesian arrivals) around 700 in New Guinea.

The lesson from these calculations is that split and expansion on the Indo-European scale cannot be a continuing process. There is just not enough land and food available (in Australia/New-Guinea, or in the world) to harbour this number of ethnic groups and languages. Plainly, an alternative model is needed.

The discussion in this book is in terms of a model of language development which attempts to integrate the family-tree metaphor (which is certainly applicable in certain circumstances) with the well-recognised facts of linguistic diffusion (discussed in §2.1.4) – a Punctuated Equilibrium model. Some of the main points of the model will now be summarised (fuller details are in Dixon 1997).

It is suggested that over most of human history there has been an equilibrium situation, of peoples and of languages. From time to time this state of equilibrium is punctuated by some significant happening; we then do get expansion and split of peoples and of languages. During the long periods of equilibrium there is steady diffusion of linguistic features between languages within a given geographical region –

the languages slowly converge towards a common prototype. During the shorter periods of punctuation a family-tree diagram is an appropriate model as political groups, each with their own language, expand and split; in this situation languages rapidly diverge from a single proto-language. In a given geographical region there could be an equilibrium situation for tens of thousands of years, then a period of punctuation that lasted for just a few hundred – or maybe a few thousand – years, before merging back into equilibrium.

2.2.1 *Linguistic equilibrium*

An equilibrium situation is likely to have the following characteristics:

- (a) There will be a number of political groups, identifying as such (to themselves, and to other groups) through each having: (i) its own distinctive dialect or language; (ii) generally, its own group and/or dialect/language name; (iii) its own set of traditions, beliefs and laws; (iv) its own kinship system, marriage laws, and so on.
- (b) Each political group would have a population comparable to those of other groups in the area. That is, one group could be, say, four times as big as another, but not a hundred times as big. Assuming that environmental conditions do not change too much, the overall population of the complete area will remain approximately constant during the whole period of equilibrium. (If, say, water and food resources lessen, then of course the population is likely to decrease.)
- (c) All groups would be roughly similar in terms of lifestyle and beliefs. That is, they would have a comparable level of sophistication in the tools and weapons they possess, the sorts of shelters they build, and the food resources they have available. They would have comparable types of (non-aggressive) religious beliefs.
- (d) No group would have substantially greater prestige than others, over any significantly large portion of the area. There could be minor prestige associated with one group for a short period (perhaps due to some song or ceremony they had innovated) but this might soon shift to another group. The prestige accorded one group would not be maintained long enough for it to spread widely, or for that group to establish a power of dominance over its neighbours.
- (e) Associated with this, no one language (or dialect of a language) would have any extended period of prestige.

I am not suggesting that during a period of equilibrium the political and linguistic situation in a given area would remain entirely static. There would always be changes taking place – a perpetual ebb and flow. At the beginning of an equilibrium period

there might be, say, fifty languages spoken in a given area. Some thousands – or some tens of thousands – of years later there might still be about fifty languages there. But they would not be recognisable as the same languages. As noted before, a language is always changing, although the rate at which it changes will vary. And there would have been some languages that ceased to be spoken (they might survive as a substratum within another language) while there would have been some modest instances of language split. The point being made is that changes during a period of equilibrium would be relatively minor, and of a quite different order from the changes during a period of punctuation, when large numbers of languages may cease to be spoken within a short time span, and there can be multiple split and expansion of other languages.

2.2.2 *Punctuation*

There would always be some extra-linguistic cause for the punctuation of an equilibrium state. Four of the varied possibilities are outlined below.

(a) *Natural causes.* There could be environmental changes – drought, floods, rising or falling sea levels – which radically affect an area, changing the living conditions and either forcing the original inhabitants to move elsewhere, or else opening it up for settlement.

(b) *Material innovations.* New tools or weapons may give the group that possesses them a significant advantage in food production, or in battle. These people may gain in numbers and prestige so that they come to exercise a dominant role, leading to an increase in numbers and expansion in territory. There is then likely to be split of political groups and of languages, a family-tree-type situation.

One significant type of innovation would be means of transport, especially sea-going vessels that facilitate travel to new lands, which would provide new scope for expansion and the consequential split. Perhaps the most important material innovation is agriculture. Indeed, Bellwood (1996) suggests that many family tree splits were founded on speakers of the proto-language having developed agriculture of one or more key crops. This gave them a significant advantage over hunting-and-gathering peoples with whom they came into contact, and enabled the agriculturalists to displace or dominate the non-agriculturalists.

(c) *Development of aggressive tendencies.* During an equilibrium period societies would have been basically egalitarian. There may have been some local leaders, but no chiefs over wide dominions; the religions would all have been on a local basis. A state of equilibrium would have been broken if an ambitious chief or powerful religious leader emerged, with charisma and the determination to impose his will on more and more

people over a wider and wider area. This expansion would also be likely to lead to language split, on a family tree model.

(d) *Territorial expansion.* Suppose that a group of people come to settle in some previously uninhabited region; numbers will now rapidly increase. Birdsell (1957) carried out a thorough study of the relevant literature and suggested that a population will roughly double each generation if unlimited food and land is available. He calculated that it might only have taken a little more than two thousand years after the first arrival of humans in Australia for the whole continent to be populated. The number of people in Australia would have grown from one or two boat-loads to perhaps one million within about two millennia; it then stabilised at that figure during an equilibrium period of some tens of thousands of years.

With population expansion comes the split of political groups and thus of languages. Following the first occupation of a new territory we get new languages developing at a steady rate. By the time the territory is fully occupied, a well-articulated family tree will be an accurate model of the relationships between languages. This will then become blurred as the ensuing period of equilibrium advances.

On Birdsell's time scale the initial peopling of the Australian region might have produced language diversification at a rate faster than that of Indo-European. At the end of this initial phase the number of languages is likely to have been of the same order of magnitude as the number at the time of the European invasion in 1788 – at least a hundred and probably two hundred or more.

But, once Australia was filled with Aboriginal tribes and languages, there would have been little room for further split and expansion. The existing languages then formed a large diffusion area. This would have been a dynamic situation, with steady movement and alignment – of peoples and of languages and of linguistic features. There would have been some language extinction and some language split, but on a much more limited scale than during the initial period of punctuation. The number of languages in Australia would have stayed roughly the same, but their identity and character would not remain exactly the same. There are a number of low-level subgroups within the Australian linguistic area; these appear to be the result of minor punctuations in the recent past (some of them are discussed in §13.1). However, there is no evidence for any major punctuation within Australia at any time since the continent was first populated.

There is a further possibility, of a territory that is already occupied being invaded by a people with some marked material advantage (e.g. agriculture or guns), sometimes spurred on by political greed and/or religious fanaticism. This happened with the Austronesian incursion into some coastal and island regions of New Guinea (between three and four thousand years ago), and with the European invasion into Australia (commencing in 1788).

It has commonly been assumed that all of human language development has been a family tree of family trees of family trees . . . This assumes, for example, that proto-Indo-European, the topmost node in one expansion-and-split system, must be a bottom node in another such system. I suggest instead that a family tree describes a period of punctuation within a period of equilibrium. The proto-language would have been one of a number of languages in an equilibrium situation that had probably been in existence for a long time. A linguistic area is likely to commence, at the end of a period of punctuation, with a number of languages from one or more language families whose genetic affiliations are clear. But, as time goes by, linguistic features of every type will diffuse across all or part of the linguistic area; the languages will converge towards a common prototype so that original features which were diagnostic of genetic connection are modified. Genetic affiliations will become blurred and then lost. Out of such an equilibrium situation may emerge the proto-language for a new language family, in a new period of punctuation.

2.3 **The Australian scene**

It may have been noted that our characterisation of an equilibrium area, in §2.2.1, is close to the pre-European-invasion situation in Australia. We must now take account of the wider picture in this region.

Between around 125,000 BP and the rise of sea level at around 7,000 BP, Australia and New Guinea formed one continuous land mass. It is believed that the first people came to this continent at least forty thousand (maybe fifty thousand) years ago. So, for the first thirty thousand or more years of human occupation it would have been possible to walk from the south of Australia to the north of New Guinea (and for a great deal of this time Tasmania was also part of the land mass).

The language situations in Australia and in New Guinea are strikingly different. The similarities between Australian languages are such that many investigators (including Dixon 1980) thought it should be possible to prove that they constitute one language family. This no longer seems feasible; the long-standing linguistic area across Australia has ensured that if there were family-tree-type relationships at the end of the period of punctuation which accompanied the initial population expansion, then these would no longer be apparent.

In New Guinea there are around two hundred languages of the Austronesian family, along parts of the coast and offshore islands, which are acknowledged to have arrived recently. Leaving these aside there are about seven hundred 'Papuan' (the term simply means 'non-Austronesian') languages of New Guinea and nearby islands, which divide into sixty or so small families (see Foley 1986). Despite the amazing linguistic diversity in New Guinea (the greatest in the world, for such a land area) only a handful of good grammars are available while most of the comparative work that has been

attempted is of mixed quality and unhelpful (much of it is based on lexicostatistic counting). In the present state of documentation only a little can be said about the linguistic situation in New Guinea.

However, it is clear that there is much more linguistic diversity among the 900 or so languages of New Guinea (occupying an area of about 875,000 km²) than among the 240 or 250 languages of mainland Australia (occupying an area of about 7,620,000 km²). As the following chapters of this book show, there are many linguistic parameters which extend across the whole of Australia. In contrast there are few which could be characterised as pan-New-Guinea (medial verbs may be the strongest candidate).

Across the world, we tend to find that a language family, or a group of families, is associated with a certain type of terrain. There tends to be much more diversity in mountainous and forested areas than in flat terrain which is grassy or lightly timbered. In the mountains of the Caucasus, for example, we find several language families, each with several subgroups. In South America, languages of the Arawak, Carib and Tupí families were largely confined to the Amazonian rain forest, and languages of the Jê family to the grassy plains.

Australia/New Guinea divides into two geographical areas. There is mountainous territory, covered with rain forest, over a good deal of New Guinea, with a finger extending down the north-east coast of Australia. The remainder of Australia is fairly flat country, with sparse forest, grasslands or desert. We would expect different kinds of languages to be found in the two areas. On the South American model, we might expect more linguistic diversity in the forested regions than on the plains. As just described, this is what is found.

What might also be expected is languages of the New Guinea type (and perhaps genetic affiliation) in the strip of mountainous rain forest on the north-east coast of Australia around Cairns. The available evidence is compatible with this having been the case some seven thousand years ago, at the time sea level rose to separate Australia from New Guinea.

Tindale and Birdsell (1941) reported that the Aborigines 'in the eastern coastal and mountain region near Cairns' are 'characterised by a high incidence of relatively and absolutely small stature, crisp curly hair, and a tendency towards yellowish-brown skin colour . . . The preliminary results of blood grouping tend to substantiate the distinctness of the bloc of tribes.' However, these 'pygmoid' tribes speak languages of the normal Australian type. What is significant is the occurrence of a marked linguistic boundary across the middle of this rain forest area. In the northern section we find close relatives G1, Djabugay, and G2, Yidinj (with Gunggay as a dialect); these show similarity with their neighbours to the north. In the southern section there is H1, Dyirbal (in a number of dialects), which has many linguistic features in common with its neighbours to the south. There is considerable grammatical and lexical

difference between Djabugay/Yidinj and Dyirbal, within the regular Australian linguistic profile.

It can be suggested that there may originally have been, in this region, people of a different physical type who had their own distinctive culture and language. They were then infiltrated by Dyirbal speakers from the south and by speakers of Djabugay and Yidinj from the north, explaining the strong linguistic boundary through the middle of the pygmoid rain forest region.

Note that there is a Yidinj legend telling how the Gunggay tribe were the original inhabitants, with Yidinj people coming by sea from the north to settle in this land. The story states that at this time the Gunggay people could not understand Yidinj. But by the time of the European invasion the Gunggay people spoke a dialect of Yidinj, having presumably accepted the language of the invader. Dick Moses, the Yidinj elder who told me this story, averred that the Gunggay were harmless and weak people 'like a midget'.

I discussed this with Birdsell who checked his physical data on the two tribes and reported that the Yidinj men he measured averaged 110.7 pounds in weight while Gunggay men averaged 97.6 pounds, and that Yidinj men averaged 156.7 cm in height while the Gunggay men averaged 152.8 cm (fuller details are in Dixon 1977a: 16). Birdsell wrote 'I don't doubt that in the curious sword duels indulged in this area a difference of 13 pounds between males of the two groups would mean a considerable difference in endurance. (The duelling swords are heavy, made of hardwood, and slung in single alternating strokes over the head against the opponent. Strength would make a very considerable difference in the effects.)'

The linguistic discontinuity and the physical data are compatible with the people from this region of New-Guinea-like terrain being different physically and possibly also linguistically from their Australian neighbours. They may well have spoken a language that had relatives in New Guinea; this will never be known. Then, sometime during the last few millennia, non-pygmoid people moved into the rain forest region, bringing with them their culture and languages. (A similar thing happened in the African Congo, where the forest-dwelling pygmies have lost their own language and speak a Bantu language, related to that of their taller agriculturalist neighbours who have come to live on the edge of the forest – Turnbull 1961: 23.)

At about 40,000 BP, Tasmania became joined to the mainland by two land bridges, at the east and west sides of what is now Bass Strait (with a lake between them). The first human occupation is dated at about 35,000 BP. Unfortunately, very little was recorded of the Tasmanian languages before they ceased to be spoken – a few hundred words and virtually no grammar. As a consequence, we can say almost nothing with confidence about the linguistic situation in Tasmania and how this related to the situation on the mainland. All that can really be noted are some typological similarities,

and also a number of differences, at the phonological/phonetic level (see Crowley and Dixon 1981). It seems likely that Tasmania was part of the Australian linguistic area before the sea level rose (although it is impossible to do more than guess about this). There would have been about fourteen thousand years of separate development after the emergence of Bass Strait, which is ample time for any earlier areal and/or genetic resemblances to have become muted to the point of non-recognition. Due to lack of data, the language situation in Tasmania is – and must surely remain – an unknown.

The geographical zone that is present-day Australia could have been peopled on the basis of one original immigrant population. They might have constituted a single, small political group with a unitary ethnic identity and language. As indicated above, they could have expanded and split, to cover the whole geographical zone, then establishing a linguistic area which persisted until punctuated by the European invasion from 1788 on.

However, there is no certainty that the modern languages of mainland Australia do go back – even in a long and indirect fashion – to a single ancestor language. This is certainly possible. But it is equally possible that languages from two or more genetic families came into this zone to make up the Australian linguistic area, with their original inherited similarities then being obscured by tens of millennia of diffusion. The time-depth is so great that we will never be able to resolve this question.

Note that if there had been some unique ancestor language, spoken by the first people to cross from South-east Asia, then it would not have been proto-Australian but proto-Australian/New-Guinean. The fact that Australia and New Guinea are now geographically separate, with markedly different linguistic situations, should not be allowed to obscure the fact that there must have been cultural and linguistic contact when they made up one land mass, until about 7,000 BP.

I will now outline a tentative scenario for the development of language in the Australian linguistic area.

(1) The first people arrived on the Australia/Tasmania/New-Guinea land mass about forty or fifty thousand years ago. They may have been just one group, speaking one language, or several groups, speaking several languages (which may or may not have been closely genetically related). If there were several groups they may have landed at the same location at about the same time; but it is surely more likely that they should have landed at different places and at different times.

(2) With a large land area and abundant food resources available, there would have been rapid expansion of peoples, and then split of political groups and of languages

(a prototypical punctuation situation). It is likely that all inhabitable parts of the land mass would have been occupied within just a few millennia of the first colonisation.

(3) The land mass roughly divides into two ecological zones: (a) the fairly flat, open region that makes up almost all of present-day Australia together with what are now the Gulf of Carpentaria and the Arafura sea and some of the low-lying regions of southern New Guinea; (b) the mountainous and thickly forested region, which comprises most of present-day New Guinea and a portion on the north-east coast of Queensland.

Different language situations developed in these two terrains. Within (a), a zone with easy communication, a large linguistic area came into being, some tens of millennia ago. It is impossible to tell whether or not this was founded on languages that were all closely genetically related.

Zone (b) did not develop into a linguistic area in the way that zone (a) did, mainly because the mountains and thick forests hinder communication. There are a number of areal linguistic features within New Guinea but these are far less pervasive than in Australia. The seven hundred or so non-Austronesian languages of New Guinea have not been thoroughly studied and as a consequence our understanding of the language situation there is less sure than that for Australia (Foley 1986 is a fine beginning to the task).

(4) The linguistic area in zone (a) was maintained for tens of millennia. After the initial population surge, there is no evidence of any major punctuation. Indeed, none of the possible causes for punctuation, outlined in §2.2.2, could have applied. There were no material innovations significant enough to spawn, say, descendants of one group expanding to cover all or most of the zone. The anthropological evidence is against any war-lord or religious cult leader having led a campaign of domination.

The water resources available were subject to fluctuation. Around 20,000 BP the land became colder, windier and drier such that it is likely to have been impossible to survive in the arid zone; the people would have been confined to the coast and major rivers.

A number of parameters of linguistic variation became established across this linguistic area, with languages changing with respect to them in a cyclic fashion.

(5) Between about 14,000 and 7,000 BP the sea level rose, dividing Australia, Tasmania and New Guinea into separate land masses. The territory of the linguistic area in zone (a) now became redefined as Australia. The mountainous/forested strip in the north-east coast – which had previously been part of zone (b) – was incorporated into the Australian linguistic area, with Australian languages infiltrating it from both north and south (as described above).

Little is known about Tasmania. Before the sea level rose it is likely to have been part of the linguistic area in zone (a), although we cannot be certain of this. After the Bass Strait was formed it would have constituted a separate linguistic area. The low-lying parts of southern New Guinea may also have been part of the linguistic area in zone (a). As with Tasmania, they would have become a distinct linguistic area after being geographically isolated, and would have then probably developed closer links with their neighbours in the mountains to the north.

As previously arid land became more habitable, people expanded into it. This is likely to have been one kind of trigger (but only one of several kinds of possible trigger) for minor punctuations that have given rise to a number of low-level subgroups within the Australian linguistic zone; see §13.1.

Within the overall Australian linguistic area we can recognise a number of smaller linguistic areas. These are located in areas that are relatively well resourced (the Daly River region, the Alice Springs area, the Lower Murray River region, etc.) and appear to have been in existence for a considerable period. The languages within each area are more similar to each other than to any other language, without being relatable as a genetic subgroup. Some of these are discussed in §13.2.

Speakers of Austronesian languages came to New Guinea three to four thousand years ago and settled on the islands and coasts. There is no evidence of any major incursion into Australia. We do know of annual visits by Macassan fishermen for about three hundred years until 1907 and there would surely have been similar minor episodes of contact during the previous few thousand years. Indeed, the dingo is most likely to have been introduced into Australia through some contact of this sort, about 3,500 years ago.

(6) From 1788 on there was an invasion by Europeans – aided by guns – who took over the land, killed many of the people (with many others succumbing to diseases brought in by the invaders), placed others in prison-like missions and government settlements, and attempted to absorb the remainder as a servant caste. This punctuated the equilibrium situation across the continent. Indigenous language rapidly gave way under domination of the invader's language, English. There has been a minor split with the evolution of a number of dialects of Aboriginal English (see, for example, Harkins 1994), and also a number of creoles based on English (see, among other sources, Crowley and Rigsby 1979, Hudson 1983, Sandefur 1986).

2.4 Split and merger of languages

2.4.1 *Language split*

When a language splits into two new languages there is always either a geographical or a political cause. If two groups of people, speaking mutually intelligible dialects, move into geographically detached areas and fail to maintain contact with

each other, each dialect will change in its own way until – should communication be re-established – there would be no intelligibility. They now constitute two distinct languages.

Politically motivated language split takes place when geographical contiguity is maintained and there is still a measure of communication between the groups. What happens is something along the following lines. There are two political groups (or tribes) speaking dialects A_1 and A_2 of language A. The northern group, speaking A_1 , establishes close relations (for trade, spouse exchange, joint corroborations, etc.) with its northern neighbour, a tribe speaking language B. Relations with the group speaking A_2 continue, but at a reduced level. There is basically a feeling of comradeship and friendliness between speakers of A_1 and of B, and of gathering hostility between speakers of A_1 and of A_2 . There will develop pervasive bilingualism between speakers of A_1 and of B, together with cultural diffusion and considerable linguistic borrowing. Dialect A_1 will begin to diverge from A_2 until mutual intelligibility is lost so that they become different languages. (This process will be hastened if, as is often the case, speakers of A_2 also develop a close bond with their southerly neighbours, speaking a third language, C.)

I have observed a situation of this type in North Queensland, where B is G2, Yidinj, A_1 is the Ngadjan dialect of H1, Dyirbal, and A_2 is southern dialects of Dyirbal. Before the European invasion there was close interaction between the Yidinj and Ngadjan people and even today the Ngadjan survivors feel that their friendships lie more with Yidinj people than with speakers of other dialects of Dyirbal. Ngadjan has a moiety system, like Yidinj, whereas other dialects of Dyirbal have a section system. Ngadjan has, by internal change, developed a length contrast in its vowels, paralleling the length contrast in Yidinj (see (iv) in §12.8.4). There has been a fair amount of borrowing of lexemes and a little borrowing of grammatical forms: both Yidinj and Ngadjan have *-wadjan*, comparative, and *-damba* ‘full of, covered with’ (with a negative connotation), while other Dyirbal dialects have *-bara* and *-ginay* respectively. At the time of European invasion, Ngadjan was still clearly a dialect of Dyirbal but in time it would have been likely to diverge more and become a distinct language. It would always remain a quite different language from Yidinj; their shared vocabulary would gradually increase from the present level of about 30 per cent to the equilibrium level of around 50 per cent, but their grammatical forms are very different and would remain so indefinitely.

2.4.2 Language merger?

Having discussed ways in which a language may split into two, we can now consider the opposite question. Suppose that we have two languages in contact, in an equilibrium situation for a considerable time, influencing each other and borrowing back and

forth. Could they conceivably merge? The answer to this question is basically 'no'. (Under (5) in §2.1.1, I mentioned that mergers only take place when there is deliberate language engineering, which is not reported for Australia.)

Suppose that – in the ebb and flow of movement in an equilibrium situation – two languages come into contact and they have rather few lexemes and grammatical forms in common, together with differences in grammatical organisation. Their grammatical profiles – categories and construction types – will gradually become more similar. The shared vocabulary will steadily rise until it reaches the equilibrium level of about 50 per cent (see §2.1.5). The stock of shared grammatical morphemes will also rise, but at a much slower rate. Suppose that the two groups now effect a political merger (the numbers in one, or both, groups may have dropped to a non-viable level, perhaps through disease or drought). The emerging group will naturally adopt just one language. In its grammatical forms and in most of its lexicon it will be identified with just one of the original languages, although a significant minority of words and a smaller number of grammatical forms may have come from the second language (constituting a substratum or superstratum). The new language can be said to have come from a single parent – that from which it received most of its grammar and lexicon.

Now consider a slightly different scenario. We have two languages that are closely genetically related, with similar grammars and lexemes. They move apart and for a considerable time have contact with different sets of neighbours. Eventually, they move back into contact. Suppose that the percentage of cognate vocabulary has dropped markedly during their centuries or millennia of separation – to, say, 30 per cent. There will be borrowing in both directions and the figure will rise, until it reaches the equilibrium level of about 50 per cent. However, during the years of separation the percentage of grammatical forms shared by the two languages will not have dropped to anything like the same extent – suppose that about 80 per cent of grammatical forms are still the same between the languages.

If there were now a merger of the political groups speaking the two languages, what would the single language of the new group be like? At the grammatical level it would be hard to distinguish it from a genuine merged language – 80 per cent or more of the grammatical forms were held in common between the two original languages and these will go into the new language. The balance would be likely to come mostly from one of the original languages, but a few grammatical forms may come from the other language. It is in terms of lexicon that we should be able to assign parentage. About 50 per cent of the lexicon comes from the common stock but the remaining 50 per cent is likely to be taken mostly from just one original language (the language that supplied most of the balance of 20 per cent of grammatical forms).

There is one kind of language situation in Australia which suggests an alternative ending to the scenario just sketched. Warlpiri, the Western Desert language, and other

languages in a block right in the middle of the continent, have a set of synonyms for many concepts. In the Western Desert language, all the speakers in a community will know *waru*, *warlu*, *karla* and *kunjinkarrpa* as words for 'fire'; and *karli*, *yirrkili* and *walanu* for 'boomerang'; etc. (Information from Hansen 1984; note that *waru* and *warlu* appear to be cognate; they must have come into this language through different genetic/diffusional routes.) Although everyone speaking the language is familiar with these synonyms, one local group will tend to use one of them more than the rest, while another group will prefer another (partly as a mark of in-group identity). When someone dies and a noun similar to their name is tabooed, it will be replaced by one of the synonyms; but the original lexeme is likely to return to use after a decent interval.

How could such a lexicon, with multiple synonymy, evolve? One possibility is in the contact situation just described. If two languages have a very similar set of grammatical morphemes and about 50 per cent vocabulary in common, they may well merge. The new language could take over many of the lexemes of both original languages, retaining them as synonyms. In this rather special circumstance we could indeed get a mixed language, with two parents (necessarily closely related). It has simply combined almost all the forms from both parents.

There are some references in the literature to unusual language situations. For example, Haviland (1979a: 29) reports: 'along the Annan River people spoke some sort of intermediate dialect, with lexical and syntactic similarities to both [Dd1] Guugu Yimidhirr to the North and [F] Gugu Yalandji to the South. Such speakers seem to have been regarded with disdain by their neighbours: their dialect is called *Gugu Buyun* "bad language" in Gugu Yalandji and *Guugu Diirrurru* "mumbling talk" in Guugu Yimidhirr.' Unfortunately, nothing was recorded of the speech of this group. It is likely to have been a dialect of Guugu Yimidhirr with considerable Gugu Yalandji substratum, or else a dialect of Gugu Yalandji with considerable Guugu Yimidhirr substratum, rather than a straight-out mix of the two languages.

Howitt (1886: 419–20; 1904: 79–81) discusses the Bidweli (or Bidhawal), a tribe in the south-east of Victoria, close to the New South Wales border. 'Between the country of the Krauatun Kurnai [Q, Muk-thang] at the Snowy River and along the coast, and that of the Murring [Pa2, Ngarigo] of the Maneroo tableland to the north, and of the sea coast Murring [Pb4, Thawa] to the east, there lies a large stretch of country which was occupied by the now almost extinct Bidweli tribe. This tract is one of the most inhospitable that I have seen in Australia. I have traversed its scrubs, mountains and swamps four several times [sic], and I observed little in it of living creatures excepting a few wallaby, snakes, leeches, mosquitoes and flies. Yet the Bidweli inhabited the few small open tracts in it.' He states: 'this tribe may be considered an appendix to the Ngarigo, Murring, and Kurnai, being a mixture from them all. They had the two

sex totems of the Kurnai, some of the Murring totem names, and also the two class names of the Ngarigo.'

Howitt considers that the Bidweli were outcasts from neighbouring groups, that the tribe had 'been built up by the refugees from tribal justice or individual vengeance, who have organised themselves as far as they could do so on the old accustomed lines. It is a good example of what Dr Hearn has called the formation of a non-genealogical tribe.' For example, 'this *prima facie* case of a mixed descent is strengthened by the case of a Biduelli man, who claimed as his country the upper valley of a Brodribb River [in Kurnai territory]. He told me that his "father's father" was a Kurnai of Bukkanmunji [Buchan, which is further west still, also in Kurnai territory], who left his country and settled in the small open tract, known as Goungra Valley, west of Mount Ellery. His son obtained a wife from the Theddora [R2, Dhudhuroa] of Omeo, and the son of this marriage, my informant, married a Ngarigo woman. This pedigree accounts for *Yiirung* and *Yukembruk*, as sex totem and class name.'

Now Howitt also states 'they spoke a mixture of the adjacent languages'. Here we do have some linguistic information – the short grammar and vocabulary gathered by Mathews (1907). From this, Bidhawal appears not to constitute a separate language, but rather to be the most eastern dialect of Q, Muk-thang (or Kurnai). The grammatical forms given by Mathews for Bidhawal are almost identical to those for Muk-thang, as are most of the verbs and a good proportion of nouns. There are only a couple of verbs in common with its north-easterly neighbour Pa2, Ngarigo, but there are more names of mammals, birds and celestial bodies common to Bidhawal and Ngarigo than to Bidhawal and westerly dialects of Muk-thang. A smaller number of cognates are found with Pb4, Thawa, to the east, and with R2, Dhudhuroa, to the north-west. That is, the Bidhawal dialect of Muk-thang has a strong lexical substratum from languages of the other groups from which the Bidhawal tribe drew its members, but there is no evidence that it was a 'mixed language' in the sense of being equally related to two or more parent languages. (Unfortunately, the materials available on all the languages of this region are slim, so that it is impossible to investigate the situation in any depth.)

Appendix The 'Pama-Nyungan' idea

As stated above, the only way to prove that a group of languages is genetically related, in one language family, is to produce detailed grammars and dictionaries for each of them, compare these, establish correspondence sets and the like, reconstruct a good deal of the proto-language, and then establish the systematic changes by which each modern language developed. This involves many years of work, on the part of many people.

Swadesh (1951) suggested that genetic relationship could be demonstrated after just a few hours' work, by gathering a list of one or two hundred 'core vocabulary' (words of

a 'relatively stable character') for each language and then comparing them. Like all short-cuts, this didn't work. It was based on illicit assumptions – that one can infer genetic relationships from lexicon alone, that the lexicon of all languages is replaced at a constant rate, and that core vocabulary always behaves in a different way from non-core.

During the 1950s and 1960s lexicostatistics was applied to languages in several regions of the world, before it was decisively discredited (see Bergslund and Vogt 1962, and also Hoiijer 1956, Arndt 1959, Teeter 1963, Campbell 1977: 63–5). In most of these regions the genetic relationship between languages had already been studied in terms of normal methodology. Lexicostatistic results sometimes agreed with results obtained by standard comparative methodology and sometimes disagreed; the Swadesh method could easily be discarded.

Lexicostatistics was applied to the Australian language situation and here it was the first attempt at statement of genetic relationship. And here it has not been discarded, to the severe detriment of the field. In view of the fact that many (although not all) Australianists still work in terms of the lexicostatistic classification (and especially the 'Pama-Nyungan' element of it), and because other linguists continually refer to the classification when quoting data from an Australian language, it is necessary here to discuss the matter in some detail. (What follows also appears, in slightly different form, as the appendix to Dixon 2001.)

The lexicostatistic classification of Australian languages was due to K. L. Hale, G. N. O'Grady and S. A. Wurm and was published in O'Grady, Voegelin and Voegelin (1966), with a slightly revised version in Wurm (1972). The criterion for grouping was said to be a mechanical comparison of core vocabulary (a list that was of unspecified length and composition). Thus (O'Grady, Voegelin and Voegelin 1966: 24–5; Wurm 1972: 110):

Cognate Density of	Indicates
less than 15%	different phylic families
16–25%	different groups of the same phylic family
26–50%	different subgroups of the same group
51–70%	different languages or family-like languages of the same subgroup
over 71%	different dialects of the same language

(No information was given – in either source – on what should be inferred if the cognate density were exactly 15 per cent or exactly 71 per cent.)

In response to early criticisms of the methodology on which the classification was based, Wurm (1972: 109) states that 'though the basis of [the] classification was admittedly lexicostatistic in nature, typological criteria [were] taken into consideration

in arriving at the results and [were] regarded as decisive in doubtful cases'. Wurm appears not to realise that this simply makes it worse. As mentioned at the end of §2.1.1 (and illustrated in Dixon 1997: 31–4), if two languages share typological similarities these can most definitely NOT be taken as indicators of genetic relationship. The only type of similarity that provides a sure criterion for genetic linking is cognate sets, involving systematic correspondences of sound and of meaning.

In this classification, the languages of Australia were said to comprise a 'macro-phyllum' (a supposed genetic unit) which was divided into twenty-nine 'phylic families'. One of these has become well known in the literature: 'Pama-Nyungan' (named after the words for 'person' or 'man' in the extreme north-east and the extreme south-west) covers about three-quarters of the languages and more than three-quarters of the geographical area.

However, all that was published was the classification. The data on which it was based were not specified, nor were the cognate densities between languages. A different publication, O'Grady (1966: 121), did include a 'cognate density matrix' for a number of western languages and dialects. The percentages presented there do not fully accord with the lexicostatistic classification. Thus, the cognate density between 'Wadjeri' (my WGa1, Watjarri) and 'Nanda' (my WGb, Nhanta) is given as 42 per cent, which should indicate 'different subgroups of same group'. However, Wadjeri and Nanda are placed in the same subgroup (the 'Kardu subgroup') in O'Grady, Voegelin and Voegelin (1966: 37). (My calculation of shared vocabulary between them is 34 per cent.) The percentage given by O'Grady for cognate density between 'Targari' and 'Warienga' is 45 per cent; Austin (1988b: 7) gives a score of 80 per cent. O'Grady, Voegelin and Voegelin place 'Targari' and 'Warienga' in different subgroups whereas in fact they constitute mutually intelligible dialects of a single language.

The examples quoted in the last paragraph are relatively minor; others are more serious. I have calculated percentages of shared vocabulary using the data available on a range of languages and a high proportion of the figures would – applying the lexicostatistic criteria – give strikingly different classifications from those in O'Grady, Voegelin and Voegelin (1966) and Wurm (1972). For instance:

- (a) Between the 'Nyulnyulan phylic family' (my NE) and the 'Marngu subgroup of the South-west group of the Pama-Nyungan phylic family' (WI) there is a *c.* 40 per cent cognate density. On the lexicostatistic criterion these should be different subgroups of the same group; they were classified as different phylic families.
- (b) Between the 'Wororan phylic family' (NG) and the 'Bunaban phylic family' (NF) there is a cognate density of about 24 per cent, indicating that they should be different groups of the one phylic family, rather than distinct phylic families.

- (c) Between the 'Nyulnyulan phylic family' (NE) and the 'Bunaban phylic family' (NF) there is a cognate density of about 38 per cent, indicating that they should be different subgroups of the same group, rather than distinct phylic families.
- (d) Between the 'Bunaban phylic family' and the 'Djeragan phylic family' (ND) there is *c.* 38 per cent cognate density, which should indicate different subgroups of one group, rather than different phylic families.
- (e) Between the 'Wambaya phylic family' (NCb) and the 'Ngumbin subgroup of the South-west group of the Pama-Nyungan phylic family' (WJa) there is a *c.* 30 per cent cognate density; this should indicate different subgroups of the same group, rather than different phylic families.
- (f) Between the 'Wambaya phylic family' and the 'Karwan phylic family' (X) the cognate density is *c.* 34 per cent which should again indicate different subgroups of the same group, rather than distinct phylic families.
- (g) The 'Narrinyeric group of the Pama-Nyungan phylic family' (U) has a cognate density of no more than 15 per cent with any neighbour and should, on the criteria stated, be considered a distinct phylic family.

This is only a sample of the instances where actual cognate densities do not support the 1966 classification. (Note that the lexical scores I quote are for contiguous languages between the groups; full details of sources will be in the companion volume.)

The lexicostatistic classification of Australian languages assumed that all relationships between languages can be shown through a family-tree-type model; as the discussion throughout the present volume shows, this is not tenable. As mentioned above, the Australian classification operates in terms of the stock lexicostatistic assumptions – that genetic relationship can be inferred from lexicon alone, and that the lexicons of all languages change at a constant rate. The major assumption underlying lexicostatistics is that there is a core vocabulary which is less likely to be replaced by borrowing than non-core vocabulary. This may well hold in some parts of the world but it most emphatically does not apply in Australia. As mentioned in §2.1.1, similar figures (to within about 5 per cent) are obtained whether one compares two hundred or two thousand words between two contiguous Australian languages. Heath (1981b) is a detailed report on lexical borrowing in eastern Arnhem Land, demonstrating that all types of vocabulary are borrowable; as a consequence, he concludes that lexicostatistics in its standard form is not applicable to this situation (see also Breen 1990: 154).

The fact that erroneous lexical scores were obtained in many cases – as illustrated in (a–g) above – would have made the results unsound even if the method and the assumptions behind it had validity (which they did not have).

Cognate scores between contiguous languages are in fact useful as an indication of the degree of contact between the languages, and of how much borrowing there has

been. Figures such as 24 per cent for NG/NF, 38 per cent for NF/ND and 34 per cent for NCb/X are useful as indicators of degree of borrowing and relative time-depth of geographical contact. Note that verb scores and similarities of grammatical forms between all of these groups are very low. Each of NF, ND, NC and X is a low-level subgroup, and no higher-level genetic links can be established between them. (The three languages in group NG comprise a small linguistic area.)

The lexicostatistic classification has been accepted by the majority of people working on Australian languages, and by many people outside Australia. In particular, great emphasis is attached to the ‘Pama-Nyungan’/‘non-Pama-Nyungan’ distinction (where ‘non-Pama-Nyungan’ is used as a cover label for the other twenty-eight phyletic families in the 1966 classification).

There is a rough correlation between the ‘non-Pama-Nyungan groups’ and prefixing – twenty-five of the ‘non-Pama-Nyungan groups’ (all save Wambayan, Karwan and Minkin) use prefixes. If ‘Pama-Nyungan’ were a valid genetic group (as suggested by the 1966 lexicostatistic work) one might as a consequence posit a ‘proto-Pama-Nyungan’ ancestor language. But some Australianists have gone further. Heath (1978a: 10) – in a study of diffusion between Australian languages – works in terms of ‘proto-prefixing’, while Heath (1997: 200) has ‘proto-non-Pama-Nyungan’ (although this is ‘Pama-Nyungan Mark II’ – see below). Heath (1981b: 339) has ‘Proto-Australian’ dividing into ‘Proto-Pama-Nyungan’ and ‘Proto-Prefixing’, implying that ‘non-Pama-Nyungan’ is synonymous with prefixing, which it is not, in either its Mark I or its Mark II form. And if we do attempt to identify an ancient proto-language for the land mass which included modern-day Australia it should surely be proto-Australian/New-Guinean.

The development of prefixing is in fact an areal phenomenon. Languages in the prefixing region have pronominal prefixes referring to core arguments of the clause but – as shown in chapter 8 below – there is considerable variation in the actual forms of the prefixes and also in their ordering. In some languages the A (transitive subject) prefix precedes the O (transitive object) prefix, in some O precedes A, and in some a non-third-person argument precedes a third-person argument (irrespective of their syntactic functions). In some A and S (intransitive subject) are marked by pronominal prefixes but O by enclitics to the verb. In view of this variety it would be impracticable to essay any suggestion as to what the prefixal forms (and their ordering) might be in Heath’s ‘proto-prefixing’. It is instead clear that the structural type ‘prefixing’ has diffused over a continuous area, with each language developing pronominal and other prefixes in an individual way, from its own internal resources.

Although no proper justification had been provided for ‘Pama-Nyungan’, it came to be accepted. People accepted it because it was accepted – as a species of belief. Associated with the belief came a body of lore. One part of this is that there is a sharp

linguistic division along the 'Pama-Nyungan'/'non-Pama-Nyungan' geographical boundary. That this is untrue can be seen from a selection of cognate percentage figures (some were given earlier). From west to east across the 'Pama-Nyungan'/'non-Pama-Nyungan' boundary the lexical scores include (groups whose code letters begin with N are 'non-Pama-Nyungan'): WI/NE, *c.* 40 per cent; WJa/NF, *c.* 22 per cent; WJa/ND, *c.* 29 per cent; WJa/NCa, *c.* 30 per cent and X/NCb, *c.* 34 per cent. In the west there is a gradual shading in verb structure: NG has pronominal prefixes to the verb for both subject and object; NE has a pronominal prefix for subject but an enclitic for object; and WI has pronominal enclitics to the verb for both subject and object.

The appropriate question to ask was: 'what is the justification for "Pama-Nyungan"?' But many Australianists accepted – as an article of faith – that 'Pama-Nyungan' was a valid and useful idea. They simply asked: 'what is the nature of "Pama-Nyungan"?' The answer to this question involved reassessment of what languages should be taken to belong to 'Pama-Nyungan'. Thus, 'Pama-Nyungan Mark II' came into being; it differed from 'Pama-Nyungan Mark I' in the subtraction of NA, the Tangkic subgroup, and the addition of WMa, Yanyuwa. (It seems that the status of the Waanji/Garrwa subgroup, X, has not yet been decided on.)

As already mentioned, there are many linguistic parameters in terms of which Australian languages can be classified. One involves whether or not non-singular pronouns have number-segmentable forms; i.e. whether there is a single stem for each of 1n-sg and 2n-sg, with dual and plural (and sometimes also trial or paucal) number suffixes being added to them. This type of structure applies to most of the prefixing languages (WMa is a notable exception) and to the non-prefixing group NA. 'Pama-Nyungan Mark II' was effectively defined as those languages with number-segmentable non-singular pronouns. Lexicostatistic figures, which had been the justification for 'Pama-Nyungan Mark I', were no longer mentioned. However, it appears that (leaving aside NA and WMa) the detailed subgrouping within 'Pama-Nyungan Mark I', which had been purportedly justified on lexicostatistic counts, was left in place in 'Pama-Nyungan Mark II'.

'Pama-Nyungan Mark II' covers my groups A–Y, WA–WM while 'non-Pama-Nyungan Mark II' covers NA–NL. The convention of using a first letter 'N' for all the groups assigned to 'non-Pama-Nyungan Mark II' was adopted purposefully, as a way of demonstrating that no other parameter coincides with that of having number-segmentable non-singular pronouns. It almost coincides with the prefixing/non-prefixing distinction. It does not correlate with type of verbal organisation, nor with the distinction between pronominal systems organised on a singular/dual/plural and those organised on a minimal/unit-augmented/augmented basis. It does not correlate with the distinction between languages with ergative case marking, those with accusative case marking, and those with no case marking at all for core functions. It does

not correlate with the distinction between languages with noun classes and those without. It does not correlate with any phonological distinction. Other examples are provided in the discussion and maps throughout chapters 5–12; for almost every parameter, there are some languages from groups NA–NL on each side of the isogloss.

Another piece of ‘Pama-Nyungan’ lore is that there is a stock of lexemes found all over the ‘Pama-Nyungan’ area but not in ‘non-Pama-Nyungan’ languages. This is without foundation. To illustrate this, we can divide Australian languages (omitting the Papuan languages, in group A) into four sets of approximately equal size:

groups B–J, 64 languages	groups WA–WM, 59 languages
groups K–Y, 61 languages	groups NA–NL, 61 languages

I have investigated 116 lexemes each of which occurs in at least two of these sets (full details are in §4.2 below). The number in each set is:

groups B–J, 93 lexemes	groups WA–WM, 105 lexemes
groups K–Y, 98 lexemes	groups NA–NL, 89 lexemes

It will be seen that there are fewer instances of recurrent lexemes in the set consisting of groups NA–NL than in other sets, but not significantly fewer. (Note also the difficulty of recognising cognates in some of the prefixing languages which have undergone considerable phonological and morphological changes, leading to fused forms, nouns which only occur with a noun class prefix, and so on. It is likely that further, detailed work would reveal additional cognates in some of the N groups.)

The revamping of ‘Pama-Nyungan’ into Mark II is due in large part to Blake (1988) and Evans (1988a). They support the idea of all Australian languages constituting one language family, and of ‘Pama-Nyungan’ being a high-level genetic subgroup within this family. They suggest a number of innovations that are purported to have taken place between ‘proto-Australian’ and ‘proto-Pama-Nyungan’.

Evans (1988a) presents a small number of cognate sets where an initial apical stop or nasal in ‘non-Pama-Nyungan’ languages corresponds to a laminal stop or nasal in ‘Pama-Nyungan’ languages, e.g.:

- ‘sit’ is *ni-* in four of the twelve groups NA–NL and *nji(-n)* or *nhi-n* in twenty-six of the thirty-seven groups B–Y, WA–WM
- 2n-sg pronoun is *nu-* in c. 70 per cent of the languages in NA–NL (and also in X) and *nhu-* in c. 60 per cent of the languages in B–W, Y, WA–WM

He suggests that ‘proto-Australian’ had an apical in these words (which is continued in the ‘non-Pama-Nyungan’ groups) but that in ‘proto-Pama-Nyungan’ this apical became a laminal. However, as shown under (2) in §4.3.1, ‘sit’ is the only lexeme which perfectly fits the scheme. Others have an initial apical in some of the groups B–Y, WA–WM or an initial laminal in some of the groups NA–NL.

Interestingly, there is also a correspondence in the opposite direction, involving the final segment of a stem where a laminal nasal in 'non-Pama-Nyungan' languages corresponds to an apical nasal in 'Pama-Nyungan' languages:

- 2sg pronoun is *ninj-* in about half the languages of NA–NL, and is based on **nin-* in c. 95 per cent of the languages in A–Y, WA–WM. (Note that 2sg is *ninj-* in group X.)

The initial apical/laminal correspondence would be a possible piece of evidence in favour of 'Pama-Nyungan' as a genetic group, if the data were neat and tidy, which they are not. Evans' idea that initial apicals shifted to laminal in some languages is undoubtedly a correct one, but this is likely to have happened as an areal phenomenon, rather than as a change in 'proto-Pama-Nyungan' (the putative ancestor of a hypothesised 'Pama-Nyungan' genetic group).

Both Evans and Blake suggest two other bits of evidence for 'Pama-Nyungan Mark II' as a genetic group: the ergative allomorph *-ngu*, and the 1du(inc) pronominal form *ɲali*. Neither of these stands up under careful scrutiny. In fact ergative *-ngu* only occurs in about one-third of the 'Pama-Nyungan' languages and, even if there were any justification for positing a 'proto-Pama-Nyungan' it would be difficult to justify assigning *-ngu* to it. There is a full discussion in §5.4.3 (see map 5.1).

And although *ɲali* is found in no 'non-Pama-Nyungan' language it is also absent from about one-fifth of the 'Pama-Nyungan' languages, almost all on the geographical fringe of the area. It is simpler to suggest that *ɲali* diffused over a continuous region (there are in fact examples of its continuing diffusion) rather than assigning it to 'proto-Pama-Nyungan' (if this could be independently justified, which it cannot be) and having it become independently lost from nine or more peripheral areas. This is discussed under (f) in §7.3; see map 7.7.

Blake (1988) presents two series of pronouns, one 'Pama-Nyungan' (based in part on Dixon 1980) and the other 'Northern'. (Note that Blake does not state that these relate to 'proto-Pama-Nyungan' and 'proto-non-Pama-Nyungan' respectively, although there is an implication in this direction.) Blake's 'Northern' pronouns are discussed in detail in §7.2.1 below, where some are shown to be supportable but others to be totally without foundation. Of the 'Pama-Nyungan' n-sg forms he gives, none occur in more than about half the 'Pama-Nyungan' languages and most have an areal distribution. For instance, Blake's 2du **nyuNpaIV* is not found in any languages of groups L–V or WA in the south-east, nor in WE in the south-west (nor in G or X or Y). His 3pl **tyana* is missing from almost all languages in groups M–V, WC, WE, WF and WJ–WK (see §7.3.1).

In a note at the end of (e) in §7.3.1, I mention that some of the 'subgroups' recognised for 'Pama-Nyungan' show none of the critical features taken to be diagnostic of 'Pama-Nyungan' as a genetic unit (while other 'subgroups' show only one or two features).

It is worth looking at what lexemes could possibly be attributed to a 'proto-Pama-Nyungan'. Capell (1956: 87–94) gave the forms for thirty-six recurrent lexemes which he labelled 'Common Australian'; in §4.2 below this list is extended by another hundred or so forms. But the list includes no terms for flora and fauna, beyond the two generics *mayi* 'vegetable food' and *guya* 'fish'. No proto-language has been postulated, from anywhere else in the world, for which no specific flora or fauna terms can be reconstructed; the lack of reconstructions of specific flora and fauna terms casts further doubt on the plausibility of 'proto-Pama-Nyungan'. Note also that, as pointed out above, about 75 per cent of the lexical forms which recur across 'Pama-Nyungan' languages are also found in one or more 'non-Pama-Nyungan' languages.

O'Grady has, in various publications (for example, the papers in O'Grady and Tryon 1990), presented a series of putative reconstructions for 'proto-Pama-Nyungan' and for lower nodes on the lexicostatistic family tree. However, he permits such a width of semantic (and sometimes also phonological) variation that very few of them appear plausible. For example **mira* 'conduit' is reconstructed on the basis of *mira* 'vein' in Wla1, Njangumarta; *miri* 'creek' in WHb1, Payungu; and *mir?* 'cave' in Ya3, Ritharngu (p 85). One entry reads: **marrngu* (referent unclear). PNYU [Proto-Nyungo-Yuulngic] root. NYA[NGUMARTA] W *marrngu*, S *marrngu* ~ *manngu* "Aboriginal person"; GUP[APUYNGU, Ya1] *marrngu* "female possum", RIT[HARNGU, Ya3] *marrngu* "female brush-tailed possum". The highly-marked *-rrng-* cluster seems to assure cognation, semantic difficulties notwithstanding.' (p 83). In the Introduction (p xvi), O'Grady speculates that '50 per cent of these reconstructions' may be 'ultimately deemed non-viable by a consensus of linguists'; I would put the figure considerably higher than 50 per cent (and see further comments on O'Grady's putative cognate sets at the beginning of chapter 4 below). In the same volume Hendrie, an associate of O'Grady's, presents over 150 putative 'reconstructions' that commence with *t*, *n*, *l* or *r*. To quote an example chosen at random, Hendrie relates together *luka* 'watery mud' in WD, Pintupi; *yukarta* 'ashes for painting, white paint' in WHb1, Payungu; *turkal* 'dirty' in Mf, Gidabal; and *toka* (non-phonemicised) 'mud, dirt' in WBa, Kaurna. He gives a proto-form **luka* but attaches no meaning to it (p 61). The only plausible cognate sets in Hendrie's list are a couple already identified by Capell. To take things one step further, O'Grady and Fitzgerald (1993) have applied similar judgements in looking for cognate sets between 'Pama-Nyungan' and Tasmanian languages.

Dates have been proposed for 'proto-Pama-Nyungan'. O'Grady (1996) calculates a time-depth of eight thousand years on the basis of standard glottochronology (this is lexicostatistics with time calibration added) but suggests that the true time-depth might well stand at about half that. McConvell (1996) prefers a figure of about 6,000 BP and provides dates for many of the nodes on the lexicostatistic tree (which he appears to take absolutely literally). Thus, 'proto-Nyungic' is dated at 4,000 – 3,000

BP, 'proto-Ngumpin-Yapa' at 3,000 – 2,000 BP, and so on; in addition, definite geographical locations are provided for 'proto-Pama-Nyungan' and for each intermediate proto-language. Evans and Jones (1997) put forward a date of about 4,000 BP for 'proto-Pama-Nyungan' and a homeland 'in the area stretching between the Roper River across the Barkly Tableland into north-western Queensland'.

If 'Pama-Nyungan' were a genetic group and its proto-language were spoken four or six or eight thousand years ago, considerable questions must then be asked. It would be necessary to assume that 'proto-Pama-Nyungan' was spoken at just one location and that a sequence of expansions and splits then spread its descendants over 85 per cent of mainland Australia. But what could have been the trigger for this punctuation, in terms of the parameters outlined in §2.2.2? A charismatic and conquering leader, or a proselytising priest? Nothing could be further from the Australian ethos. A new material innovation which would have given its users a special advantage, enabling them to disperse or to dominate several hundred other tribal groups? Evans and Jones (1997) mention a quartzite flake technology and suggest (on a totally speculative basis) that there might have been a Quartzite Ceremony explaining how to produce such items, this being conducted only by the 'Pama-Nyungan'. They suggest a chain-reaction Quartzite Ceremony spreading across the continent and taking 'Pama-Nyungan' with it. Well, anything is possible, but some possibilities have a low level of probability.

In sum, no plausible cause presents itself for a wide-scale punctuation of the sort needed. And if 'Pama-Nyungan' did spread over a wide territory we should surely expect some relic areas, remnants of peoples speaking 'pre-Pama-Nyungan' languages. There are no obvious candidates; languages in the 'Pama-Nyungan' zone all accord with the general Australian pattern (which is one reason for regarding Australia as a long-established linguistic area).

It is clear that 'Pama-Nyungan' cannot be supported as a genetic group. Nor is it a useful typological grouping in that it relates to just one typological parameter (that of number-segmentable non-singular pronouns). This almost, but not quite, correlates with the parameter of prefixing. It has little or no correlation with other typological parameters.

The putative division between 'Pama-Nyungan' and 'non-Pama-Nyungan' (either Mark I or Mark II) has had a deleterious effect on the study of Australian languages. Too often, students are assigned to study a certain topic 'within Pama-Nyungan' or 'within non-Pama-Nyungan' when the feature under study is found in languages from all over the continent.

This sort of pat pigeon-holing comes to be quickly accepted by other linguists and also by specialists in other disciplines. Anthropologists, archaeologists and geneticists eagerly latch onto the lexicostatistic family tree as a template for their own studies.

We do, however, find some specialists who have carefully examined aspects of the lexicostatistic classification and find it unsupported. Birdsell (1993: 444–55), in his detailed study of the human genetic make-up of the Aboriginal population of Australia, compared individuals from groups speaking languages from five of the lexicostatistic ‘phylic families’: Djeragan (my ND), Nyulnyulan (NE), Bunaban (NF), Wororan (NG) and ‘Pama-Nyungan’ (dealing here with languages from my groups WD, WI and WJ). Birdsell finds a ‘surprisingly small’ difference between dyads chosen from within a phylum and dyads chosen from between phyla. That is, he finds that the lexicostatistic phyla have no significant status in terms of human genetics. He does find a marked clinal discontinuity on the western boundary of the Aranda (Arrernte) tribe, between my groups WL and WD. This has implications for the way in which these groups moved, and came into contact with each other; it is discussed under (d) in §13.3.

Part of the lexicostatistic hypothesis is that the Yolngu subgroup (my Y) from eastern Arnhem Land is a discontinuous outlier of the ‘Pama-Nyungan phylic family’. It is true that the Yolngu languages are non-prefixing, surrounded on two sides by prefixing languages (the sea is on the other two sides). Proto-Yolngu was undoubtedly non-head-marking but two sets of languages on the inland fringe of the Yolngu area have recently developed head marking and one is at the preliminary stage to the development of prefixing (pronominal enclitics are attached to the word immediately preceding the verb, from whence they would be likely to become proclitics and then prefixes to the verb) – see §8.8 below. Yolngu languages do show 1du.inc *ḡali*. But they show almost no other features that have been presented as criteria for ‘Pama-Nyungan’, e.g. ergative *-ḡgu* or the various other pronominal forms. If ‘Pama-Nyungan’ could be established as a genetic or typological group, there would not be strong reasons for including Yolngu as part of it. Yolngu as a genetic subgroup is discussed under (6) in §13.1 below.

Overview

This chapter fulfils a number of functions. It begins, in §3.1, by describing three semantic features which permeate the dictionaries and grammars of Australian languages, and concludes, in §3.4, with a brief survey of special speech styles (song styles, initiation styles and avoidance styles). In between there is an introduction to the main points in phonology (in §3.2) and grammar (in §3.3) in order to provide an initial perspective on the nature of Australian languages. §3.3.11, on negation, and §3.3.12, on complex sentences, are self-contained summaries of these topics, on which there is no specific later discussion. All of the other subsections within §3.3 provide a brief introduction to a topic that is gone into in some detail in later chapters.

As pointed out in the last chapter, the Australian language situation is here viewed as a long-term equilibrium zone; it is certainly the longest-established linguistic area in the world. The aim of this volume is to investigate the parameters of variation within this area, and the ways in which languages change with respect to them.

It is likely that, at an earlier stage, languages in the Australian linguistic area (a) were mildly synthetic and agglutinative, with some suffixes but no prefixes; (b) were dependent marking; and (c) had a mixed ergative and accusative morphological profile. There has been steady development towards a more strongly synthetic structure, with the creation of new affixes, mostly on a language-particular basis. There has been a trend towards head marking, with the development of bound pronominal clitics and affixes. In one geographical region bound pronominal prefixes have developed (together with other prefixes, which vary from language to language); and in some of the languages of this region agglutination has developed into fusion. Most languages maintain a mixed accusative-and-ergative profile although some have become fully accusative and a few fully ergative at the morphological level. Languages in one region have developed switch-reference marking; as elsewhere in the world, this is on an accusative basis. A number of languages outside this region have an S/A pivot (accusative syntax) while a few have an S/O pivot (ergative syntax).

The science of linguistics has an empirical basis. One must undertake grass roots research – to understand and describe one or more languages – in order to

gain basic competence in the principles of linguistic analysis and comparison. For instance, anyone wishing to do typological or historical study on a given language family or linguistic area must first acquire a thorough knowledge of one or more of the languages belonging to the family or area. In similar fashion, the reader will be able to get the maximum out of the survey of Australian languages in the chapters which follow if they have studied one or more good grammars of Australian languages.

The five volumes so far published of the *Handbook of Australian languages* (Dixon and Blake 1979, 1981, 1983, 1991, 2000) include grammatical sketches of a cross-section of languages. Other sound, well-presented and accessible descriptions include (mentioning no more than one book per author): Alpher (1991) on Eb1, Yir-Yoront; Austin (1981a) on WAb2, Diyari; Blake (1979a) on W1, Kalkatungu; Crowley (1978) on Mf, Bandjalang; Dench (1995) on WHc2, Martuthunira; Dixon (1972) on H1, Dyirbal; Donaldson (1980) on Nc3, Ngayambaa; Evans (1995a) on NAb1, Kayardild; Goddard (1985) on WD, Yankuntjatjarra dialect; Heath (1978b) on NBd1, Ngandi; Hercus (1994) on WAa3, Arabana-Wangkangurru; Lee (1987) on NL, Tiwi; Merlan (1994) on NBI2, Wardaman; Nordlinger (1998) on NCb3, Wambaya; Rumsey (1982a) on NG2, Ungarinjin; and Waters (1989) on Yc, Djinang and Djinba.

3.1 Semantics

All languages deal with approximately the same set of universal concepts, but these are combined and coded in different ways. One language may have 'want', 'go' and 'come' as independent lexemes while in another language they could be derivational affixes to a verb. And so on.

In order to achieve a thorough understanding of the nature of a language it is necessary to gain an appreciation of the semantic patterns which underlie its lexical and grammatical organisation. §§3.1.1–2 briefly discuss two typical Australian characteristics, the linking of 'actual' and 'potential', and the linking of 'volitional' and 'non-volitional'. Then §3.1.3 examines a pervasive trait, the habit in Australian languages of using just a generic term, be it noun or verb, and adding further specification only occasionally, when this is communicatively necessary.

3.1.1 *Actual/potential*

O'Grady (1960) first drew attention to the fact that a single lexeme may cover 'wood' and 'fire', or 'animal' and 'meat', or a type of plant and the fruit that it bears, or a type of timber and an artefact which is made from it. For instance, in H1, Dyirbal, *jiman* is the name both for the tree *Tetrasyandra laxiflora* (tetra beech), and for the firestick that is made from it (a thin stick which is rapidly twirled against a depression in a flat board, to produce a spark).

That is, wood will burn to make fire, an animal is potential meat, an appropriate tree will bear fruit, and a suitable timber can be made into an artefact. A single term is used for what actually is, and also for what has the potential to become, something.

The same principle applies to verbs. One lexeme may cover both 'hit, in a potentially lethal manner, as with a stick' and 'kill', another may be used for both 'seek' and 'find', with a further lexeme combining the senses 'lie down' and 'sleep'.

3.1.2 Volitional/non-volitional

Australian languages typically have a single lexeme for a type of activity, irrespective of whether or not it is volitional. There is likely to be one verb which covers both 'fall over', which is non-volitional, and 'throw oneself to the ground', which is volitional. Some languages have a single verb covering both 'ignore (someone or something)', a volitional activity, and 'lose (something)', which is non-volitional; and some have one verb covering 'hide' (volitional) and 'lose' (non-volitional).

In northern dialects of Dyirbal the verb *dumba-l* is used to describe someone picking up something and taking it along with them, or a flood washing a camp away, or a car running into a person (normally, the car impacts into the person and carries them along with it for a short distance). In the first sense the agent is human and acts volitionally; in the other two senses the agent is inanimate and necessarily acts non-volitionally.

In Australian languages we typically find one verb covering both 'see' and 'look at', and another for 'hear' and 'listen to'. For each verb the second sense is necessarily volitional whereas the first is likely to be non-volitional.

See also the discussion in §3.3.5 of purposive inflection on verbs, which indicates something that follows from a previous action with the previous action being either volitional or non-volitional in this regard.

3.1.3 Primacy of generic terms

Australian languages are rich in specific names for almost every species of tree and vine, every type of bird and frog, every stage in the development from chrysalis to butterfly or beetle, every bone and muscle in the body. They also have a large range of finely articulated adjectives and verbs.

But two important properties have often been overlooked. The first is that each language also has a set of lexemes with an abstract or generic meaning. The second is that in many languages the first reference to an object or an action is likely to be through a generic term. This may, if needed, be followed up by fuller specification using a lexeme with more particular reference.

A field work anecdote will illustrate the abstract nature of one noun in G2, Yidinj, which corresponds to a number of specific nouns in English. I first recorded *buggu* with the meaning 'knee'. I then heard *buggu* used to describe a wave in the sea and

put this down to shape similarity. *Bunggu* is also used for the bend in a boomerang. And for the bend in the body of a snake as it moves along the ground. Again, from the Anglocentric viewpoint of 'knee' as the main meaning and the other senses as metaphorical extensions, I regarded the 'boomerang' and 'snake' senses as being based on similarity of shape. But one day an elderly speaker remarked that the wheel of a motor-car is called *bunggu*. Eventually, I worked out that *bunggu* has a basic general meaning 'that part of a body whose movement is the major factor in propelling the entire body (along the ground, or through the air, or across the water)'. In keeping with this, *bunggu* is also used metaphorically for a 'turn' in singing, someone taking over the singing of a song part-way through; it is this movement that keeps the song going.

Many Australian languages have a term that is at first glossed as 'camp' or 'hut' but in fact has a very general meaning. In H1, Dyirbal, for instance, there is a term *midja* whose full range of meaning is: (i) any hut or shelter e.g. 'I'll build a *midja*', 'look inside the *midja*!'; (ii) the place where a number of people are camped and have erected temporary or semi-permanent shelter e.g. 'they settled down at that *midja*'; (iii) the group of people camped at a particular place e.g. 'the earthquake swallowed all the *midja* (i.e. the people camped there)', 'share the eel around the *midja*'; (iv) any past or potential camping site e.g. 'have a look for a flat *midja*'; (v) any place, of any nature e.g. 'you remember that *midja*', 'who owns that *midja*?'; (vi) any tract of country e.g. 'all the King Ranch *midja* has been desecrated'; (vii) the world, as in 'God made the *midja*'; (viii) the lair of any animal etc. e.g. 'hornets make their *midja* in a hollow log'; 'spider's *midja*' was used when the word for 'web' was temporarily forgotten. Note that when *midja* refers to a place it includes all the earth underneath it and also all the sky above e.g. 'the [sky above the] *midja* turned red' (Dixon 1980: 105).

(a) *Generic nouns*. Languages in some parts of the world have a set of classifiers that can be (or must be) used with a specific lexeme in certain syntactic environments e.g. when counting. Here the specific noun is the primary term and its meaning determines the classifiers it can take. Some Australian languages have what appears, at first sight, to be a similar phenomenon and the term classifier has been used here too.

However, for some Australian languages the situation is significantly different from that in languages from other parts of the world and, in view of this, 'classifier' is a misleading term to use. It is most appropriate to talk of generic terms – both nouns and verbs – which are in many instances the primary means of reference.

When recounting a narrative, a speaker of an Australian language may just use generic terms, if the actual referent is clear to the addressees (from shared knowledge and/or from context). A specifier may be added if it is considered necessary to provide more particular referential information actually in the discourse (rather than through implication or gesture). One story recorded in G2, Yidinj (Dixon 1991a: 32ff), describes two

ancestral brothers going from place to place, providing various kinds of food for people to eat. There are twenty occurrences of the generic term *mayi* ‘non-flesh food’ in the text for referring to a variety of types of vegetables and fruit. Only twice does it receive explicit further specification. The eleventh occurrence is in the NP *mayi djimirr*, the *djimirr* referring to a small mountain yam. Just before the nineteenth occurrence the vegetable *gubuum* ‘black pine nut (*Prumnopitys amarus*)’ is specified (without any accompanying *mayi*) and then referred to in the next clause through *mayi*.

The point being made is that speakers of Australian languages will typically use just a generic term, its specific reference being clear from the context or from shared knowledge of speaker and addressees. There is a full set of specific nouns – referring to every type and species – but these are only employed when communicatively necessary. Thus, rather than talking of specific nouns that can be accompanied by a classifier, it is more appropriate – in many Australian languages – to talk of generic terms which can be accompanied by nouns with specific reference. This is discussed in some detail in chapter 10.

Australian languages are notable for their freedom of word order. The words in a noun phrase may be separated into two (or, sometimes, more) parts, occurring at different places in the clause. One strategy is to place part of the NP before the verb and the remainder after the verb; the part preceding the verb is typically a generic noun or a deictic, with specific noun or adjective coming after the verb. It seems as if an event is first outlined through a general description of the participants, and then of the action; once this is achieved, referential details can be filled in. (Examples from G2, Yidinj are in Dixon 1977a: 269–70.)

It is generally said that Australian languages make a distinction between alienable and inalienable possession. This is true, in a rough-and-ready way, but such a formulation essentially misses the point. Alienable possession is shown by genitive marking of the NP (which can be just a noun or a pronoun) referring to the possessor; the possessor phrase modifies the possessed noun which is head of the whole NP. That is, in ‘[old woman]-GENITIVE dog’ (‘the old woman’s dog’) it is ‘dog’ which is head of the phrase, and will be cross-referenced on the verb in languages with cross-referencing.

Australian languages show a whole–part relationship – this is what is often called inalienable possession – by simply apposing the noun referring to the whole and that referring to the part; the former functions as head of the NP. In Eb1, Yir-Yoront (Alpher 1991), an NP can be just *pam* ‘person’ or *pam yor* ‘person hand’. Parts of parts can be specified by further apposition e.g. *pam yor wel* ‘person hand nail’ (‘person’s fingernail’). Note that the ‘possessor’, *pam*, is head of each of these NPs. In Australian languages a noun referring to, say, a person or animal (e.g. ‘possum’) may be stated as discourse topic; in a later clause it may be more fully specified by addition of a part noun (e.g. ‘possum claw’), later reverting to just the original noun (‘possum’). Here

‘possum’, ‘possum claw’ and ‘possum’ will be regarded as coreferential for the purpose of discourse organisation. (See Dixon 1972: 72 for an example of this topic ‘elaboration’ and ‘reversion’.)

We have seen how a generic noun may be given more particular reference by the addition of an appropriate specific noun, and how a noun referring to a whole can be given more specific reference by the addition of a noun referring to a part. The two grammatical processes both involve apposition and are semantically similar. They can, of course, be combined. Thus in Yir-Yoront one could say any of:

(1)	minh	‘game animal’ (generic noun)
	minh themthem	‘brush turkey (<i>Alectura lathami</i>)’ (adding a specific noun)
	minh themthem marr	‘brush turkey’s feather’ (adding a part noun)

Generic nouns in Australian languages can develop into classifiers and thence into affixes marking noun classes; this is discussed in chapter 10. In some languages, generic nouns may become incorporated into the verb; see §9.3.

(b) *Generic verbs.* The strategy of basically working through a generic term, and then providing further specification as necessary, applies not only for nouns but also for verbs. The prototypical Australian language has a small class of what I call ‘simple verbs’ (taking tense and/or aspect and/or modality and/or mood – TAM – inflection) each with a rather general meaning. Where a general description is sufficient to communicate to the addressees what is being referred to – within the context of the speech situation – then a simple verb may be used alone. In circumstances where more particular reference is required, a coverb may be included in apposition with the simple verb. The coverb adds a more specific meaning (and it usually does not take TAM inflection). The relation between a coverb and a simple verb is both semantically and grammatically similar to that between a specific noun and a generic noun.

This kind of verbal organisation can also be illustrated from Eb1, Yir-Yoront. The simple verb *karr*, for instance, has a wide general meaning ‘see, look at, watch, hear, listen to’. But it may be further specified by adding a coverb (note that a coverb most frequently precedes a simple verb, whereas a specific noun most frequently follows a generic noun). For example (Alpher 1991: 161):

(2)	pin=karr	‘hear, listen to’ (<i>pin</i> is a noun ‘ear’)
	monʔəl=karr	‘see off’ (<i>monʔəl</i> is related to the noun <i>monʔol</i> ‘back of neck’, the combination literally meaning ‘look at back of neck’)
	ŋawrr=karr	‘fix in vision to orientate oneself’ (<i>ŋawrr</i> seems not to appear outside this combination)

Another example of simple verbs and their further specification by coverbs can be given from NBI2, Wardaman (Merlan 1994). The set of simple verbs includes *-gi-*, which when used alone means ‘put down’. Combinations of *-gi-* with a coverb include:

(3)	badbad -gi-	‘cover’
	barlarr -gi-	‘hide’
	denberr -gi-	‘hang up (on peg)’
	wegba -gi-	‘swallow’
	jurlgba -gi-	‘push along’
	birdidj(ba) -gi-	‘find’

None of these coverbs can be used without a simple verb. All but one of them just co-occur with *-gi-*; *birdidj(ba)* can also be used in *birdidj(ba) -na-* ‘find child’, where *-na-* means ‘see’ when used alone.

The general meaning of *-gi-* should not be taken to be its meaning when used alone, but instead the common semantic element in all the combinations in which it occurs. Perhaps, in this case, ‘make something be (or perceive something to be) in a place (e.g. by putting or pushing it there)’.

Members of one set of Australian languages have a small number of simple verbs and many combinations of each of these with coverbs. Wardaman belongs to a second set where there are a fair number of simple verbs (about 130 for Wardaman) and just a few of these (fifteen or sixteen for Wardaman) typically occur in combination with coverbs. Other languages have lost this grammatical pattern and instead have many hundreds of simple verbs with very few verb combinations. Chapter 6 describes these sets, and shows how one type can develop into another.

H1, Dyirbal, is of the last-mentioned type. Its dictionary includes over 750 verbs of which over 85 per cent are monomorphemic. Here each verb has a specific meaning, just as in European languages, and we miss the phenomenon of there being a small number of simple verbs with wide general meanings, to which a coverb can be added for further referential specification.

However, words with generic meaning are found in Dyirbal, in a different mode. There is a special speech style called Djalnguy (or, more informally, ‘mother-in-law language’) which must be used in the presence of people in a certain avoidance kin relationship (basically cross-cousins, or classificatory mother-in-law and son-in-law and father-in-law and daughter-in-law). A one-to-many relationship holds between lexemes in the Djalnguy style and those in the everyday language style (called Guwal). That is, there is just one generic term in Djalnguy corresponding to a set of specific terms in Guwal. For example, there are half-a-dozen terms for species of kangaroo and wallaby in Guwal, but just one general term in Djalnguy. (See Dixon 1982a: 53–139.)

Table 3.1 *Correspondences between verbs in two language styles for H1, Dyirbal*

GUWAL EVERYDAY STYLE	DJALNGUY AVOIDANCE STYLE
<i>baygu-l</i> 'shake, wave, bash (something on something)' <i>djinda-l</i> 'blaze bark, cut steps on tree, sharpen pencil' <i>darrbi-l</i> 'shake a blanket to get crumbs/dirt off it'	<i>bubama-l</i> 'set in motion in a trajectory, holding onto'
<i>julma-l</i> 'squeeze (e.g. boil), mix up (e.g. knead dough), crush ants in hands (to make medicinal drink), squeeze fruit' <i>bugama-l</i> 'chase after something to catch it (e.g. a runaway bullock, one's spouse)'	<i>gunduma-l</i> 'bring together'
<i>midju-l</i> 'take no notice of' <i>budjilmba-l</i> 'don't care about, completely ignore (someone who is trying to attract one's attention, e.g. for a fight)' <i>wulayma-l</i> 'lose' <i>ɲadji-l</i> 'forget'	<i>njanjdju-l</i> 'not be paying attention to (volitionally or non-volitionally)'

The same applies to verbs. Table 3.1 shows that the Djalnguy style of Dyirbal operates in terms of general verbal concepts, just like the normal speech styles of Yir-Yoront and Wardaman. Each Guwal verb in the left-hand column has a meaning which is a further specification from the general meaning of the corresponding Djalnguy verb in the right-hand column.

Another language with many simple verbs and rather few verb compounds is Nc3, Ngiyambaa (Donaldson 1980: 201–24). In this language a new set of generic verbs is evolving, an example of the loss-and-renewal cycle that characterises many typological parameters across the Australian linguistic area. In Ngiyambaa a verb may be modified by an adverbial-type compound. The first element of the compound bears an adverbial meaning (e.g. 'with energy', 'failing', 'do to all of a set of objects') and the second element is one of eight generic verbs. These include *-dhinma-* 'impact' (used with verbs such as 'punch', 'whip', 'kick' and 'hit, kill'), *-dha-* 'do with the mouth' (used with 'eat', 'drink', 'swallow', 'lick', etc.), *-bi-* 'become detached from something' (used with 'give' and 'throw'). This is discussed further in §6.2.

In summary we posit an original scheme whereby great use is made of a smallish number of generic nouns and verbs, with wide meanings. To these can be added nouns or coverbs with more specific meanings, as required for communicative purposes. In some languages the lexical set of generic nouns has developed into classifiers and then into morphological noun class markers – see chapter 10. In another group of languages

coverb-plus-simple-verb combinations have developed into unanalysable verb roots – see chapter 6. But these changes may be cyclic, with generic terms developing anew, as appears to be happening in Ngiyambaa.

3.2 Phonology

A full discussion of phonology is in chapter 12. This preview is included as background to the discussion of lexicon and grammar in chapters 4–11.

There is a predominant phonological pattern found across the continent and parameters of variation within it. Some of the changes are cyclical within the overall template. For example, a group of languages may have a single laminal series, then develop a laminal contrast, and later lose this; syllable-final stops may be proscribed, then developed, and later lost.

The canonical consonant system is set out in table 3.2. This employs a practical orthography (using just letters from the roman alphabet, plus *ŋ*). Where they differ, phonetic symbols are shown in parentheses; these are IPA symbols, except that *y* is used for the laminal semi-vowel, and apico-postalveolar articulation (retroflexion) is shown by a dot under the letter. (A fuller version of this chart is at table 13.1 in §12.1.)

There are four basic places of articulation, best characterised in terms of the active articulator. Labial and dorsal (back of tongue) sounds are made at the periphery of the mouth while apical (tip of tongue) and laminal (blade of tongue) sounds are central in the mouth. We get the following sounds:

- Bilabial: all languages have stop *b* and nasal *m*.
- Dorso-velar: all languages have stop *g* and nasal *ŋ*; all languages also have a dorsal–labial semi-vowel *w*.

Table 3.2 *Canonical consonant system in Australian languages*

Place						
Manner	peripheral		non-peripheral (coronal)			
	bilabial	dorso-velar	lamino-		apico-	
			palatal	dental	alveolar	post-alveolar (retroflex)
rhotic					rr [r]	r [ɹ]
lateral			lj [ɭ]	lh [ɮ]	l	rl [ɭ]
nasal	m	ŋ	nj [ɲ]	nh [ɳ]	n	rn [ɳ]
stop	b/p	g/k	dj/tj [ɟ/c]	dh/th [d̪/t̪]	d/t	rd/rt [d̪/t̪]
semi-vowel	w		y			

- Laminar: some languages have a single series of laminal stop and nasal (written *dj*, *nj*) while others show a contrast between a lamino-palatal series (*dj*, *nj*) and a lamino-dental series (*dh*, *nh*) – see §12.2. Some languages have two laminal laterals (*lj*, *lh*), some have just one (*lj*) while others lack any. In just three languages there are two semi-vowels, lamino-palatal (*y*) and lamino-dental (*yh*); other languages have a single laminal semi-vowel (*y*).
- Apicals: some languages have a single series of apical stop and nasal (written *d*, *n*) while others show a contrast between an apico-alveolar series (*d*, *n*) and an apico-postalveolar or retroflex series (*rd*, *rn*) – see §12.3.1. All languages have an apico-alveolar lateral (*l*) and some also have an apico-postalveolar lateral (*rl*).

Almost all languages have two rhotics (or *r*-sounds), one articulated relatively forward in the mouth and pronounced as a trill or tap or flap (written *rr*) and the other articulated further back, generally pronounced as a semi-retroflex continuant, but sometimes as a tap (written *r*). Some languages have just one rhotic and a number have three – see §12.3.2. The question of whether rhotics should be grouped into the same two series as apical stops, nasals and laterals is an interesting one; it is discussed in §12.3.3.

There is generally a single stop series, which may have voiced or voiceless (lenis or fortis) articulation. This is written with the letters *b*, *g*, *dj*, *dh*, *d* and *rd* in some languages and with *p*, *k*, *tj*, *th*, *t* and *rt* in others (these being equivalent conventions). Most Australian languages lack any fricative phonemes. However, in about a quarter of the languages there is a contrast between two stop series or a stop series and a fricative series. The stop contrast is basically fortis/lenis, which may be realised as long/short and/or voiceless/voiced and/or aspirated/non-aspirated. Details are in §12.5.

A number of Australian languages have the glottal stop as a segmental phoneme. In every case this has developed by recent diachronic change, from *r*, *t*, *p*, *k*, *y* or *w*. One block of languages has glottalisation as a prosody, generally applying to the syllable – see §12.6.

About two-thirds of the languages have a system of three vowels, high front *i*, high back *u* and low *a*. For three languages a system of just two vowels has been posited (low vowel /a/ and an unspecified vowel, written as /ə/). Other languages have additional vowels, up to a maximum of eight – see §12.8. The canonical pattern is for stress to go on the first syllable of a root and of a suffix. A few languages show penultimate stress. In some, stress placement is complex and depends on a variety of morphological and phonological considerations. For only one language (for which the data are scanty) is it likely that stress is contrastive. See §12.1.4.

It is likely that at an earlier stage there was a length contrast for vowels just in the initial, stressed syllable of a word. This is retained in some languages on the fringe of the continent but has been lost over a wide geographical area; a number of languages have recently developed a new length contrast by a variety of mechanisms – see §12.8.4.

The canonical syllable pattern is CV(C). In many languages every word must have at least two syllables, giving a basic template CV(C)CV(C). An apical contrast is generally neutralised in syllable-initial position and a laminal contrast in syllable-final position. Generally, the full set of consonant contrasts applies only for a medial consonantal position flanked by vowels. The most frequently occurring phonemes in syllable-initial position are peripherals, followed by laminals, and then apicals; this is reversed for syllable-final position. See §12.1.3.

Within a stressed syllable the pitch peak occurs relatively late. In some languages this has led to a series of diachronic changes, commencing with the dropping of a word-initial consonant. This may lead to the shift of stress from first to second syllable, and then loss or shortening of the exposed initial vowel. This syntagmatic shortening has led to paradigmatic augmentation; as conditioning environments are lost, what were phonetic alternations become phonologically contrastive. This has, in some cases, led to the development of additional vowels and/or of a contrast between two series of stops, or between stops and fricatives, or between rounded and unrounded consonants.

A particular feature of Australian languages is that the lowering of the velum for nasal consonants tends to be delayed as long as possible. There is thus little phonetic nasalisation of vowels when next to a nasal consonant, and for only one language have nasalised vowels been reported as contrastive phonemes. Lowering of the velum can be so delayed as to produce prestopped nasals, which are generally allophonic but have emerged as phonemic in some languages that have undergone initial dropping. §12.4 discusses changes due to initial dropping and medial strengthening.

§12.7 summarises other changes, such as assimilation, dissimilation and lengthening. Assimilation can be vowel-to-vowel, or consonant-to-consonant, or consonant-to-vowel (as in changes such as $\eta i-$ > $nji-$ and $nju-$ > $\eta u-$).

In most languages words begin with a single consonant and end with either a single consonant or a vowel. In a number of languages all words end in a vowel and in some all words end in a consonant. There are languages with initial CC clusters, achieved by omitting an initial CV- and exposing medial -CC-, or by omitting the vowel between first and second consonants. And some have final CC clusters, which have developed by similar paths. In addition, a number of languages have medial clusters of three consonants, most of which probably developed through omitting an unstressed medial vowel. Details are in §12.9.

3.3 Grammar

Australian languages have a recognisable grammatical profile which will be outlined in this section. I shall also mention some directions of change within the profile.

3.3.1 Word classes

Each Australian language has two main sets of word classes, plus a residue set:

- Nominal classes: proper names, common nouns, adjectives, time words, locational words, demonstratives, pronouns.
- Verbal classes: simple verbs (in all languages), coverbs (in many languages), adverbals (in some languages).
- Other classes: particles, ideophones, interjections and (in some languages only) conjunctions.

The term ‘particle’ is used here (as often in Australian studies) for a class of non-inflecting words or clitics with meanings such as ‘might be’, ‘really’, ‘only’, ‘try’, ‘hypothetically’, ‘contrastively’, ‘not’ and ‘don’t’. The same types of meanings recur but the forms used vary from language to language.

Australian languages include a class of ideophones, or institutionalised vocal representations of actions. The only considered account is by Alpher (1994 and p.c.) who lists around ninety ideophones in Eb1, Yir-Yoront, including *thup*, relating to ‘closing something’; *trrra*, relating to ‘gathering together things that clatter’; and *tr tr tr* (continued ad lib) ‘running a flame along a line’. These show a different set of phonemes and phonotactics from the regular lexicon. They typically occur either immediately before a verb or clause-finally (then being accorded contrastive intonation), and only in imperatives and in positive declarative main clauses in narrative. Alpher suggests that they be regarded as a type of semantic ‘punctuation’, indicators of new information.

Many scholars have regarded ideophones as being outside the linguistic system and have paid little or no attention to them. But, as Alpher shows, ideophones can develop into regular linguistic forms, becoming coverbs or nouns or even prefixes. The nature, status and role of ideophones in Australian languages is a topic that has been neglected, and should be accorded a high priority in future research.

There has been little work on the comparative study of interjections across the languages of Australia. It does appear that a number of forms are widespread, including *yuwuy*, meaning something like ‘alright’; *yagay*, expressing sudden emotion (what types of emotion are involved differs between languages); and *gawu* or *gabu*, a hortative ‘come here’ (see Dixon 1972: 18–19).

Australian languages do not have any class of ‘articles’, definiteness generally being shown by demonstratives or inferable from discourse structure. There can, however, be more subtle means for indicating definiteness. For instance, in Ngiyambaa, third person pronominal enclitics to the verb are optional. If a third person predicate

argument is shown just by an NP, it is taken to be indefinite; if it is shown by an NP and by a pronominal clitic it is taken to be definite – see (33–4) in §8.7.

There are seldom any prepositions or postpositions. The semantic load carried by this word class in other languages is taken care of by case inflections and by body part nouns used with a spatial sense. Only a few languages have explicit conjunctions – see §3.3.12.

Most Australian languages lack a separate class of numbers. There are generally reported to be forms meaning ‘one’, ‘two’ – also sometimes ‘three’ – and ‘many’ in the adjective class. However, Hale (1975) has argued that these are not numbers in the strict sense of the term but rather ‘indefinite determiners’.

Types of adverbial expression are discussed in §6.2.

3.3.2 *Nouns and adjectives*

There are, in many languages, different markings of core syntactic functions (S, A and O) for (a) nouns and adjectives; (b) pronouns; and (c) demonstratives. Time and locational words generally do not occur in core functions. All of these word classes are grouped together under the label ‘nominals’, on the grounds that they have the same (or similar) case marking for at least some peripheral functions – dative, locative, allative, ablative, etc.

Proper nouns often have slightly different morphological possibilities from common nouns. For instance, in WD, the Western Desert language, ergative is *-lu* and locative is *-la* onto proper nouns ending in a vowel, but *-ŋgu* and *-ŋga* respectively onto common nouns ending in a vowel. Also, allative *-kutu* and ablative *-ŋunu* are added directly to the stem of a common noun but are increments after locative for proper nouns. In some languages the accusative suffix *-nha* is found only with pronouns and proper nouns, not with common nouns.

In a number of languages common nouns with human referents are set off by the details of their morphology, e.g. Y, Yolngu. An extreme example is found in WAb2, Diyari, where there are three distinct case patterns (with differences of form between them): (a) an absolutive–ergative system for male personal names and sg common nouns; (b) a nominative–accusative system for n-sg first and second person pronouns; and (c) a tripartite system (with all of S, A and O marked differently) for female proper names, n-sg common nouns and other pronouns. (See Austin 1981a: 47.)

Nouns and adjectives generally show the same morphological and syntactic possibilities, so that it can be difficult to give criteria for recognising them as distinct classes. For a language with noun classes or classifiers these provide a criterion: an adjective can generally occur with every noun class or classifier whereas a noun will generally only be able to occur with one (sometimes with a small number, but not with all of them). Some linguists maintain that for languages lacking noun classes and classifiers, adjectives cannot be distinguished from nouns. This implies that if a language has noun

classes it will have a distinguishable class of adjectives, but if it loses noun classes then it necessarily loses its adjective class (the noun and adjective classes merging). This is an implausible and unacceptable way of dealing with the analytic problem of providing a grammatical characterisation for what is undoubtedly a distinct semantic class (although with some fuzzy edges).

Alpher (1991: 22–6) gives an insightful set of five criteria for distinguishing between nouns and adjectives in Yir-Yoront. These include: (i) the modifier *marr* has the sense ‘actual, present-day’ with nouns but ‘very’ with adjectives; (ii) a noun will be the answer to a question involving *ɲan* ‘what’, while an adjective referring to a relatively transient state will be the answer to a question including *waruwurr* ‘how’, e.g. ‘how’s that water?’, ‘clean’. Heath (1984: 152) describes how adjectives and nouns share a number of morphological properties in NBd2, Nunggubuyu, but differ in that only adjectives may occur in a special predicative form. Pensalfini (1997: 185–7) provides a different kind of criterion for NCb1, Djingulu. In a verbless clause the subject NP is in ergative case if the complement is a noun (e.g. ‘she-ERGATIVE virgin’), and in absolutive case if the complement is an adjective (e.g. ‘yam-ABSOLUTIVE rotten’).

3.3.3 *Shifters: pronouns, demonstratives and more*

Grammatical and lexical forms whose reference varies depending on the participants, place and time of the speech act are called ‘shifters’. These include pronouns (‘you’ becomes ‘I’ when you start speaking), demonstratives (‘this’, ‘that’), some locational words (‘here’, ‘there’) and some time words (e.g. ‘yesterday’, ‘today’, ‘tomorrow’ and also ‘soon’, etc.). All four classes fall within the general purview of nominals in Australian languages.

There is, in most languages, a small class of locational words and a small class of time words. The locational nouns will include shifters and also ‘north’, ‘south’, ‘east’, ‘west’, ‘up’, ‘down’, ‘near’, ‘far’. These generally take locative, allative and ablative case inflections, like nouns and adjectives. It is not uncommon for locative function to be zero marked with locational forms (and sometimes also with place names). Time words include shifters and also terms like ‘morning’, ‘night-time’, plus durational terms such as ‘for a short while’ and ‘all the time’. The non-durational terms take suffixes indicating ‘until’ and ‘since’ which may have the same (or similar) form as allative and ablative on nouns and locational words.

Australian languages typically have a rich system of first and second person pronouns; in some languages third person falls into the same system. There is normally a distinction between sg, du and pl number; a few languages also have a trial or paucal while just a couple lack a dual. A recurrent feature is a special pronoun ‘you and me’. This can be an addition to the pronominal system, but in most languages it has been integrated into the system in one of a number of ways.

Most commonly, 1 n-sg pronouns show a distinction between inclusive (including addressee) and exclusive (excluding addressee); ‘you and me’ is then 1du.inc. We can exemplify from WHc9, Nyamal (Dench 1994: 170):

(4)	sg		du	pl
1	ɲatja	inc	ɲalilu	ɲanjɲjula
		exc	ɲaliya	ɲanartu
2	njunta		njumpalu	njurralu
3	palura		piyalu	thanalu

In other languages ‘you and me’ patterns with 1sg, 2sg (and often also 3sg) as a ‘minimal’ set of terms. This involves all combinations of +/– speaker and +/– addressee:

(5)	including speaker	including addressee	term in minimal system
	+	–	1
	–	+	2
	+	+	1 + 2
	–	–	3

Corresponding to the number distinction in paradigms like (4), we then get minimal opposed to augmented, which involves the addition of one or more people to the terms in the minimal system. A straightforward minimal/augmented system is that in NE2, Baardi (Aklif 1999: 177):

(6)	minimal	augmented
1	ɲayu	arrudu
2	dju	gurr
1 + 2	ayu	arridil
3	ginjingi	irr

Note that if this were written in terms of 1/2/3 and sg/du/pl, like (4), we would get a messy diagram:

(6')	sg		du	pl
1	ɲayu	inc	ayu	arridil
		exc	arrudu	
2	dju		gurr	
3	ginjingi		irr	

The 2×4 analysis in (6) is plainly more perspicuous than sg/du/pl plus 1/2/3 plus inc/exc, with number neutralisation, in (6').

In fact, most minimal-based systems have three number-type terms: minimal, unit augmented (one person added to the minimal set) and augmented (more than one added). Full details and examples are in §7.1.

Some languages clearly have a minimal/(unit augmented)/augmented system while others clearly have a sg/du/pl system (some with and some without an inc/exc distinction). Others have a combination of these; one type of system may apply for free and another for bound pronouns; see (16) in §7.2.

Complex pronoun systems are a typical feature of languages with a classificatory kinship system. In some Australian languages there are distinct pronominal forms depending on the kinship relationship of the people referred to. For instance, NAa, Lardil, has a system like Nyamal but with two forms for each n-sg specification – one for when the people referred to are all in the same generation or two generations apart, and one for when they are one or three generations apart. (See Hale 1966a – where he uses the terms ‘harmonic’ and ‘disharmonic’ – and Dixon 1980: 276.) In WBb2, Ad-jnjamathanha, there are no fewer than ten dual pronouns ‘you and me’, depending on parameters of moiety, kin and generation (see Schebeck, Hercus and White 1973).

There are two methods for referring to things or to people who are not speech act participants – with demonstratives or with third person pronouns. A fair proportion of Australian languages are like Nyamal and Baardi in having third person pronouns; these generally inflect like first and second person forms. (A minority of languages have a masculine/feminine gender distinction just for 3sg.) Other languages have no third person pronouns per se, but instead use demonstratives for this function. As will be noted in chapter 7, there is a good deal of diachronic switching between categories; a form which is a demonstrative in one language may be a third person pronoun in another. The semantics of demonstratives is briefly discussed in §7.8.

3.3.4 *Verbs*

All languages have a class of what I call ‘simple verbs’ – monomorphemic roots which take suffixal inflection for tense and/or aspect and/or modality, plus imperative mood (the whole being abbreviated as TAM). As mentioned in §3.1.3, the size of the class varies from just a dozen or two to many hundreds.

In most languages every verb is either strictly intransitive (taking just one core argument, in S function) or strictly transitive (taking core arguments in A and O functions). That is, there are few or no ambitransitive verbs. However, in a number of languages which have shifted from an original split ergative/accusative profile to a more fully accusative system, a significant class of ambitransitive verbs has been reported. See §6.1.

Some languages have a set of what can be called adverbals, which inflect exactly like simple verbs but differ in that whereas a simple verb refers to a type of action or

state, an adverbial will describe a characteristic of that action or state. Functionally and semantically, an adverbial provides modification for a simple verb in the same way that an adjective provides modification for a noun. There is further discussion, and exemplification, in §6.2.

As already mentioned, languages with a small number of simple verbs (and some of those with a large set) also have several hundred coverbs. Each of these occurs with one or more simple verbs to form compound verbs; illustrations from Eb1, Yir-Yoront, and NBI2, Wardaman, were given under (b) in §3.1.3. Only the simple verb takes TAM suffixes; the coverb may optionally take some aspect-type markers or it may take no affixes at all. The most normal situation is for a coverb to have no transitivity specification, the transitivity of a coverb-plus-simple-verb compound being given by the transitivity of the simple verb. However, in some languages coverbs do have their own transitivity value (or transitivity preference) and there can be complex rules for the transitivity of compounds; see (a) in §6.3.1.

In a number of languages coverb and simple verb have amalgamated to form one lexeme. Where bound pronominal prefixes have developed they will go onto the beginning of the coverb-plus-simple-verb form. In languages which have not undergone this amalgamation pronominal prefixes just go onto the simple verb, leaving the coverb as a separate unit. This is discussed in §9.1.

3.3.5 Inflection

There are normally two basic inflectional systems, nominal and verbal. Each simple verb must make one choice from the verbal inflectional system. And each NP must make one choice from the nominal inflectional system; sometimes the inflection goes onto each word of the NP, sometimes onto just one word (see §5.2). In §5.3.1 we discuss the few languages that can take two choices from the nominal inflectional system ('double case').

The verbal inflectional system typically includes:

- (a) Imperative. See §3.3.9 and §3.3.11 below.
- (b) Purposive. This marks an action which happens by virtue of some earlier action, referred to in the previous clause. The prior action can be volitional, performed in order that the purpose-marked action should follow (e.g. 'he went out in order to hunt wallabies') or it can be non-volitional with respect to what follows, this being a natural consequence of the prior action (e.g. 'he walked into the forest and as a consequence the birds called out, advertising his presence'). Purposive may also be used on the first clause in an utterance, then indicating 'want', or 'should'.
- (c) Tense and/or aspect and/or modality (TAM). The most common tense system is past versus non-past; there are also instances of systems with

past, present and future, and with future versus non-future. There may also be aspect specifications, e.g. perfect (happened and finished) and continuous (happens over a period). And there may be an irrealis term, referring to something which has not yet happened, or which didn't happen but might have. Some languages have no tense system at all, just aspect (e.g. H2, Warrgamay, see Dixon 1981a). There is no report in any Australian language of a grammatical system of evidentiality marking – obligatory specification of the evidence on which a statement is based (e.g. seen, heard, reported, inferred). However, some languages do have optional particles or clitics with evidentiality values. For example, Nc3, Ngiyambaa, has clitics =*garra* 'sensory evidence (seeing or hearing)' and =*dhan* 'linguistic evidence (reported)'; see Donaldson (1980: 275–6).

In some languages imperative can have zero form, or else a zero allomorph. In others all verbal suffixes have non-zero form. Verbs and their affixes are discussed in chapter 6.

Turning now to nominal inflection, we find that the great majority of languages use affixes or clitics to mark an NP in a core syntactic function, but there are typically different systems for nouns and for pronouns:

(7)	noun	function	pronoun
	ergative case (*- <i>dhu</i> , *- <i>lu</i>)	A	nominative case (normally zero marking)
		S	
	absolutive case (normally zero marking)	O	accusative case (*- <i>nha</i>)

For a noun S and O are marked in the same way, and for a pronoun S and A are marked in the same way. By substituting one for the other it is always possible to ascertain the function of a given NP.

Consider – from H1, Dyirbal – clauses with the verbs *bungi-n* 'lie down-PAST' and *bandja-n* 'follow-PAST'. Suppose that we do not know whether each of these verbs is transitive or intransitive. Suppose also that each verb is heard used with an NP consisting of a single noun *rugun* 'boy' with zero marking, which indicates absolutive case (covering S and O functions):

(8) (a) *rugun bungin*

(9) (a) *rugun bandjan*

There are two alternative interpretations. A clause such as (8a) or (9a) could be intransitive, with an S NP. If so, the noun would be replaceable by a nominative pronoun. Or it could be transitive with just the O NP stated and the A NP omitted. (In ergative languages, from all parts of the world, it is normal that an A NP, in ergative case, may optionally be omitted). If so, the noun would be replaceable by an accusative pronoun.

Now in Dyirbal the 1sg pronoun has form *ɲadja* for S and A functions (nominative case) and *ɲayguna* for O function (accusative case). Substituting 1sg for *rugun* in (8a) we find that the S/A form, *ɲadja*, is used:

- (8) (b) *ɲadja bungin*

This shows that *bungi-* is an intransitive verb, taking an S argument from the middle row in (7); this is absolutive case for a noun and nominative for a pronoun. (8a) means ‘the boy slept’ and (8b) is ‘I slept’.

However, the substitution takes a different form when 1sg is used instead of *rugun* in (9a); here the O form, *ɲayguna*, is used:

- (9) (b) *ɲayguna bandjan*

This shows that *bandja-* is a transitive verb, taking A and O arguments. In (9a–b) just the O argument is stated, from the bottom row in (7); this is absolutive case for a noun and accusative for a pronoun. (9a) means ‘[someone] followed the boy’ and (9b) is ‘[someone] followed me’. We can give fuller forms of these clauses, with both O and A NPs stated:

- (9') (a) *ɲadja rugun_O bandja-n*
 1sgA boy+ABS follow-PAST
 I followed the boy
 (b) *ɲayguna rugun-du_A bandja-n*
 1sgO boy-ERG follow-PAST
 The boy followed me

In some languages just n-sg pronouns show a nominative–ergative system while sg pronouns have separate forms for each of A (marked by ergative), S (by zero), O (marked by accusative). This tripartite marking may also extend to proper nouns. Chapter 11 discusses ergative and accusative systems and the diachronic changes between the two kinds of system attested for Australian languages.

Where there are third person pronouns these generally (but not invariably) inflect like first and second person pronouns, whereas demonstratives most frequently (although again not invariably) inflect like nouns. Adjectives always inflect in the same way as common nouns.

There are many individual variations on the prototypical pattern just described. Bound pronouns are almost always on an accusative basis. In some languages with bound pronouns, free pronouns have been reanalysed to inflect on an ergative pattern, like nouns. In some languages where bound pronouns are well established, and include specification of noun class for third person, the marking of NPs for core functions has been lost.

Alongside ergative **-dhu* and **-lu*, and accusative **-nha*, we find *-gu* as a recurrent suffix whose functions typically include dative (the recipient with verbs like ‘give’ and ‘show’) and purposive (e.g. ‘[go out] for firewood’). Significantly, the nominal dative/purposive *-gu* is homonymous with the verbal purposive suffix *-gu*. It is highly likely that they have the same historical origin.

Recurrent locative forms are **-dha* and **-la*. Allative is sometimes marked by the same suffix as dative/purposive, sometimes by the same suffix as locative, sometimes with an increment to one of these cases, and sometimes by a quite separate form. Ablative also shows variation – a disyllabic form beginning with *-ŋu* is often added to locative or directly to a nominal stem, but there are many other forms in individual languages and groups of languages. Case forms are discussed in §5.4.

A particular feature of the Australian linguistic area is a case (or one sense of a case) that is termed ‘aversive’. This refers to something for fear of which the action described by the verb takes place, or should take place. Thus, in WJa1, Walmatjarri (Hudson 1978: 31):

(10)	yapa-warnti _s	pa-lu	jurtu-karrarla	laparnkanja	natji-karti
	child-PL + ABS	INDIC-3plS	dust-AVERS	ran.away	cave-ALL
	the children ran into the cave for fear of the dust-storm				

Aversive is also generally used on the complement of a verb ‘to be afraid’.

We often find aversive as one sense of locative, or of ablative or of dative/purposive. Or it may be a separate case suffix (sometimes involving, historically, an increment to one of these cases). It is discussed in §5.4.7.

It is likely that in the distant past Australian languages had just three or so nominal suffixes and these may have had a basically semantic, rather than a grammatical, role. There could have been a suffix marking the controller of an action, perhaps just when there was a need within the context of discourse to focus on who was controller. This then became grammaticalised into an ergative inflection, obligatorily marking an A argument whether or not control is involved. (A few languages maintain a ‘controller’-type suffix; see §5.1.1.)

There may also have been just a few verbal suffixes at an earlier stage, and the set of verbal suffixes may have overlapped with the set of nominal suffixes, with *-gu* (mentioned just above) belonging to both sets. It is possible that the distinction

between word classes was less distinct at this time. The languages then moved towards a more grammatical profile, with a strict division between word classes, between intransitive and transitive subclasses of verbs, between nominal and verbal suffixes, and so on. They gradually became more synthetic, with greater morphological complexity. In some cases they have advanced further around the cycle of change, towards a fusional profile.

3.3.6 Derivation

As a rule, word classes in Australian languages are quite distinct. A verb may only function as head of a predicate, and can only take verbal inflections. A noun may only function as head of an NP, and can only take nominal inflections. That is, we do not normally find the functional 'leakage' as in a language like English, where some lexemes that are basically nouns can have a secondary function as predicate (e.g. *the Romans stoned the Christians*) and some lexemes that are basically verbs can have a secondary function as NP head (e.g. *the walk tired me*). There are a few isolated instances of 'class jumping'. For example, some languages have a noun *bina* 'ear' while others show a verb *bina-* meaning 'hear' or 'know, understand' (and the two sets of languages do overlap). But there are only rather rare instances of this sort of thing as a productive, synchronic rule (one of the few examples is in the Yankuntjatjarra dialect of WD – see Goddard 1985: 224–7).

To get from noun to verb, or vice versa, one must use an explicit derivation. We can briefly list these, and other common derivational processes.

(a) *Noun from verb*. There is a derivational suffix *-(nj)dja*, found in a number of languages, which derives an action nominal from a verbal stem. However, on the whole Australian languages do not have much in the way of nominalisation strategies; in particular, there are rather few agentive and patientive nominalisations (like English *employer* and *employee*). I know of no productive processes for deriving an adjective from a verb.

(b) *Verb from noun or adjective*. Almost every Australian language has derivational processes for deriving both intransitive and transitive verbal stems from nouns and adjectives – an inchoative suffix (as in 'become an emu', 'become big') and a factitive suffix (e.g. 'make big', 'make into an emu', as in a Dreamtime narrative).

These undoubtedly originated in a coverb-plus-simple-verb construction. The coverb slot could have been filled by one of a number of nominal forms; the simple verb was then reanalysed as a derivational suffix and the pattern generalised to apply to all (semantically appropriate) adjectives and nouns. Indeed, the recurrent factitive suffix is *-ma-*, undoubtedly related to one of the two widely occurring simple verbs *ma-l* 'do,

make, tell' and *ma(:)-nj/n* 'hold, take, get' (discussed at (34) and (23) in §4.2.7). Inchoative suffixes show more variation and may have diverse origins.

Some Australian languages have a delocutive derivational suffix (see Benveniste 1971) which forms a verb 'say X' from lexeme X, where X may be a bird or animal call, or a noun referring to a noise, or an interjection, or a particle (e.g. 'try'). This and other verbalising suffixes are described in §6.4.3.

(c) *Transitive from intransitive verb.* Almost every language has one or more derivational suffixes for deriving a transitive from an intransitive verbal stem. One type is causative, where the original S becomes O and a new argument enters as A. Another type is applicative, where the original S becomes A and what was a peripheral argument (e.g. instrumental, dative, locative) is brought into the core as O. In some languages a transitive suffix can have causative effect with verbs of one semantic class and applicative effect with verbs of another class. A common transitive suffix form is *-ma-*, homonymous with the factitive discussed under (b). This is discussed in §6.4.2.

(d) *Intransitive from transitive verb.* There is a recurrent verbal derivational suffix which has a detransitivising effect. The original form was probably **-dharri-* but it is realised as *-dhirri-* or *-dhi-* or *-yirri-* or *-yi-* or *-rri-* in many modern languages. In virtually every language in which it occurs **-dharri-* has a detransitivising reflexive sense; it may also cover reciprocal and/or passive and/or antipassive – see §6.4.2. In some languages it may have just a semantic effect (for example, indicating that the action is non-volitional), not affecting the valency of the verb to which it is attached. There is discussion of reflexives and reciprocals in §7.6, and general discussion of **-dharri-* in §11.3.1.

(e) *Semantic derivation on verbs.* There are generally some derivational affixes on verbs which have an entirely semantic role, not affecting transitivity, e.g. 'do quickly', 'do to all S/O', 'go and do', 'come and do', 'hither' and 'thither'. These vary in form and meaning and have probably developed (separately in each language) from free verbs being compounded with another verb and then reducing to affixes. They are discussed in §6.4.1 and in §§9.2.2–3.

(f) *Adjectives from nouns.* Almost all Australian languages have comitative ('with') and privative ('without') derivational suffixes; added to a noun these derive an adjectival form which functions as a modifier within an NP – see §5.4.6. Interestingly, in some languages the comitative suffix to a noun is similar to the detransitivising/reflexive suffix to a verb (whether this is a reflex of **-dharri-* or something else).

We do not, in Australia, encounter processes forming nouns from adjectives. Nor is there, generally, any explicit comparative or superlative suffix to adjectives. Some

languages do have a nominal derivational suffix with a comparative-type suffix, e.g. in H1, Dyirbal, *-bara* can be added to an adjective ('bigger') or to a noun ('more of a man') but there is only an implicit, never an explicitly stated, comparand (Dixon 1972: 226–7).

(g) *Semantic derivations on nominals*. There are generally a number of further derivational affixes on nouns which do not change word class, e.g. 'really'. There is often a kinship dual, indicating two people in a certain reciprocal relationship (what has come to be called a 'dyadic' relationship – see the studies in Heath, Merlan and Rumsey 1982). Most of these suffixes have developed out of free form nominals, on a language-particular basis. For example, suffix *-djarra* 'a pair' in H1, Dyirbal, is cognate with the adjective *gudjarra* 'two', which is found right across the continent (see §4.2.6). And the suffix *-guman* 'another' in Ja3, Warungu, is probably cognate with the adjective *guman* 'one, alone' in G2, Yidinj.

Many languages have a suffix, which can be added to a place name or to a common noun describing a tract of country, meaning 'person or animal associated with that place or tract'. This has the form *-barra* over a wide area in Queensland (from just south of Cairns to just north of Brisbane – see Tindale 1974: 21, 123–6), with other forms in other regions. For example, it is *-njuju* in WHc3, Panyjima, as in *warrimari-njuju* '[someone] belonging to the low country' (Dench 1991: 151–2); see also §5.1.3.

It should be noted that Australian languages do not have obligatory number specification on nouns; that is, they do not inflect for number (in the way that Indo-European languages do). The basic form of a noun has indeterminate number reference, e.g. in F, Kuku-Yalanji, *djalbu* is glossed as 'woman' but is more accurately 'one or more women'. Optionally, n-sg reference can be specified through a du or pl derivational affix (see §4.2.6). Alternatively, some languages use reduplication to mark plural (see Fabricius 1998). In Kuku-Yalanji *djalbu-bulal* is 'two women' and *djalbu-djalbu* is 'many (more than two) women'.

3.3.7 Possession

We mentioned, in §3.1.3, that what is sometimes called 'inalienable possession' is generally a whole–part relationship in Australian languages, with the part noun placed in apposition to the noun referring to the whole (this being the head of the NP), e.g. 'father foot' (where 'father' is the head noun).

Alienable possession (including, in most languages, kin possession) is marked in a quite different way. The possessor NP (which may, minimally, be just a noun or pronoun) is marked by a genitive suffix or clitic. In a language in which case marking goes onto every word in an NP, it will go onto the genitive constituent (following the genitive marking) and also onto the head noun (the possessed). Thus, in (11) from Mf,

Bandjalang (Crowley 1978: 70), ‘man’ in ‘to the man’s house’ takes both genitive and allative suffixes.

- (11) ɲi:n yaŋ giwa:-la [baygal-na:-gu ɲu:mbinj-gu]
 who+S THIS.WAY move-PRES man-GEN-ALL house-ALL
 who is coming to the man’s house?

Note that in this book I reserve the label ‘case’ for something marking the function of an NP in a clause. Genitive, which marks the function of an NP within an NP, is syntactically quite different; this is discussed in §5.3.

Languages with bound pronouns often have a bound possessive pronoun paradigm, which can be used instead of, or as well as, genitive marking. Details vary from language to language. Perhaps the most complex system of possessive marking reported is that in NBf2, Gurrgoni (R. Green 1995: 96–120). Here alienable possession is shown by a pronominal prefix indicating the possessed added to a free pronoun indicating the possessor; this constituent can be preceded by an NP referring to the possessor and followed by one referring to the possessed, e.g. ‘3-1min car’ for ‘my car’. Gurrgoni has a different type of construction for kinship possession: literally ‘3minf-1min mother 1min+POSS’ for ‘my mother’, where 1min+POSS is a special possessive pronoun. And there are three different constructions for body part possession, illustrated by (a) ‘1min-bone’ for ‘my bone’; (b) ‘foot 1min-*djerre*’ for ‘my foot’, involving a special possessive morpheme *-djerre*; and (c) ‘urine 1min+POSS’ for ‘my urine’, where 1min+POSS is again the special possessive pronoun.

There is a cross-linguistic discussion of possessive bound pronouns in §8.9.

3.3.8 *Clause structure and constituent order*

In no Australian language is syntactic function shown by the order of phrasal constituents within a clause (what is often, but misleadingly, called ‘word order’). In most languages the predicate and its core argument NPs (in S, A, O functions) and its peripheral argument NPs can occur in any or almost any order. There has been little detailed consideration of what does condition constituent order in texts, but discourse factors are likely to play a major role. However, constituent order is to some extent at the whim of the speaker.

In almost every language some orders are statistically more common than others. Blake (1987a: 154–63) provides a survey, showing that AOV and SV are the commonest preferred orders, although all other possibilities are also attested. It is a fad of present-day linguistics to try to characterise each language in terms of ‘word order typology’; this can lead to difficulties in dealing with Australian languages. In H1, Dyirbal, for example, the preferred order of NP constituents is O before A if the head of the A NP is a noun, and A before O if the head of the A NP is a pronoun.

In some languages phrasal constituents can occur in any order but all the words of a phrase should be kept together – this is free constituent order but fixed word order. In others, the words from any constituent may be spread through the clause – this is free word order (there is an example from H1, Dyirbal, in Dixon 1972: 107–8). In some languages case is marked only once on an NP (most frequently, on the last word) if the words occur together, but if the NP is split between two or more positions in the clause, then case will be marked on each part (e.g. WAb2, Diyari – see Austin 1981a: 94). In other languages every word in an NP must take the appropriate case ending, whether the words in the NP are together or apart.

There is always a good deal of ellipsis possible; no full study has yet been made and this is an urgent priority for future research. In those dependent-marking languages with an S/O pivot, the S or O NP should be stated but the A NP may be omitted. It is not known what conditions apply for a language with an S/A pivot.

Australian languages generally show a minor clause type where two NPs can be apposed to show identity or attribution, etc. An example from Ya1, Djapu (Morphy 1983: 105), is:

- (12) [galkaʔ-mirr] [dhuwa wa:ŋa]
 sorcerer-COMIT THIS place
 this place is full of sorcerers (lit. this place [is] with sorcerers)

In such constructions there is no copula verb. In a fair number of languages we do find a copula verb (which has generally developed from a stance verb); see §6.7.

3.3.9 Commands

The prototypical situation in an Australian language is to have one or more imperative terms in the verbal inflectional system, which also covers tense, aspect and modality. There is a short account of the form of the regular imperative inflection in §6.5.1.

In a minority of languages, imperative is one sense of an inflection with more general meaning. For example, imperative falls together with future in NBc1, Rembarnga, NBd1, Ngandi, and WE1, Mirning; with non-past irrealis in NBj, Uwinjmil; and with potential in Ya1, Djapu. In NBc2, Ngalakan, either a future or present suffix is used in an imperative clause. A few of the prefixing languages have an imperative prefix to the verb; some examples are mentioned at the end of §9.4. In NHa, Patjtjamalh, there is fusion of a subject pronominal prefix with a future/imperative marker.

Although only a few grammars mention it, a special intonational contour can be used with imperatives in most Australian languages and it is this which can distinguish the imperative sense from the future sense in Ngandi and Patjtjamalh, etc.

A prototypical imperative has (sg or n-sg) second person as the S or A argument. A second person free pronoun as S or A can always be omitted. Sometimes a second

person bound pronoun as S or A can be omitted; for example, in NB12, Wardaman, the 2sg S prefix is omitted from an imperative, as is the 2sg A prefix if O is 3sg (Merlan 1994: 191).

In many languages an imperative construction (recognised through morphological marking on the verb) can be extended to 1n-sg, to 1sg, and even to third person. That with 1n-sg is most common and is generally termed 'hortative' (for example, 'let's go'). 1sg and third person imperatives are most often used in a biclausal construction with a second person imperative, e.g. literally 'you give-IMP me your boomerang, I give-IMP you my fishing line' for 'let's exchange your boomerang for my fishing line' (there is an example from H1, Dyirbal, in Dixon 1972: 120).

A scattering of languages show, in addition to the regular imperative ('do it!'), a continuative imperative ('keep on doing it!'). In Jb1, Mbabaram, the continuative imperative involves the imperative inflection added to a continuative derivational suffix (which can also be followed by a tense inflection). In WD, the Western Desert language, there is a special continuative imperative term in the TAM inflectional system (see §6.5.1).

Negative imperatives are discussed in §3.3.11 below.

3.3.10 Questions

There are two kinds of question – polar questions, which expect 'yes' or 'no' as answer, and content questions, which involve a content question word (these correspond to *wh*- questions in English).

In many Australian languages polar questions are marked only by intonation – generally, a final rising intonation similar to that in English and other European languages. A number of languages do have a question enclitic (which is used in polar questions and also in content questions); see Dixon (1972: 18). The question clitic may attach to the first word in the clause. In some languages it functions as an auxiliary to which bound pronominal forms are added – see (d-iii) in §8.6.3.

In many (but not all) Australian languages, content question words also have an indefinite sense; indeed, they may be most appropriately referred to as indefinite/interrogative forms – see §7.7.

The indefinite/interrogatives (or the interrogatives) form a meta-word-class, spanning a number of the major classes – 'who/someone' corresponds to the class of pronouns, 'what/something' to nouns, 'which/some type' to adjectives, 'how many/some number' to the subclass of numbers, 'where/somewhere' to locational words, and 'when/some-time' to time words. Typically, 'who/someone' inflects like pronouns (often, on an accusative pattern) while 'what/something' inflects like nouns (on an ergative pattern).

In the Djalnguy (avoidance) style of H1, Dyirbal, all lexical words (from open classes) have different forms from those in the everyday speech style, whereas all

grammatical elements (from closed systems) have the same form. In keeping with this, the interrogative/indefinite form 'who/someone' is like pronouns in having the same form (*wanja*) in both styles, while 'what/someone' is like nouns in having different forms (*mindirr* in the avoidance and *minja* in the everyday style).

In only a few languages is there a separate adjectival interrogative 'which'; otherwise 'what' covers this function with inanimates and 'who' with humans. There are some languages in which a single form covers both 'who' and 'what' (combining pronoun-type and noun-type senses). This is discussed in §7.7.

It would be natural to expect there also to be an interrogative corresponding to the verb class, and this is found in a minority of languages. In H1, Dyirbal, there are two interrogative verbs, intransitive *wiyama-y* and transitive *wiyama-l*. Used alone in a predicate these mean 'do what'; used in a predicate with a lexical verb they mean 'do how' (Dixon 1972: 55–6). In other languages interrogative verbs may be formed from 'what' by adding inchoative and factitive derivational suffixes. Interestingly, it appears that interrogative verbs generally do not also have an indefinite sense.

In Australian languages there is generally a preference – but not a requirement – for content question words to occur at (or near) the beginning of a clause.

3.3.11 Negation

An Australian language will, prototypically, mark negation at four places in its grammar:

- (a) An interjection 'no', which effectively comprises a complete clause.
- (b) A form 'not', which negates a non-imperative clause.
- (c) A form 'don't', which negates an imperative clause.
- (d) A privative derivational suffix 'without', added to nouns and adjectives (and, in some languages, to nominalised clauses). The occurrence of a privative suffix, complementary to comitative 'with', is a particularly characteristic feature of Australian languages.

In some languages there are separate forms for all of (a–d). In others two, three or even all four of them have the same form. We shall briefly discuss the types of realisation for each of (a–d), and then provide some examples of the kinds of forms involved.

(a) 'No'. Some languages of the world lack an interjection 'no'; the negative response to a question such as 'Are you going?' has to be a full clause with negator 'not', that is 'I'm not going'. This appears not to apply for any Australian language; there is in each case a word 'no' (sometimes also with the sense 'nothing') which can make up a complete sentence. In some languages it has the same form as 'not' but in many languages these differ.

The typical situation is for each language (and sometimes different dialects within a language) to have its distinctive form for 'no', and this may be emblematic of tribal identity. In several areas language names involve reduplication of the word for 'no', e.g. the Gureng-Gureng, Gabi-Gabi and Waga-Waga languages in group Ma, just north of Brisbane; the Wemba-Wemba, Baraba-Baraba and Madhi-Madhi dialects of Ta1, in north-western Victoria; and Yitha-Yitha and Dardi-Dardi, dialects of the neighbouring U5. Two of the groups speaking Nc3, Ngayambaa, call themselves Wangaay-buwan and Wayil-wan, these names each being the word for 'no' plus comitative suffix 'with'.

(b) 'Not'. Almost every Australian language marks 'not' by a non-inflecting particle which goes before the verb (often, the preferred position is immediately before the verb). In H1, Dyirbal, words can occur in almost any order in a clause; one of the few restrictions is that *gulu* 'not' must precede the verb. In WK, Warumungu, the negative particle *warra* is generally in clause-initial position.

A preverbal particle is used for 'not' in the great majority of the prefixing languages, with polysynthetic verb structures; this applies even to Tiwi, the most polysynthetic language of all (Osborne 1974: 68–9; Lee 1987: 287–8). Just a few languages have a negative prefix – WMa, Yanyuwa, NBi, Gungarakanj, and N1c, Larrakiya. In the prefixing language NBc2, Ngalakan, negation is fused with TAM in portmanteau suffixes. (Details of affixal negation in prefixing languages are in §9.2.3, which also discusses neutralisation of some tense distinctions under negation in NBc1, Rembarnga, and NBc2, Ngalakan.)

A handful of non-prefixing languages mark 'not' by some means other than a preverbal particle. In WL2, Kaytetj, and in adjacent dialects of WL1, Arrernte, 'not' is shown by a verbal suffix; other dialects of WL1 have a particle *itj* 'not' which comes immediately before or immediately after the verb. In Warlpiri, and other languages of subgroup WJb, negation is marked by *kula*- prefixed to the verbal auxiliary.

Languages of subgroup NA have suffixes marking negation. In NAb2, Yukulta, negative indicative involves irrealis mood suffix *-thari* ~ *-tjari* to the verb together with the particle *walira* (which is the first word in the sentence); negative imperative is marked just by verbal suffix *-na* (with no *walira*), while negative desiderative is shown by *-na-ŋkurlu* for realis and *-na-ta* for irrealis (Keen 1983: 225, 235–41). There are similar suffixal forms in NAb1, Kayardild (Evans 1995a: 255).

In Pb1, Dharawal, 'not' is expressed by the word *ŋambana* before the verb. In its southerly neighbour Pb2, Dhurga, there is a cognate form *-ŋamba-* which appears to be a suffix, following tense and preceding bound pronouns. Thus (Eades 1976: 65):

- (13) djam-a-ŋamba-ga
 talk-PRES-NOT-1sgS
 I don't talk

Eades (1976: 58) remarks that in the neighbouring languages Pa1, Gundungurra, and Pb3, Djirringanj, negation appears to be expressed by a suffix to the verb, which precedes tense, with forms *-muga* and *-nja* respectively.

Verbal suffixes for negation also occur in Na1, Awabagal. It appears that in WF, Nyungar, clausal negation is shown by including the privative suffix *-puru* or *-part* (these are dialect variants) after the verb. Similarly, in the adjacent WE3, Karlamay, *-paŋ* can be the privative suffix to a noun or the 'not' suffix to a verb.

(c) 'Don't'. There are basically two mechanisms for marking a negative imperative – a preverbal particle, and a special verbal ending in the TAM inflectional system. Some languages employ one of these, some both.

Many languages have a single particle 'no, don't' used in all types of clause e.g. *malhu* in WAa1, Pitta-Pitta (Blake 1979b: 216, 220, 222); when used with a verb bearing imperative inflection it means 'don't'. A few languages have distinct particles 'not' (used only with a verb which bears a non-imperative inflection) and 'don't' (used only with a verb which bears the imperative inflection); for instance, *gudju* 'not' and *gunji* or *giyi* (dialect variants) 'don't' in G2, Yidinj. Like Pitta-Pitta, Yidinj has the same verbal inflection for all types of imperative.

There are a few languages which appear to mark negative imperative just by a verbal suffix. WL2, Kaytety, and neighbouring dialects of WL1, Arrernte, have distinct suffixes for negative non-imperative and negative imperative. WBa, Kurna, uses a preverbal particle for a non-imperative negative clause but a verbal suffix for a negative imperative.

There are three languages in group H which use both a preverbal particle 'don't' (a different form from 'not') plus a special negative imperative verbal suffix:

(14)			negative imperative	positive imperative
	'not'	'don't'	verbal suffix	suffix (included for comparison)
H1, Dyirbal	<i>gulu</i>	<i>galga/ŋarru</i> (dialect variants)	<i>-m(u)</i>	Ø
H2, Warrgamay	<i>ŋaa</i>	<i>ŋarru</i>	<i>-dja</i>	<i>-ga, -ya, -Ø</i>
H3, Nyawaygi	<i>biya(y)</i>	<i>mali</i>	<i>-djam</i>	<i>-(y)ga, -na, -ma</i>

In NKa1, Mawung, negative imperative involves preverbal particle *yuwunji* plus a verb in realis form (with zero suffix). In contrast a positive imperative requires an irrealis suffix. (And 'not' in non-imperative clauses is *marrig*. See Capell and Hinch 1970: 67, 79.)

In NBI2, Wardaman, a negative imperative uses negative particle *wonggo* 'not, don't' plus a verb with irrealis prefix and (in the examples provided) present tense suffix. In contrast, a positive imperative involves a verb with no prefix (if the subject is singular)

and no suffix (Merlan 1994: 181, 187, 266, 300–4). Note that in Mawung the negative imperative is marked as realis and in Wardaman as irrealis.

In WK, Warumungu, negative imperative generally involves suffix *-mana* added to a nominalised verb, rather than employing the (positive) imperative verb form. In Wla1, Njangumarta, a negative imperative involves the negative particle *munu* ‘not, don’t’ used with a verb in the ‘anticipatory or purposive advisory mood’ rather than with a verb in (positive) imperative form (Sharp 1998: 237–8, 488–92).

For Ya1, Djapu, Morphy (1983: 142) reports that there are three ways of issuing a negative command. ‘The politest form will contain a verb inflected for UNM[arked] or POT[ential] and the negative particle *yaka* [‘no, not, don’t’]. A more abrupt type takes the form of a nominalised verb plus the PRIVATIVE suffix [*-miriw*] . . . The third type of negative imperative, also somewhat abrupt in tone, consists of the particle *yaka* and an infinitive clause.’

(d) *Privative suffix*. Almost all Australian languages have a derivational suffix ‘without, less’ that can be added to a nominal stem and is followed by a case inflection (see §5.4.6). A rare exception is NF1, Bunuba; whereas other languages would say, literally, ‘man spear-PRIVATIVE’ for ‘the man with no spear’, in Bunuba one would simply say ‘man spear NOT’ (Rumsey 2000, p.c.).

In some languages the privative suffix can be added to a nominalised clause – see Evans (1995a: 373–4, 475–6) on NAb1, Kayardild.

Table 3.3 *Negative forms*

		(d) privative suffix to nominals	(a) interjection ‘no’	(b) particle ‘not’	(c) particle ‘don’t’
(i)	F, Kuku-Yalanji Ja1, Bidjara	-gari -garda	gari garda	gari garda	gari garda
(ii)	Ma2, Gureng-Gureng Dd1, Guugu Yimidhirr Ya1, Djapu	-djam -mul -miriw	gureŋ ga:ri yaka	gureŋ ga:ri yaka	gureŋ ga:ri yaka
(iii)	Ja1, Marrganj	-yidba	yama	gara	gara
(iv)	H2, Biyaygiri	-biyay	biyay	ŋaa	ŋarru
(v)	WAa3, Arabana	-pani	pani	maljka	maljka
(vi)	Eb3, Kok Thaw G2, Yidinj Mf, Bandjalang	-ŋanj -gimbal -djam	wanjɬj ŋudju yagam	wanjɬj ŋudju yagam	kotal gunji/giyi wanaa
(vii)	H3, Nyawaygi	-biyay	biyayŋgul	biya(y)	wuna:
(viii)	H1, Dyirbal	-ŋangay	yimba	gulu	galga

Table 3.3 presents a representative sample of the forms of negative markers. In languages of Type (i) the same form is used in all four columns. In Type (ii) the same form is used for all columns save the leftmost, (d) privative. In languages of Type (iii) columns (b) and (c) use the same form and in Type (iv) columns (d) and (a) employ the same form, while Type (v) combines these characteristics. Type (vi) consists of languages in which the middle two columns, (a) and (b), have the same form. In Type (vii) the same form is used in columns (d) and (b) (here the privative suffix is always *-biyay* while ‘not’ is sometimes said as *biyay* and sometimes as *biya*). Finally, Type (viii) shows a language with different forms in all four columns.

The actual forms of markers show considerable variation. There are some forms which are found over a group of contiguous languages in a similar area (e.g. *ga(:)ri* in the Cape York Peninsula) but few forms which occur in widely dispersed languages. I have noted two forms with a fair geographical spread. Some – but perhaps not all – of the forms given under each of (i) and (ii) may be cognate.

(i) *yaka, yaga*

yaka ‘no, not, don’t’ in Yal, Djapu (in table 3.3)

yagam ‘no, not’ in Mf, Bandjalang (in table 3.3)

‘yakka’ ‘not’ in WBa, Kaurna

yaga ‘not’ in Wlb, Mangala

yaʔa ‘no’ in Bc3, Wik-Mungknh

-yaka, privative suffix in WAa1, Pitta-Pitta (here one form for ‘no, not’ is *yawu*)

-yak, privative suffix in NBg1, Gunwinjgu

And note the nominal *yaku* ‘missing, absent, not (at a place)’ in NBd1, Ngandi.

(ii) *biya-*

biyay ‘no’ and *-biyay*, privative suffix, in the Biyaygiri dialect of H2 (in table 3.3)

biya(y) ‘not’, *-biyay*, privative suffix, and *biyayngul* ‘no’ in H3, Nyawaygi (in table 3.3)

-biya, privative suffix, *biyagay* ‘not’ and *bi:way* ‘no’ in Mgl, Gumbaynggirr

biyal ‘no’ in O1, Dharuk

biya ‘don’t’ in K1, Ngawun

And note *wiya* ‘not’ in WD, the Western Desert language, and *wiyang* ‘no’ in Dc1, the Flinders Island language.

Note also *-djam* as the privative suffix in Ma2, Gureng-Gureng, and Mf, Bandjalang (see table 3.3), and as the negative imperative suffix in H3, Nyawaygi (and *-dja* as negative imperative suffix in H2, Warrgamay), shown in (14).

3.3.12 Complex sentences

Australian languages vary in the types of coordinate and subordinate constructions they have and especially in the ways these are marked. It seems clear that subordinate clause types have developed in different ways in individual languages. A full account would be something of a catalogue and is not attempted in this volume. There are, however, a number of basic patterns and recurrent characteristics which can briefly be commented on.

Most languages lack specific coordinating and subordinating particles, of the types ‘and’, ‘but’, ‘when’, ‘because’, ‘if’. However, these are found in a few languages. Blake (1987a: 137–40) provides a sample list. Further examples include:

Ea1, Kuuk Thaayorre (Hall 1972: 514)	<i>ɲul</i> ‘and, but, then’; <i>agarr</i> ‘so that, in order to’; <i>ith</i> ‘if’
F, Kuku-Yalanji (Patz 1982: 266–70)	<i>kari</i> ‘but’ (same form as ‘not’); <i>yamba</i> ‘however’; <i>kaki</i> ‘if’; <i>kunka</i> ‘lest’
NBf2, Gurrongi (R. Green 1995: 293–4)	<i>arrapu</i> ‘and’; <i>wurru</i> ‘but’; <i>welang</i> ‘then’
NB12, Wardaman (Merlan 1994: 305)	<i>gabarri</i> ‘and also’; <i>ɲala</i> ‘but’; <i>wunjdjug</i> ‘because’
NHd1, Murrinh-patha (Walsh 1976a: 243–8)	<i>yi</i> ‘and’; <i>ɲata</i> ‘if’; <i>yirda</i> ‘because’

In most languages there is no overt marker (particle or clitic or affix) for coordination. This is instead shown by such features as:

- (i) Intonation. Two coordinated clauses make up one intonational unit.
- (ii) Coreferential omission. In a language with an S/O or an S/A pivot, the occurrence of a common argument (in pivot function) in the second of two coordinated clauses may be omitted. See §11.2.
- (iii) Tense–aspect marking. There may be restrictions in the tense–aspect choices in coordinated clauses.

Eather (1990: 393–438) presents an insightful account of complex sentence types in NBf3, Nakkara, in terms of the functions of coreferential arguments, and tense and mood constraints, among other parameters.

Subordination is sometimes also shown simply by parataxis (juxtaposition of clauses); this applies particularly to prefixing languages, whose obligatory bound

pronouns appear to provide sufficient indication of shared topic in clause linkage. However, most non-prefixing languages do have overt marking for several types of subordinate clause.

A typical pattern is to have three varieties of complex clause construction (where X indicates the content of the main and Y of the subordinate clause):

- (a) A 'lest'-type construction. Typical examples are 'Don't go near the fire (X) lest you get burnt (Y)' or 'I'll take some water (X) lest there is none along the road (Y)'.
- (b) A purposive-type construction. As mentioned under (b) in §3.3.5, there can be one of two kinds of message – X so that Y (e.g. 'go out to hunt kangaroos'), or X and as a natural consequence Y (e.g. 'he coughed and as a result his presence was noticed').
- (c) A general subordinate construction. This will typically have a rich range of meaning; it may mark a relative clause (providing further specification of the referent of a noun), or a conditional 'if' clause, or a reason 'because' clause, or an adverbial clause indicating 'when' or 'while' or 'where', etc.

Just a few languages have particles for marking some kinds of subordinate clause. The list given above includes 'if' in Ea1, Kuuk Thaayorre, 'lest' in F, Kuku-Yalanji, and 'because' in NB12, Wardaman. In NCb1, Djingulu, there is a purposive particle *ɲamba* 'in order to'; the subordinate clause verb appears then to take future tense inflection (Pensalfini 1997: 214–16). In NL, Tiwi, there are a number of subordinate particles, including *pili* 'because', *kapi* 'where', *karri* 'when' and *ɲini* which has a wide range of usage, including 'if', 'as', 'because', 'that is', and purposive 'in order to'; the sequence *pili ɲini* is 'so that' (Osborne 1974: 69–71; Lee 1987: 295–311; Godfrey 1997).

In a few of the prefixing languages there is a prefix (following pronominal prefixes) one of whose functions is to mark a subordinate clause; there is further discussion below. However, in most languages subordination is marked by a verbal suffix or enclitic. This may replace a TAM suffix (that is, it is a term in the same system as TAM suffixes), or follow a TAM suffix, or follow a nominalising suffix on the verb.

In many languages subordinate clause suffixes (or enclitics) are either identical to or plainly cognate with case suffixes on nouns (see the discussion and exemplification in Dixon 1980: 459–60; Blake 1987b, 1993; Simpson 1988; and in §6.6 below). Discussing the wide range of subordinating suffixes in Ya1, Djambarrpuyngu, Wilkinson (1991: 628) states 'there are no suffixes associated with non-finite subordinate clauses which do not also function as a case suffix'. As discussed in §§5.4.4, 6.5.1 and 6.6, the purposive suffix on verbs very often has the same form as dative and/or purposive on nouns (one widely recurrent form is *-gu*). In some languages the 'lest' subordinate

suffix on verbs has the same or similar form to the aversive case marker on nouns – see §5.4.7.

It is not uncommon to encounter a verb suffix which can be used in a main clause or in a subordinate clause. As mentioned in §3.3.5, purposive may be used in the first clause of a sentence (the main clause) to indicate ‘should’ or ‘want to’, and in a later clause (a subordinate clause) to indicate ‘in order to’ or ‘as a natural consequence of’.

In a classic paper, Hale (1976d) suggests that in WJb1, Warlpiri, what I am calling the general subordinate clause is best considered to be adjoined to the main clause, rather than embedded within it. If main and subordinate clauses share an argument then the subordinate clause can have what Hale calls an NP-relative interpretation (this is a classic relative clause), e.g. ‘I speared the emu which was drinking water’. If the two clauses have identical time-reference then there can be what Hale calls a T-relative interpretation (this is an adverbial clause), e.g. ‘I speared the emu while it was drinking water’. If both conditions are satisfied then a subordinate clause is potentially ambiguous (but is likely to be disambiguated by its discourse context). Hale’s analysis has been accepted as appropriate for the general subordinate clause type in a fair number of other Australian languages. See, among others, Austin (1981a: 204–15) on WAb2, Diyari; McKay (1988) on NBc1, Rembarrnga; Merlan (1981) on NBa, Mangarrayi; and Merlan (1983: 135) on NBc2, Ngalakan.

Hale’s analysis, taken together with the similarity of noun case inflections (especially those for peripheral functions) and subordinate clause markings, suggests a recurrent scheme of historical development:

(15)	peripheral noun phrase (peripheral case marking)
gives rise to	peripheral clause (same marking)

A peripheral case suffix could first of all be added to the nominalised form of a verb, in a peripheral subordinate construction (see, for example, Crowley 1983: 378–80 on Ba2, Uradhi). At a later stage the nominalising suffix could be eliminated, with what was a nominal suffix being added directly to the verb. This scenario is discussed further in §6.6.

At a still later stage, an adjoined subordinate clause could develop into an embedded clause, placed next to the common argument NP in the main clause; Hale (1976d) discusses this development in WL2, Kaytej.

It is relevant to enquire whether an inclusive characterisation can be provided for a general subordinate clause type, which covers ‘if’, ‘because’, ‘where’, ‘when’ clauses, relative clauses, and more. A clue is provided by the fact that in some languages the marker of a general subordinate clause is also involved in the focus system. In NBd1,

Ngandi, Heath (1978b: 122–6) describes uses of the prefix *-ga-*, which follows pronominal prefixes in the verb. Firstly, it is used in connection with focussing within a clause – the focussed element comes first and the verb bears prefix *-ga-* (for example, ‘fish they-it-*ga*-speared’ for ‘it was fish that they speared’). Secondly, it is used to mark a general subordinate clause. Plainly, the function of *-ga-* is to mark a part of a clause (in the first case) or a whole clause (in the second case) as defocussed, with respect to another part of the clause or sentence in which it occurs. Similar marking has been described by Heath (1980b: 91–2) for NBb2, Warndarrang, and by McKay (1988) for NBc1, Rembarrnga. It is likely that, in many other languages, what is called a general subordinate clause marker may have the basic effect of defocussing the clause to which it is attached, by contrast with the main clause (which is thereby placed in focus). The discourse context will then determine the specific sense in each instance – relative clause, ‘if’, ‘when’, etc.

Merlan (1981) describes how NBA, Mangarrayi, has two sorts of verbal suffixes, which she labels realis and irrealis. The irrealis set has three functions: to mark a clause referring to something that the speaker is uncertain about; to mark a clause referring to habitual activity; or to mark a general subordinate clause. This probably also relates to the idea of focus, but in a more subtle and language-particular way.

A continuous block of Australian languages has what is called ‘switch-reference’ marking, whereby one or more types of subordinate clause show different marking depending on whether the subordinate clause has the ‘same subject (S or A) as’ or ‘different subject to’ the main clause to which it is linked. Austin (1981b) describes how all languages with switch-reference have it for general subordinate clauses (called relative clauses in some of the grammars) while just those in the central part of the region also have it for purposive clauses; an updated version of his results is given as map 11.1 in §11.2. No Australian language is known to have switch-reference marking for ‘lest’ subordinate clauses. (For the Yankuntjatjarra dialect of WD, Goddard 1985: 264–75 describes coordinating particles which operate on a switch-reference pattern – the ‘additive’ connective *munu* can link NPs or clauses with the same subject, while the ‘contrastive’ connective *kaa* can link clauses with different subjects.)

The actual details of what counts as ‘same subject’ are fascinating and vary a little from language to language. Wilkins (1988) provides an insightful study of switch-reference in WL1, Arrernte, showing how it relates in part to conventions for cultural and social categorisation, and can be manipulated as a stylistic device.

It is clear that switch-reference marking has diffused, as a grammatical category, with each language developing its own marking suffixes from its internal resources. But, as Austin shows, there are recurrent patterns to the way in which this is done. Languages in the northern part of the switch-reference area have the different-subject

verb suffix similar to allative case on nouns and the same-subject marking similar to locative. In the southern part of the area different-subject markers are similar to locative (there is here no recurrent pattern for same-subject markers). This provides further support for the idea set out in (15) that subordinate clause types often evolved out of peripheral NPs.

There are some languages with a larger number of subordinate clause types. For WHc2, Martuthunira, Dench (1988, 1994) lists: finite relative clauses (which retain TAM marking), non-finite relative clauses (lacking TAM), 'lest' clauses and purpose clauses. Both types of relative clause can have either an NP-relative or a T-relative interpretation (in Hale's terms). This language is on the periphery of the switch-reference area, and switch-reference marking is shown just in purposive clauses. Perhaps the most complex system of subordinate clauses yet reported is that in NAb1, Kayardild – details are in Evans (1988b, 1995a).

H1, Dyirbal has a type of subordinate clause which is strictly a relative clause. This generally follows the noun that it qualifies in the main clause, and the verb of the relative clause agrees with this noun in case; the case suffix follows the relative clause suffix. The relative clause marker *-ŋu*, found in all dialects, has the same form as the basic genitive suffix on nouns (indicating that a person has alienable possession of something). All dialects have a second genitive suffix, *-mi*, used to indicate that a person used to own something, or owns it but does not have it in their possession just now. There is a second relative clause marker found just in northern dialects; this has the form *-mi*, the same as for the second variety of genitive. In dialects with two kinds of relative clause, that marked by *-ŋu* refers to something which is still going on, while that marked by *-mi* refers to something which is completed. And while the suffix *-ŋu* is added directly to the verb stem (replacing a TAM inflection), *-mi* is added after the past tense suffix (Dixon 1972: 99–110).

All this suggests that, in Dyirbal, relative clauses developed on the basis of possessive constructions, a different scenario from that in (15). The *-ŋu*-type would have developed first, and then the *-mi*-type. We would expect that, in time, the *-mi*-type of relative would spread to all dialects, and that past-tense-plus-*-mi* would fuse, so that this type of relative clause would involve an affix added directly to the verb stem.

Other languages with embedded relative clauses include WL1, Arrernte (Blake 1987a: 145, based on information from Breen; Wilkins 1989: 414–31), Mf, Bandjalang (Crowley 1978: 122–5), and Nbf2, Gurrongi (R. Green 1995: 303–6).

There are no doubt additional paths by which subordinate clause marking developed. In Ja1, Bidjara, for example, a general subordinate clause is marked by *-yi* which follows a tense inflection on the verb (Breen 1973: 41–4; Blake 1987a: 140).

Finally, we should mention that, in just a few languages, a relative clause may show syntactic differences from a main clause. Austin (1981c) describes how in WHb2, Thalantji, perfective and imperfective relative clauses have the O argument marked by dative case, whereas in main clauses O is marked with accusative case. (See Blake 1987a: 144–5.)

3.4 **Special speech styles**

In addition to everyday speech styles, there are a number of special uses of language in Australian societies. Here I simply summarise a few relevant points and provide references for readers who wish to pursue the topics in more detail.

(a) *Song styles.* Every Australian community has (or had) one or more song styles, each with its own typical subject matter, accompaniment style, dance routine and social role.

Just like poetry in languages such as English, the poetry of Australian Aboriginal songs has special features. It often includes archaic words (sometimes with associated archaic sounds or phonotactics), and may follow different grammatical conventions from spoken language style. For instance, in spoken Dyirbal each word in an NP must agree in case inflection, marking the function of that NP in the clause; but in songs a case inflection may be omitted from some (but not all) of the words in an NP, if they occur in contiguity.

Sometimes there is a set of special words that are used only in songs, mixed in with everyday words. There may be ‘filler’ syllables, or else word truncations, to fit the metrical pattern. Different song styles may be distinguished by distinctive paralinguistic features – breathy voice, or a rasping tone, or a slurred and mournful chanting style.

The fullest study of the song styles of a language group is Dixon and Koch (1996) on Dyirbal. This includes 174 songs (some in a number of versions) with full grammatical analysis and discussion of linguistic and musical conventions (including musical transcription of twenty songs). Dixon and Duwell (1990) and Duwell and Dixon (1994) are anthologies of song poetry from seven communities, illustrating the width of linguistic and poetic conventions found across the continent. Other recommended sources include Alpher (1976), Clunies Ross (1978), Clunies Ross, Donaldson and Wild (1987), Dixon (1980: 51–8), Elkin and Jones (1957), Moyle (1979) and the seminal study in Strehlow (1971). Further references will be found in the annotated bibliographies by G. Koch (1987, 1992).

(b) *Initiation styles.* In a number – but by no means all – of Australian communities there is (or was) a special speech style used only between initiated men and taught to youths at initiation. These differ considerably in nature. Mathews (1903: 269–70) mentions ‘the Yauan, or mystic language’ of Nc1, Kamilaroi, ‘known only to the initiated . . . which

is inculcated at the Bora ceremonies'. This appears to involve just a number of special lexemes (Mathews gives around fifty). There is an initiation style of a quite different type still in use in another part of Australia, based on the principle of replacing each lexical item by an opposite; for example one says, literally, 'another is standing' in the initiation style to mean 'I am sitting'. Although something has been published on this style, the initiated men of the tribe prefer that nothing more be published at this time.

The most amazing initiation language of all is the Damin style of NAa, Lardil, and here the elders are happy for details to be made available. Damin uses only about 150 lexemes which code the full range of everyday Lardil vocabulary on a one-to-many basis. For instance, *m'i* covers all vegetable food, *Li* is used for all bony fish, and *n!un!u* for all liquids. And, while the everyday speech style has nineteen pronouns, Damin uses just two, *n!a* 'ego' and *n!u* 'other'. The most unusual feature of Damin is its phonology. Whereas everyday Lardil has four vowels, with length, Damin uses just three, plus length; this is probably the vowel system from an earlier stage of Lardil, being also the system for other languages in the Tangkic subgroup, NA. Damin has eleven of the standard set of seventeen consonant phonemes found in the everyday style, plus at least thirteen additional ones. These include nasal clicks (*m!*, *n!*, *nh!* and *ŋ!*), an ingressive lateral fricative (*L*), a glottalised or ejective velar stop, an ejective bilabial stop, a bilabial trill, voiceless apico-alveolar lateral and voiceless dorso-velar nasal. Catford (1977: 65, 72) suggests that Damin has the greatest variety of air-flow initiation types found in any language of the world. It is said that Damin style was invented by a legendary ancestor; its unusual features do suggest that it was simply made up by a talented Lardil linguist at some time in the past. (Details are in Hale 1973a: 442–6, and Hale and Nash 1997; see also McKnight 1999: 143–55, 244–5.)

(c) *Avoidance, or respect, styles.* In every Australian community, there are (or were) some classes of relative with whom contact should be kept to a minimum, or avoided altogether. Typically, a mother-in-law and son-in-law should not look at one another, nor sit or stand close together. In almost every (perhaps in every) society there is or was a linguistic marker of this avoidance relationship – a special avoidance (or respect) speech style that had to be used whenever anyone in an avoidance relationship was within earshot. (Some of my Aboriginal teachers referred to this style as 'mother-in-law language'.)

There is need for a full study of avoidance styles across Australia, examining their context of use and their linguistic make-up. Here I simply give a brief summary of some of the main parameters of variation.

Firstly, there is variation in the types of relative connected with whom the avoidance style must be used. In some communities it extends to wife's mother's brother. Alpher (1991: 103) reports that in Eb1, Yir-Yoront, the respect register is used for speaking in the presence of OR ABOUT an avoidance relation.

In some communities that lack a distinct initiation style, the avoidance style may also be used in the context of initiation. Whereas use of an avoidance style is normally reciprocal (if A uses it in the presence of B, then B will use it in the presence of A), its secondary use during initiation may be unidirectional (used by the initiands, but not to them). In WHc3, Panyjima, an initiated man (and his siblings) must use the Paathu-pathu respect style when speaking to the man deemed to have performed his circumcision and with that man's siblings (Dench 1991: 211–12).

Most avoidance styles have the same segmental phonology (and phonetics) as the everyday style, but there are occasional differences. For instance, in Bc2, Wik-Me'nh, the rhotic *r* is maintained in the avoidance register, but has been replaced by the glottal stop in the everyday language style (Ken Hale, p.c.). Avoidance styles sometimes require unusual voice quality and pitch.

An avoidance style generally uses the same grammar as the everyday style – the same affixes and the same members of closed classes such as pronouns, demonstratives and particles. Again there are occasional exceptions. Some dialects of WD, the Western Desert language, have distinct sets of free pronouns, and languages of the Pilbara region, such as WHc3, Panyjima, have distinct sets of demonstratives (Dench 1991: 215). Some languages have a special marker indicating that an utterance is in the avoidance style – see Alpher (1991: 103) on Eb1, Yir-Yoront, and Merlan (1982b: 133) on NBa, Mangarrayi.

It is in the lexicon that differences always occur. Most avoidance styles have just a few score distinctive lexemes, for the most common referents. These always cover nouns such as 'water', 'fire', 'meat' and basic body parts. In most languages there are a dozen or so verbs in the avoidance style. In NF1, Bunuba, and in the nearby WJa subgroup the avoidance style has just one verb, which replaces every verb (or almost every verb) in the avoidance style. In WJb1, Warlpiri, the single verb has differing forms, depending on the relationship between the people involved – when talking in the presence of wife's brother the avoidance style verb is *marrarla-rni*, with wife's mother's brother it is *mitipi-nji*, while with wife's mother it is *ḡarritjarri-mi* (Dixon 1980: 65, from Ken Hale p.c.; see also Laughren 2001). Rumsey (2000: 124–8) provides an informed account of Gun.gunma, the avoidance style in Bunuba.

The prototypical situation is to have these special words of the avoidance vocabulary mixed in with vocabulary items from the everyday style. Just two examples have been reported of the extreme position where every word in the everyday style is replaced by a different form in the avoidance style. In G2, Yidinj, and its neighbour H1, Dyirbal, every verb, adjective and noun has a different form between the two styles but, as mentioned in §3.3.10, grammatical forms coincide. (There is just one set of exceptions; the four terms for grandparents have the same form in both styles for Dyirbal.)

However, in these two languages the avoidance style vocabulary is far smaller than that of the everyday style. As mentioned in §3.1.3, we get a one-to-many mapping.

The everyday style will have a number of specific names for types of ant (and no generic term) but there will just be a generic term in the avoidance style (which is called Djalnguy in both Dyirbal and Yidinj). Similarly for verbs – as illustrated in table 3.1 of §3.1.3 – and for adjectives. The one-to-many mapping also applies in some languages with a more limited avoidance vocabulary. In Eb1, Yir-Yoront, for example, the avoidance term *larr=olhth* is used in place of everyday style lexemes *wun* ‘lie’, *nhin* ‘sit’, *tholhth* ‘fall’ and sometimes also for *than* ‘stand’ (Alpher 1991: 105).

Although an avoidance style generally has the same grammatical system as the everyday style, conventions for grammatical usage may differ. For example, in several respect styles a 2pl pronoun is used for reference to a single addressee. An avoidance style generally makes greater use of derivational processes than does the corresponding everyday style. Whereas the everyday style of Dyirbal has many intransitive/transitive verb pairs, with different forms, the respect style generally has a single form. For example:

(16)	EVERYDAY STYLE	AVOIDANCE STYLE
transitive	bundi-l ‘take out’	yilwu-l
intransitive	mayi-l ‘come out’	yilwu-yirri-y

Here the transitive verb root *yilwu-l* is used for both ‘take out’ and ‘come out’ in Djalnguy, but the detransitivising suffix *-yirri-y* (which has a canonical reflexive meaning) is added to *yilwu-* to derive an intransitive stem that will correspond to *mayi-l*.

There is also a tendency – in keeping with the social context of respect – to employ unspecified descriptions in avoidance styles. In Panyjima, for instance, verbs derived from ‘good’ and ‘bad’ are the only respect style correspondents for many verbs with specific meanings in the everyday style, e.g. ‘make bad’ for ‘hit’, ‘kill’ and ‘break’, ‘make good’ for ‘straighten’ and ‘fix’ (Dench 1991: 216).

The one-to-many correspondences between avoidance and everyday style vocabulary can be revealing, demonstrating taxonomic organisation of faunal and floral terms, and also the underlying conceptual structure of verbal and adjectival semantics – see table 3.1 in §3.1.3 above and Dixon (1977a: 501–7; 1982a: 63–139, 1991a).

The forms of lexemes in avoidance style is also a fascinating topic. Sometimes they are based on everyday style forms by the addition or subtraction of a syllable or by phonological deformation, but generally they are totally different. Dixon (1990b) is a thorough study of the 620 avoidance-style words recorded across the dialects of Dyirbal, and of the 190 recorded for Yidinj (here less of the vocabulary was remembered by the last speakers). It is instructive first to compare the percentages of cognate vocabulary between three dialects of Dyirbal, for the two speech styles:

EVERYDAY STYLE	AVOIDANCE STYLE
Ngadjjan dialect	Ngadjjan dialect
75% Mamu dialect	69% Mamu dialect
65% 82% Jirrbal dialect	38% 49% Jirrbal dialect

It will be seen that the dialects differ more in avoidance style than in everyday style lexemes.

We can also compare vocabulary in the two styles between the Dyirbal and Yidinj languages:

	EVERYDAY STYLE	AVOIDANCE STYLE
Dyirbal-Yidinj	26%	40%

Here the avoidance style vocabularies are more similar than those of the everyday styles.

Study of the actual forms indicates three main sources:

- (a) An everyday-style lexeme for one language or dialect was taken over as an avoidance-style form in a neighbouring language or dialect. For example 'egg' is *diŋal* in Yidinj everyday style and in the avoidance style of the Mamu and Ngadjan dialects of Dyirbal.
- (b) A form in the avoidance style of one language or dialect was borrowed into the avoidance style of a neighbouring language or dialect. For instance, *yulmba-* is 'lie down' in the avoidance styles of Yidinj and of all three dialects of Dyirbal.
- (c) Avoidance-style lexemes were derived from the corresponding everyday-style lexemes of the same dialect, by phonological deformation. For example 'hungry' is *ŋamir* in Dyirbal everyday styles and *gabir* in the avoidance styles of the Jirrbal and Mamu dialects; 'return' is *banaga-* in Jirrbal everyday style and *walaga-* in the Jirrbal and Mamu avoidance styles. For each pair there is correspondence between sounds at the same place of articulation – *ŋ/g*, *m/b*, *b/w* and *n/l*.

It is clear that these avoidance vocabularies were expanded to their present size fairly recently, and that this happened on an individual basis in each dialect of Dyirbal, explaining why the avoidance vocabularies are more different between dialects than are everyday vocabularies. And (b) was a major source for new avoidance-style lexemes, explaining why Yidinj and Dyirbal (two quite distinct languages) show more similarities in avoidance style than in everyday-style lexemes.

General discussions of special speech styles include Capell (1962b), Dixon (1980: 58–68, 479–80) and Alpher (1993). Specific case studies include Haviland (1979b, c) McConvell (1982), Merlan (1982b) and Rumsey (1982b).

Another special speech style, scarcely mentioned in the literature, is a 'mourning style', using for grieving over a recently deceased relative and extolling their virtues.

Vocabulary

Study of the forms and meanings associated with the open word classes (nouns, adjectives, verbs) in Australian languages is a vast topic in need of detailed study. A full treatment would require several volumes. Here I simply outline some of the main points, some of the problems and some of the tentative results to date.

First, a caveat is in order. There is a fine line between the recognition of a genuine meaning–form correspondence and fanciful hypotheses about relationships between words whose forms and meanings show a coincidental similarity. Consider three examples from English, of a single form with two meanings: *fast*, which can mean ‘quick’ or ‘firm, secure’ (as in *stuck fast*); *ear* which can be ‘organ of hearing’ or ‘part of a cereal plant’ (e.g. *ear of corn*); and *bank* which can be ‘raised shelf of ground’ (e.g. *river bank*) or ‘institution to do with money’. Some native speakers think that in all three cases the two meanings of the form must be related while others consider that in all three cases they are unrelated.

In fact the two senses of *fast* have developed from an Old English adjective *fæst* ‘firm’ (see Stern 1931: 216 for an account of the semantic shifts involved). But for *ear* and *bank* there is no historical relationship. The first sense of *bank* (as in *river bank*) is a Germanic form, while the second is a loan from Middle French *banque*. Both of the words *ear* are Germanic; ‘hearing organ’ *ear* goes back to Old English *ĕare* and is cognate with Gothic *auso* and Latin *auris*, while the ‘cereal part’ *ear* goes back to Old English *ĕar* and is cognate with Gothic *ahs* and Latin *acus* ‘husk’. Through phonological change the two words have converged on the same form; some English speakers imagine, wrongly, that ‘cereal part’ must be a metaphorical extension from ‘hearing organ’, perhaps due to some imagined similarity of shape.

This illustrates the care that must be taken when comparing forms within languages and also between languages. We can now look at an Australian example. Study of the lexicons of H3, Nyawaygi, and H1, Dyirbal (just one language – H2, Warrgamay – comes between them geographically), reveals the following correspondences of form:

	form	Nyawaygi	Dyirbal
(a)	buyin	'eye'	'eyebrow'
(b)	man̪gu	'upper arm'	'lower arm'
(c)	d̪il̪gan	'cave, hole'	'inside, middle of'
(d)	mul̪ga	'blunt'	'blind'
(e)	guya	'eel'	'fish (generic)'
(f)	bul̪ba(-)	'fall' (verb)	'broken-hearted' (adjective)
(g)	d̪unda	'spittle' (noun)	'jealous' (adjective)
(h)	wad̪ja	'language'	'crow'
(i)	yaga(-)	'two' (adjective)	'cut something open (e.g. the belly of an animal)' (verb)
(j)	gulugulu	'woman'	'brown tree snake'

These are given in roughly descending order of plausibility for the forms in the two languages to be related, either through common genetic inheritance or by borrowing. It is pretty certain that the forms in (a–b) are related, and fairly likely that those in (c–e) also are. At the other extreme it is very unlikely that (j) involves anything more than a coincidence of form, and rather unlikely that (h–i) do. Forms (f–g) fall into a middle area – there might conceivably be some link between *bul̪ba* and *d̪unda* in the two languages but there might well not be.

In any scientific endeavour one should apply conservative criteria. I would treat just (a–e) – not (f–j) – as putatively related and involving a semantic shift. Some people working on Australian languages are more generous in their judgements and would go down as far as (g), or perhaps even (i), without hesitation. Their conclusions are to be approached with caution.

A strong case can be made if the same semantic relationship is attested with different forms in two or more distinct parts of the continent. O'Grady (1990: 457) relates *ɲukun̪pa* 'brain' in WJb1, Warlpiri, with *ɲukur̪ta* 'testes' in the Pintupi dialect of WD, the Western Desert language, and with *ɲukurn̪pa* 'egg' in the Ooldean dialect [Ngaliya] of WD. This seems plausible – we get *mid̪ju* 'brain' in Dyirbal and *mid̪ju* covering all of 'brain', 'egg' and 'testes' in Nyawaygi.

But, unfortunately, O'Grady does not stop here. In the same putative cognate set he includes WBa, Kurna, 'nguko' with the meaning 'owl species' (O'Grady suggests intermediate stages: < 'eye' < 'egg'); Mf, Bandjalang, *kuŋ* 'water' (O'Grady adds a note 'with metathesis') and WHc10, Ngarla, *ɲuku* 'star' (here he adds a note: < 'camp [water]'). Such rampant imagination makes the majority of O'Grady's putative cognate sets of no scientific use. This is a pity, since scattered among the fantasy are some bona fide cognates. (There is further discussion in the appendix to chapter 2 of the implausible cognate sets suggested by O'Grady and his associates.)

4.1 Lexical meanings

Australian languages pursue a different kind of organisation of conceptual space from the familiar languages of Europe. Some of the major differences were mentioned in §3.1. I said there that it is usual first to provide a generic description – of an action or a thing – and then to give further specification if and when appropriate. Note that sometimes specification must be made, when appropriate conditions apply. There is, in many languages, a cover term ‘snake’ which can be employed when it is impossible to identify the species. But, where the snake is fully seen, its identity should be specified (indeed, this may be a matter of life and death, since some Australian snakes are amongst the most venomous in the world).

Australian languages have richly developed kinship terminologies, often with multiple terms depending on several factors – the relationship between the two people being referred to, and also that between the speaker and/or addressee and each of them (I may have to use a different term for ‘my younger sister’ depending on whether I am addressing my father, or my mother, or another sibling, or a grandparent, etc.); see the essays in Heath, Merlan and Rumsey (1982). There is generally a rich set of body part terms, including names for a fair number of bones and muscles. There are typically many nouns describing different kinds of sound (Dixon 1980: 104–5). But there are often only a few colour adjectives (e.g. Jones and Meehan 1976), and just a few number words.

There are names for every faunal species and special terms for body parts of culturally important animals, birds and fishes, e.g. the yellow feather on a white cockatoo, the jaw bone of an eel. Names for flora roughly match botanical species names. Sometimes several species of plants – that are of no cultural use – may be grouped under one name, and sometimes there may be several names relating to a single important species (perhaps depending on its stages of growth); but, in the majority of cases, there is a one-to-one correspondence between Aboriginal names and botanical species names.

Australian languages have rich classes of adjectives. These refer to size, shape, stance and orientation, physical property, corporeal state, value, age and also human propensities. There are terms relating to generosity and greed, to jealousy and reliability, to laziness and valour, to happiness and sorrow. Straightforward translation into English is difficult in this area, since the Aboriginal world-view has a different orientation from that of Europeans. For example, a single term may be translated as ‘afraid’ in some contexts and as ‘ashamed’ in others (e.g. Hiatt 1976a).

There are generally only a few words relating to semantic domains such as knowing/understanding/believing and wanting/liking (and those that there are tend to have rather specialised meanings). There are many terms for different modes of spearing, talking, looking, and so on. There are typically at least two verbs relating to ‘burn,

cook' – one must have a person as A argument (e.g. 'mother cooked the wallaby') while for the other the A argument must be the heat source ('sun', 'fire', 'flame').

There is a degree of cultural commonality across Aboriginal Australia leading to similar patterns of semantic organisation, although of course the details differ. But the geographical environment varies. In H1, Dyirbal, spoken in well-watered mountainous country, there are verbs 'go uphill', 'go downhill', 'go upriver' and 'go downriver' and determiners take suffixes with similar meanings but also specifying a short, medium or long distance up or down. Such specification would not be found in a language associated with arid, flat country. And, unlike most languages, Dyirbal has no lexeme 'thirsty'; it rains almost every day and there is always fresh water within easy reach. (One can of course express the idea of thirsty by saying 'dry throat'.)

Similar types of metaphorical extension recur across the continent although again the details vary. For instance, the thumb is typically the 'mother' or 'father' of the hand (and similarly for big toe with respect to the foot), and the nipple is either the 'eye' or the 'nose' of the breast.

Names for parts of the human body are extended to plants (e.g. 'skin' = 'bark'), to the environment ('arm' = 'tributary of a river') and to artefacts ('elbow' = 'curve on a boomerang', 'mouth' = 'door of a house'). Body parts may also be used as locational or directional terms (or else these may be diachronically based on body parts), e.g. 'forehead' for 'towards', 'buttocks' for 'behind'. (An excellent account of extension of body part meanings in Yolngu is in Schebeck 1976a.)

Names can be assigned by association. In WGa1, Watjarri, for instance, *mirru* is both 'woomera' (used by a man) and 'navel of male person' while *wana* is 'digging stick' (used by a woman) and 'navel of a female person' (Douglas 1981; Evans ms.). In Dyirbal *gadjin* is both 'teenage girl' (old enough to use a digging stick) and 'digging stick'; the meanings are distinguished by the noun class of an accompanying determiner – feminine *balan gadjin* 'teenage girl' and neuter *bala gadjin* 'digging stick'.

Identical (or related) names may be used for an animal or bird and for a plant (or for both an animal and a bird, or a fish and a bird, etc). This may be because they have similar colouring or smell or taste or shape or movement, or because the animal eats the plant, or the insect lives on the plant, and so on. (There is an excellent discussion in Evans 1997b.)

As mentioned in §3.1.3, languages with a small number of simple verbs use these in many compounds, with coverbs. In all languages there are a number of compound nouns, commonly including a body part. In WL1, Arrernte, for instance, a small plant (*Goodenia lunata*) is called *arleye-ingke*, literally 'emu foot' because of the appearance of its leaf.

A particular body part may be thought of as the seat of the emotions – or of the intellect – and be involved in a number of compound adjectives and verbs. Which body

part has this role can vary from language to language. It is *pina* 'ear' in the Pintupi dialect of WD, the Western Desert language, and compounds include (Hansen and Hansen 1992: 108):

- *pina pati* (lit. 'ear shut/blunt') 'mad, without understanding';
- *pina papa* (lit. 'ear dog') 'disobedient, thinking wrongly' (i.e. with the understanding of a dog);
- *pina katiljka* (lit. 'ear rotten/maggot') 'swearing';
- *pina kuya* (lit. 'ear bad/useless') 'non-cooperative, won't listen'.

In Bc3, Wik-Mungkanh, the operative body part is *ḡaṅk* 'heart' (a bit like in English). Here the compounds include (Kilham et al. 1986):

- *ḡaṅk theeʔan* (lit. 'heart give') 'put trust in';
- *ḡaṅk muṅkan* (lit. 'heart eat') 'be consumed with passion';
- *ḡaṅk akaṅam thanan* (lit. 'heart is shaking') 'feel guilty or scared';
- *ḡaṅk entj* (lit. 'heart occurring in') 'feel sad (because a loved one is far away or dead)'.

The types of metaphorical extension that are encountered provide an indication of possibilities for semantic change. Wilkins has studied changes involving body parts and describes a number of recurrent shifts, e.g. 'fingernail' > 'hand', 'skin' > 'body' > 'person', 'hair' > 'head' and 'forehead' > 'head'. Some changes can proceed in either direction, e.g. 'liver' >/< 'heart' and 'heart' >/< 'chest'. (See Wilkins 1993, largely repeated in Wilkins 1996.)

As already mentioned, it is unusual (although not unknown) for a given form to function both as noun and as verb (or both as adjective and as verb) in a given language. (One class of exceptions is found in languages where some nominals may function as a subclass of coverbs.) We do, however, find a number of cognates between a noun in one language and a verb or adjective in another. Evans and Wilkins (2000) exemplify with *bina*, which is 'ear' in languages from right across the continent and can be (or can be the basis for) a verb 'hear, listen' and/or adjective 'knowing' in some languages. The noun *mil* (or *mi:l*) 'eye' occurs in many languages, and is likely to be related to the verb *milga* 'see' in Wlb, Mangala. In H1, Dyirbal, there is a noun *guwal* 'language' and in the Yuwaalaraay dialect of Nc1 there is a verb *guwa:-l* 'talk, say'. See also §4.3.2 below.

Work on meaning extension and meaning shift in Australian languages is just beginning, primarily through some excellent work by Wilkins and Evans (both singly and together). This is a fertile field for future research.

4.2 Lexemes

Studying the occurrence of lexemes in Australian languages is significantly different from investigating the lexicon of a language family from anywhere else in the world. In Indo-European or Austronesian, for instance, several thousand lexemes can be

reconstructed for the proto-language of each subgroup, and thence into the proto-language of the whole family. Such lexemes are likely to cover every semantic field.

As already noted, Australian languages cannot be appropriately represented by a family tree model, but rather appear to be the result of tens of millennia of areal diffusion in an equilibrium situation. In fact there are a number of verbs, a handful of adjectives, and some nouns referring to body parts, kin, artefacts and the environment which recur across the continent. However, there are no names for flora and fauna (beyond the generics *mayi* 'vegetable food' and *guya* 'fish') which occur outside a limited geographical region.

In §2.1.5, I described how, when two languages have been in contact for a sufficient period, their shared vocabulary is likely to stabilise at around 50 per cent. The most typical situation is for a language to have 40–60 per cent vocabulary in common with some of its neighbours, but a smaller figure with others (here indicating that the contact has been for a relatively short period).

It has been put about that a common core of vocabulary is distributed among non-prefixing – or 'Pama-Nyungan' – languages, and is absent from those with prefixing. Indeed, as remarked in the appendix to chapter 2, this has been given as a justification for the idea of a 'Pama-Nyungan language family' – the common core of vocabulary is attributed to a putative 'proto-Pama-Nyungan'. Detailed study – as summarised below – shows that this idea is mistaken. Most of the lexemes that have a wide distribution in non-prefixing languages are also found in the prefixing area. The reader can note below attestation in groups NA–NL (those currently taken to be 'non-Pama-Nyungan') of lexemes that recur across groups A–Y and WA–WM.

It should be pointed out that there can be a number of difficulties in recognising cognates in prefixing languages. One is that a noun may be quoted with a noun class prefix, which must be discarded to get at the root. Also, most of these languages have undergone fusion, with accompanying phonological changes. The form *gundjen* is quoted for 'tongue' in NBg1, Gunwinjgu, and *gudjelŋ* in NBd1, Ngandi, for instance. These involve noun class prefix *gu(n)*- plus what is probably a reflex of *djalanj*, which occurs as a free noun 'tongue' over a great deal of the continent. It will be noted below that putative cognates in prefixing languages tend to show most divergence of form – this is due to the phonological and morphological changes they have undergone.

The recognition of cognates involves plausible correspondence of (a) form, and (b) meaning. The forms may be identical or else they may differ in terms of some recurrent phonological change. In the Australian context these include assimilation, e.g. *djugi* > *djugu*, and lenition, e.g. *djugu* > *yugu*. Interestingly, many of the 'common Australian' lexemes listed by Capell (1956: 85–94) begin with *gu-*, *ŋu-*, *dji-*, or *nji-* (where the initial C and V have the same place of articulation and there is no scope

for assimilation) and none with *gi-*, *ŋi-*, *dju-* or *nju-* (where assimilation is likely in some languages, e.g. *gi-* > *dji-*, or *gi-* > *gu-*).

Decisions concerning what are plausible meaning correspondences are more difficult in the absence of any comprehensive set of ideas concerning what are plausible semantic changes (corresponding to those for phonological change). However, some guidelines are beginning to emerge, thanks to the work of Wilkins and Evans (and the work I have done, reported below). We know that meaning correspondences ‘egg’ : ‘brain’; ‘fingernail’ : ‘hand’; and ‘digging stick’ : ‘girl/woman’ are well attested and thus plausible for new cognate sets. But I prefer to err on the side of caution. (As already noted, I would reject at least 90 per cent of O’Grady’s putative cognates, simply because of the generous semantic – and sometimes also phonological – latitude he permits himself.)

Something of the order of 150 lexical forms are discussed in the remainder of this chapter. It would be too space-consuming to provide a map of the distribution of each one (in the way that, in later chapters, maps are provided to show the distribution of some grammatical features and forms). Instead I list which of the fifty groups (A–Y, WA–WM, NA–NL) it is found in.

Note that when I say a certain form is found in a given group, I mean that it is found in AT LEAST ONE language from that group, not necessarily in all of them. Thus, for a given meaning several forms may occur in (different languages from) a given group. A number of languages (e.g. WD, Ja1, F) have a dozen or more dialects and here several forms, with a given meaning, may occur in different dialects of a single language.

I generally give the basic form of a lexeme. It is of course to be expected that it will lose vowel length in a language which lacks contrastive length, undergo initial dropping in an initial-dropping language, final dropping in a final-dropping language, and also assimilations and/or lenitions, etc. in other languages. I do not specify its precise form in every group in which it is found, although I do give some of the more significant (and especially the least predictable) variations of form. For ease of comparison, the recurrent form of a lexeme is generally written with voiced stop symbols; and a laminal stop or nasal is generally written as *dh*, *nh* before *a* or *u* and as *dj*, *nj* before *i*.

4.2.1 *Flora and fauna*

As already noted, there are only two nouns relating to flora and fauna that have wide distribution: *mayi* ‘vegetable food’ and *guya* ‘fish (generic)’.

(1) *mayi* ‘vegetable food’ is found as a lexeme in one or more languages from each of the following groups: B–G, J, WB, WD–WE, WH–WI, WK, NBh, NBI, ND and NE. It appears as *meyi* in NBe and NBI; as *miyi* in WD, WJ and NF; as *mi*, *miyi* or *miya* in NH; as *me(e)* in NBc and NG; and as *maa* in W and WC. The form *mama* in X and

NBm may be a further cognate. Note also that *mayi* has developed into a noun class suffix *-m* in H1, and into a noun class prefix (*ma-*, *mi-* or *m-*) in sixteen languages, spread over five groups – see table 10.5 in §10.6.5. (The form *mayi* ‘tooth’ in WMa and X may possibly be related; further work is needed on this.)

That is, a lexemic reflex of *mayi* is found in seventeen of the thirty-eight non-prefixing groups (B–Y, WA–WL, WMb and NA) and in six of the twelve prefixing groups (WMa, NB–NL). And it has developed into a grammatical affix in one non-prefixing and five prefixing groups.

Other languages have different lexemes for ‘vegetable food’. None occurs over more than a limited area. These include:

- *maŋarri*, *maŋarra* in WD, WJ, NC and NG;
- *manhdha* in J, K, W;
- *ŋadha* in Ya, Yb, WH and WMb;
- *wa(:)li(dj)* in Yc, NK.

(2) *guya* ‘fish (generic)’ is in D, E, H–J, L, N, Y and WA–WC. We find *guyu* (with vowel assimilation) in D, F, G and J (and initial dropping yielding *yu* in Jb1), and *guyi* (with the second vowel assimilating to the preceding *y*) in WI. The form *ga:guyi* in NCb may also be cognate. (In §4.1 I mentioned that *guya* ‘eel’ in H3 may be a further cognate.) McConvell (1997a) mentions that in some dialects of Mf, Bandjalang, *guyaŋ* is the name for a particular species of fish, ‘mullet’ (Sharpe 1995: 50); he also points out that in languages from groups WI–WL *guya* has undergone a meaning shift to mean ‘meat’. (See also Elkin 1970: 708, 712 on *guya* ‘fish’.)

Other terms for ‘fish (generic)’ have a limited areal distribution. They include:

- *gabi* or *gawi* in WH, NF and NG (*ga:gwi* in NCb may possibly be cognate);
- *yagu* or *yawu* or *yaga* in WD, WJ, NA, NC (*yokarra* in NBf4 is unlikely to be a further cognate).

It will be noted that there are here minor discontinuities in distribution. The lexeme *yagu/yawu/yaga* is in the contiguous WD, WJ and NC and in NA but not in the intervening WM or X, while *gabi/gawi* is in NF/NG and WH but not in the intervening NE or WI. For ‘vegetable food’ *maŋarri/maŋarra* is in WD/WJ/NC and NG but not in the intervening ND and NF; *ŋadha* is in Ya/b and WMb but not in the intervening NB, WMa or X; and *wa(:)li(dj)* is in Yc and NK but not in the intervening NB.

There can be a number of different reasons for such discontinuities. They might indicate earlier geographical contiguities of language groups, e.g. Y might have been next to NK – so that *wa(:)li(dj)* diffused from one group into the other – and NB then moved north, forcing them apart. Unfortunately, if the inferences from the distribution of individual words are put together, no consistent or coherent picture of movements

emerges. From the information given in the last paragraphs, for instance, we would infer firstly that Y used to be next to NK, and secondly that it used to be next to WMb.

An alternative scenario is that a form did at one time apply to all the languages in a continuous area, and then got replaced in some. It may be that at one time *gabi* 'fish' was in a solid block of languages in groups WH, WI, NE, NF and NG but was then replaced in WI and NE.

In all likelihood, the modern picture emerged from a combination of these (and probably other) factors. For instance, it could be that at one time WH was spoken next to NE and that *gabi* was used in WH, NE, NF and NG. Then two things happened: (i) WI, with a different word, *guyi*, for 'fish', moved onto the coast, separating WH and NE; and (ii) NE replaced *gabi* by *warli* 'fish'. It must be stressed that this is not suggested as an actual historical scenario, but simply as THE SORT OF THING that may have taken place.

Future work on Australian languages should address the following questions: (a) what low-level genetic relationships can be established; (b) what were the relative locations of languages, and regional patterns of diffusion, in the past; and (c) what movements of languages have taken place, to produce the modern situation. There must have been many movements, and a fair number of splits and mergers, over the past fifty thousand years, and it will only be possible to – at best – recapture some of the more recent ones. Such work will have to look carefully at the distribution of many lexemes, and of grammatical and phonological features, put forward alternative hypotheses of past locations and movements, and then see whether the available data give consistent support to one hypothesis over the others.

(Such an endeavour may or may not yield useful results. It could be that there has been so much movement, mixing and diffusion that the past cannot be recovered from facts about the present. But it is worth trying.)

Parallel to *mayi* 'vegetable food', there is a term *minha* 'edible animal, meat' that has a wide distribution in North Queensland, being found in groups B–G and Jd. Interestingly, this has been grammaticalised to become an indefinite/interrogative term *minha* 'something, what' in languages to the south of the 'edible animal, meat' area – in groups H, Je, L, Ma–e, Mg1, N–P, R, S, U, V, W, WA. (See Sands 1995: 316 for more possible, but not certain, cognates of *minha*.)

When we look at specific names for fauna, each lexeme is found to be restricted to a limited region. There are typically separate terms for 'wild dingo' and 'tame dingo' (colloquially referred to as 'dingo' and 'dog' respectively); the term for 'dingo' in one language will occur as 'dog' in another. Putting the two sets of terms together, those forms which occur in the most languages are:

- *gudaga* in B, D, E, G, H, J (*gudu* in NAc may possibly be cognate);
- *mirri* in L–Q, WAc;

- *garli* in T–V, WB;
- *yugurru/yugurri* in WH, WI;
- *dhudhu* in WE–WH;
- *dhidhi* in Je, WA.

A similar picture is found with other animals, reptiles, birds, fish and insects – no lexeme is found over more than a restricted region. This applies even for the names of species which occur right across Australia, such as echidna, pelican and eaglehawk; and also for mosquito, common fly, tick, etc. Note that the names for crow do show similarities across Australia, with forms such as *wag(a)*, *wag-*, *wadh-* and *waw-*; but these are onomatopoeic, and provide no clear evidence for diffusion or genetic connection.

The emu is found over almost the entire continent (everywhere west of the Great Dividing Range). There are a dozen names each of which occurs in from four to fourteen languages (and others that are found in one, two or three languages), each being restricted to one geographical region. Those found in the most languages are:

- *wurrrarn* in Y, NBc, NBf;
- *garnaŋa(nj)dja* in X, WD, WI–WK, WM, NBI, NCb, ND–NF;
- *garlaya* in WC–WE, WG–WI, WL (*gala:yi* in Ne is probably not cognate);
- *gundulu* in H–L (for ‘emu’ or the related ‘cassowary’ in the rain forest region);
- *gulbar(r)i* in J, WA;
- *ŋurrunj* in M, N, and *ŋorron* in NHa (*ŋurrdji* in NHb is probably not cognate).

The lexeme here with the widest distribution is *garnaŋa(nj)dja*, found across a strip of country extending from the Gulf of Carpentaria (WMa) almost to the west coast (Wib). But this comprises little more than 10 per cent of Australia and the form has certainly spread by diffusion. It is found in just one dialect of WD, next to WJ; in just one language of the WI group, next to WJ; in just one language of the NCb subgroup, next to WK and X; and in just one language of the NB group, next to WJ.

Not a great deal of work has been done on assembling and comparing names for plants, but preliminary results suggest that these are even more restricted to a specific area than are faunal terms. In collaboration with the biologist Tony Irvine, I have compiled a list of about 700 plant names for H1, Dyirbal, and of about 280 for the neighbouring language G2, Yidinj (the Yidinj corpus is smaller simply because that language was less well remembered at the time when this work was done, in the 1980s, being closer to extinction). There are about seventy species which have the same (or very similar) name between at least one dialect of Dyirbal and at least one dialect of Yidinj, due to borrowing in both directions.

Nash (1997) has collected several hundred flora terms from languages in Central Australia and found a handful of terms that recur across languages of this region. He also compared the flora terms from this region with Dixon's two lists and with Alpher's (1991) flora terms from Eb1, Yir-Yoront, also from North Queensland. He found no plausible cognates. Thozet (1866) published the Aboriginal and botanical names of about fifty plants from the Townsville and Rockhampton regions. Some of these are the same species as in the Dyirbal/Yidinj area and many are related species. No cognates were found. Certainly, more work is needed on comparing plant names (for which full botanical information has been obtained) between non-contiguous languages; but the preliminary results are not encouraging. It seems that flora terms are exclusively regional, with none being found across all of – or even a large part of – the continent.

4.2.2 *Body parts*

I have surveyed a number of body part terms (and a few other nouns) across all the c. 245 languages of Australia. In some instances a single form has a very wide distribution. The most notable body part lexemes will be surveyed first.

(1) 'eye'. The most common basic form is *mil* or *mi:l*. This can become *miyil* or *mili* or *mila* or *milu* or *milba* or *mi:lba* (to make a disyllabic word) – see table 12.8 in §12.9.1. Forms based on *mi(:)l* are found in C–F, H, J–N, W, Y, WA, WC, WE, WG, WI–WL. We also find:

- *mii* (or *mi* or *miyi*) in M–O, R, U, WA, NHb;
- *miyal* in WF, *miya* in WC;
- *mi(:)r(i)* in T, NHb; *mri* (after vowel loss) in Q;
- *mi(:)na* in WB; *miingu* in WMB;
- *mi(:)gan* in N, O; *migi* in V;
- *miburlda* in NA; *mipila* in NBf1; *mibilu* in NBf2; *mibi* in NBi; *mibel* in NBj; *mibe* in NHa.

And there is a verb *milga*- 'see' in Wlb, Mangala. (Other possible cognates are given in Capell 1956: 87–8. O'Grady and Tryon 1990: 4 mention *miil?a* 'face' in Bb, Umpila.)

Other words for 'eye' are each found in a restricted region. They include:

- *dhili* in E, G, J (*dila* in NBf4 is probably not cognate);
- *murlu* in NCb, ND, NF;
- *guru* in WD, WG, WH.

(2) 'hand'. One form is found right across the non-prefixing languages – *mara* (sometimes recorded as *marra*) is in B, D–G, J, M, N, P, R, T, V, W, WA–WH. And there is *maran* in NBd2 and *marra?garra* in NKb. We also find:

- *mala* in H, J, K–M; *malan* in ND2 (Ja1, Gunja, which has *marda* 'hand', has *mala* for 'arm');

- *marla* in WD, WJ, NF; *marlam* in ND1; *marlrda* in NA;
- *marna* in T, NCb; *marnawuyi* in NKc; *mani* in X;
- *ma(:)* in M, WG; *ama* in NG.

No other term for ‘hand’ is found in more than six languages, e.g. *guun* in Ya and Yb.

(3) ‘foot’. The form *dhina* or *djina* is found right across the continent save for the far north (A–E in North Queensland and NA–NL, Y, X, WMa in the central north) and it is not in I, O, Q and WL. That is, it is found in F–H, J–N, Pa, R–W, WA–WK and WMb. In K1, O and Pb1/2 the form is *dhana*. In fact the occurrence of initial *dh* before *i* in some double-laminal languages supports an original form **dhana*, with assimilation to *dhina* and the diffusion of this assimilation over a continuous area. (The assimilation *dha* > *dhi*, and sometimes also *dhi* > *dji*, has occurred in all but 5 of the c. 110 languages in which this form is found.) A1, West Torres, has *san* which may be cognate.

Other words for ‘foot’ occur each in a limited area. They include:

- *dha(:)ŋa* in NA, NBc, NBg, NC, NK (and note *djiŋa* in NF, *djanj* in Q);
- *dhamal* in D–E (and note *djamana* in WJ; *amal* in NIb2, *amol* in NBj and *imal* in NIb1 are probably not cognate);
- *dharu* in B, C, E.

(4) ‘thigh’. Here we find a form *dharra* (sometimes given as *dhara*) over much of the eastern part of the continent. It is found in groups D–E, G–H, J–Q, T and WA (and there is *djada* in F). There are some forms outside the region which may be cognate – *djarrparl* in Yc, *djiralu* in WJa1, *djarrawandi* in WJb3, *djarrmulu* in NCb1, *djadba* in NBa, *an-tjarr* in NBh1 (and *an-dje* in NBh2), *thatama* in WMb3, *djerr* in NHc, *tjeri* in NHe. Forms beginning with *d/t* include *darra* in NA, *gun-dad* in NBg1, *darru* in NBe and *darr* in NHb. (Note that in NA ‘foot’ is *djara*, which may possibly relate to *djarra* ‘thigh’.) Evans (1988a: 100) reports that NBh2, Warray, has *an-dedmu* ‘thigh bone’ (compare with *an-mu* ‘bone’).

Other forms have more limited distribution. They include:

- *guman* in B, D, E;
- *maga(rr(a))* in Y, NBd, NIc;
- *djundu*, *djunda* in WD, WE, WG.

(5) ‘faeces, excrement, shit’. The form *guna*, with this meaning, is perhaps the most widespread lexeme in Australia, being found in B–W, WA–WH, WJ–WM and NBf; we also find *wurna* in NE (and *gin* in NHe is probably a reflex of *guna*). Other forms for ‘faeces’ have an interesting distribution:

- *gurag* in NK, *gurr(i)ya* in NBb, NBd; *gura* in WD, WJ (and *gurra* from as far away as R1); *gurla?* in Y;

- forms related to *ɲugu* as follows: *ɲoogo* in NG1; *ɲugun* in NB11; *ɲuk* in NBh1; *ɲug* in N1a; *ɲuwun* in NB12; plus *ɲuwa* in NBc1; *ɲukarda* in NBf1 and *ɲu?* in NBe;
- *gaga* in WMa; *gagaga* in NBm; *gagama* in NCb; *gagu* in Ja4.

A1, the West Torres Strait language, has *kuma*.

(6) ‘tongue’. The basic form here appears to be *dhalanj*. It undergoes assimilation to *dhalinj* or *dhilanj*; the initial *dh* or final *nj* may be lenited to *y*; the final *nj* may be omitted (and is replaced by *ŋ* in some languages from groups O, T and WA in the south-east, from groups WF and WG in the south-west, and from NB and Y in Arnhem Land). In some languages the medial lateral is a retroflex.

Reflexes of *dhalanj* are found in groups B, H–J, L–V, X–Y, WA–WJ, WL, NB, NC, NE and NF (and see table 12.8 in §12.9.1). There are probably further cognates among *thalda* or *thalɣa*- in NA, *tharlarlam* in ND1, and *-djen* or *djelŋ* in NB. We also find *de-tjenj* in NHd2. In WK ‘tongue’ is *tjaranj* (and, interestingly, ‘mouth’ is *tjala*). We find meaning shifts with *djalinj* ‘tooth’ in the Yulparitja dialect of WD and *djala:nj* ‘mouth’ in Mg1, Gumbaynggirr.

Another form for ‘tongue’ appears to have discontinuous distribution:

- *ɲanhɖha(rr)* in B, D, E, X; *ɲanhɖharl(a)* in NCb, WL, WM.

We also find *ɲa:rnar* in Y, *ɲa:rndjil* in NBk, *ɲar(a)* or *ɲarl* in NBf, and *ɲalhthirri* in NHb; it is unlikely that these are all cognate.

I have focussed on the central meanings of forms under (1–6), mentioning just a few metaphorical extensions. It is likely that these terms have undergone semantic shifts and metaphorical extensions in quite a few languages. A full study of this – for *mil* ‘eye’, *mara* ‘hand’, *dhana/dhina* ‘foot’, *dharra* ‘thigh’, *guna* ‘shit’, and *dhalanj* ‘tongue’ – remains a topic for future research. But there are two areas in which some information about semantic shift can be presented here.

(7) ‘tooth’ and ‘mouth’. We can first consider a form that means ‘tooth’ in most of the languages in which it is found, but in some is used for ‘mouth’. (I take ‘tooth’ to be the original meaning, but it is impossible to be certain about this.) The basic form is *Cirra* where the initial *C* is an apical stop, lateral or rhotic (*d*, *l* or *r*) or the laminal semi-vowel (*y*). (In a few languages the medial rhotic is recorded as *r*.)

- *dirra* ‘tooth’ in F–H, J, M, N, S, NHa; NHb has *derr*; NHd2 has *de-dirr* and NHc has *dit*; NBa has *rdirr*; ‘mouth’ in WAb4.
- *lirra* ‘tooth’; in WJ; *rlirra* is ‘tooth’ in Y; ‘mouth’ in K, WJ; *rlira* is ‘mouth’ in WMb3.
- *rirra* ‘tooth’ in J, L, Y, WI; *rrirra* in NBf; *rerre* in NBk.

- *yirra* ‘tooth’ in H–J, N, P, WB–WD, WG, WH (WE has *yirri*);
‘mouth’ in WC, WD, WG.

In some languages where there has been initial dropping we can reconstruct *Cirra* without information as to the identity of the original initial segment – this applies to groups D and W (‘tooth’), and to M and WL (‘mouth’). In NI we find *irarr* ‘tooth’.

There are also *wirra* ‘tooth’ in Nc3, *yirri* ‘tooth’ in WE, *darra* (or perhaps *dharra*) ‘tooth’ in O, *djira/dhira* ‘tooth’ in N, *thir* ‘tooth’ in U, *thirra* ‘mouth’ in WAa2, and *ra* ‘tooth’ in NBd2. There are some languages with ‘tooth’ as *liya* (T, NA) or *diya-* or *dhiya* (M, N, WA, WB); and note *rlidja* in NCb.

Almost all languages that have *Cirra* for ‘mouth’ have a different form for ‘tooth’, and vice versa. There are, however, a handful of languages that have the same form for both ‘tooth’ and ‘mouth’ – *yirra* in WGa2, WGa4 and the Warnman dialect of WD; and *lirra* in WJa1, WJa4 and WJb3. Me, Yugambal has *irra* ‘mouth’ and *dirra* ‘tooth’.

No other words for ‘tooth’ have more than a limited regional distribution.

There is another word for ‘mouth’ (or ‘jaw’ or both) that has a wide distribution. This is *dha-* or *dhawa* in B, D–F, H–J, N, Y, WB, WD–WI and WM. We find *dhaya* in J, WA and WH. NHd1 has *dhaytpi* as free form, and *dawi* as form incorporated into the verb.

There is a large variety of longer forms for ‘mouth’ that begin with *dha-*, in J–M, P, T, U, W, X, WA, WB, WE, WH, WK, NBa, NBf, NBg, NBk, NC, NF and NK. Some of these may involve a compound of *dha-* with a further element, but if so the second component is different in each case, e.g. *djaparda* in NBf4, *djarab* in NBa, *dhanga* in Ja2 and Ma3 (and probably also in L), *dhambirr* in Pa. There are forms beginning with *ya(:)-* in C, I, K, M, N, V, WB and NJ.

In Jb1, Mbabaram (an initial-dropping language), a single lexeme *we* covers both ‘mouth’ and ‘tooth’. This is almost certainly from *djawa* and is the only example I know of ‘mouth’ being extended to ‘tooth’. (The opposite change, with *Cirra* ‘tooth’ taking on the meaning ‘mouth’, is attested for about twenty languages.)

The other terms for ‘mouth’ each occur in a limited region.

(8) ‘Breast’, ‘water’ and ‘mother’ (and ‘father’, ‘mother’s brother’). There are a number of forms for ‘breast, breastmilk’ with a fairly wide distribution. They occur in some languages with the meaning ‘water’, which is naturally related to ‘breastmilk’. (In addition, a word which means ‘water’ in one language can mean ‘blood’ in another and ‘blossom, nectar (of a flower)’ in another; see the examples of *gamu* at the end of this entry.) The word for ‘breast’ in one language is often cognate with ‘mother’ in another. The word for ‘mother’ in one language may mean ‘woman’ or ‘wife’ in another. We also find that the form for ‘mother’ in one language can mean ‘father’ in another. For

instance, *yabu* is ‘mother’ in H1, Dyirbal, and H2, Warrgamay, but ‘father’ in the nearby Ja2, Biri (and in I, Jc).

It should be possible to establish a lengthy chain of possible meaning changes. (Although it must be stressed that here I only attempt to document meaning correspondences. The actual direction of change – whether in either direction or in only one direction – remains a matter for further study.) Here I describe some of the meanings of the forms documented; a comprehensive study of their full range of meaning extensions across the 240–50 languages of the continent has not been attempted.

It will be useful to take the forms for ‘breast’ and/or ‘water’ and/or ‘mother’ one at a time. (If it is known that any of the forms also means ‘father’ or ‘mother’s brother’ in some languages, this information is added.)

- (i) *mi(:)mi* ‘breast’ in groups F, W, WD, WE, WG, NBd;
‘mother’ in Mg;
‘mother’s brother’ in WH.
- (ii) *yibi* ‘breast’ in WC, WD;
‘mother’ in WD, NBb (and ‘wife’ in H1).
- (iii) *bi(:)bi* ‘water’ in B;
‘breast’ in F, J, WE–WH, NBc;
‘mother’ in WG–WI;
‘father’ in B, H, NBh, NIb (and *bimbi* is ‘father’ in G).
- (iv) *ba(:)b(a)* ‘water’ in WG, WH;
‘breast’ in B, T, U;
‘mother’ in B, R, T;
‘father’ in M, N, Y, WJ, NBb, NBc, NBd, NBk, NHa (and note *babi* ‘father’ in M, N, WB; *babu* ‘father’ in Ma, WH).
- (v) *ɲaba(ɲ)* ‘water’ in N, WA, WD, WI–WJ (and see the verb *ɲaba* ‘bathe, swim’ under (14) in §4.2.7); *ɲabun* is ‘water’ in NG2;
‘breast’ in N–P, T;
‘mother’ in M, P;
(and note *ɲabarr* ‘father’ in NBg).
- (vi) *ɲabu(r)lu* ‘breast’ in WD, WJ, NBI, NBm, NC, NHd (and *ɲabeleɲ* in ND2) and *ɲabu* ‘father’ in WJ, NF.
- (vii) *ɲamun* ‘breast’ in G, H, J, L–N, WK, NG; *ɲamulu* in X (see table 12.8 in §12.9.1);
ɲamu ‘mother’ in D, F, Y.
- (viii) *ɲama-* ‘breast’ in J, M, N, V, Y, WA, WB, WD, WI, WJ, WM, NBf, NE;

- ‘mother’ in E, G, J, N, V, WA, WJ, WM, NA;
(and *ɲuma* ‘father’ in H).
- (ix) *ɲami-* ‘breast’ in P, Y, WB;
‘mother’ in WB, WL, NC;
(and *ɲamirn*, *ɲamarri* ‘mother’s brother’ in K).
- (x) *gug(u)* ‘water’ in D, L–N;
‘breast’ in E (and *gugug* in NIa, *goŋgo* in NBk, *goŋoŋ* in NBg2).
- (xi) *guyu(ɲ)* ‘breast’ in D, NBf, NBi, NHe (and *uyug* in B, Nlb);
‘mother’ in NBk.
- (xii) *gug(u)* ‘water’ in B, F, J, M, N, NBd, NCa (and *guka* in NBf3, *guguni* in NL).
- (xiii) *ɲugu* ‘water’ in B, E, F, P, U, V, WJ, NA, NBa, NBb, NBm, Nlb (and *ɲuwu* in X; *ɲuki* in A1 and C; *ɲuwi* in NCb).
And note *ɲuku* ‘river’ in WAc1.
- (xiv) *gabi* ‘water’ in Y, WB–WG.
- (xv) *ɲag(a)* ‘water’ in B, WAc;
ɲaga(a) ‘mother’ in S, U, WH
(and *ɲang(a)* ‘mother’ in WF–WH; *ɲaggi* in WB).
- (xvi) *ɲa(:)rnrɗi* ‘mother’ in Y; *ɲandri* ‘mother’ in WA (see Elkin 1970: 708);
ɲardi ‘mother’ in WH; *ɲadi* ‘mother’ in Tb, WJ.

It may well be that not all of the forms in each set are cognate but it is highly likely that most of them are. In addition, some of the forms (i–xvi) may be genetically related. These examples illustrate both the types of semantic correspondences encountered and also the wide geographical spread of lexical forms.

The form *gamu* has not been systematically studied, but I have noticed the following instances, across the continent:

- gamu* ‘water’ in E, H, J, K;
‘breast’ in NF (*kamun* ‘breast’ in ND1);
‘mother’ in NKa2;
‘blood’ in Eb;
‘flower nectar, blossom, fruit’ (extended to ‘rum, wine’) in G.

There are other body part lexemes which have been reported over a wide area. I have not studied these in detail and so just give references to the literature:

- (9) *walu* ‘head, cheek’ (Capell 1956: 88; O’Grady 1979: 120).
(10) *gada* ‘head’ (Capell 1956: 88).

- (11) *ganga(r)* 'beard' (Capell 1956: 87).
- (12) *dhaburda* 'beard' (O'Grady 1966: 110).
- (13) *murla* 'nose' (O'Grady, 1966: 111).
(There are in fact a number of similar, and possibly related forms. These include *mu(r)la* in WA–WC, *mulha* in WD–WH, *milja* in WI, *mulju* in WJ, *mulu* in X, *murlu* in NKa, and *murru* in M–N.)
- (14) *dhagu(y)* 'left hand' (Alpher 1991: 510 quotes cognates in Eb, NBA, NBg).
- (15) *bina* 'ear' (Capell 1956: 87).
(This is found in groups B, C, E–H, K–O, W, WA, WD, WM and ND.)
- (16) *gumbu* 'urine' (Capell 1956: 89).
- (17) *djiba* 'stomach, liver' (Hale 1982b; Alpher 1991: 545).
(Note *giba* 'liver' in H2, Warrgamay. This may be the original form, *djiba* having arisen by assimilation. A1, West Torres, has *sib* 'liver' which may be cognate.)
- (18) *ga:murr* 'armpit' (Hale 1982b; Alpher 1991: 345).
- (19) *wagu* 'arm' (Hale 1982b).
- (20) *widha* 'sputum' (Hale 1982b).
- (21) *gundul* 'cough, coughing' (Hale 1982b).

4.2.3 Kin terms

We have already surveyed the main recurring terms for 'mother' in conjunction with those for 'breast' and 'water' under (8) in §4.2.2. That discussion also included terms for 'father' where these were found with the meaning 'mother' in another language. A further recurrent term for 'father' is *ma(:)ma*, in groups M, R, T and WC–WH. (O'Grady 1990: 454 mentions that *mamadji* is 'older brother' in WI.)

As has already been shown, kin terms can shift their reference between languages. For instance, *gaya* is 'father' in groups J and S, 'mother's younger brother' in H, and 'mother' in Nd. There are likely to be constraints on the direction of change but these have yet to be studied; they are an important topic for future research.

I have not studied the distribution of kin terms beyond 'mother' and 'father'. A number of recurrent forms have been mentioned in the literature, including:

- (1) *gami* 'mother's mother' (Hale 1982b; O'Grady 1979: 107; McConvell 1997b: 224–5).
- (2) *gadjji* 'mother's father' (Hale 1982b; McConvell 1997b: 225–6).
- (3) *dha:mi* 'mother's father' (O'Grady and Tryon 1990: 88).
- (4) *babi* 'father's mother' (Hale 1982b; O'Grady and Tryon 1990: 242).
- (5) *gamin(i)* 'mother's brother' (Hale 1982b).

- (6) *mugul* 'father's sister' (O'Grady and Tryon 1990: 86).
- (7) *yagu* 'elder sister' (Hale 1982b).
- (8) *yayi(n)* 'elder sister' (in at least H and WD).
- (9) *dhabu* 'elder brother' (Hale 1982b).
- (10) *gadha* 'son, child' (Hale 1982b).

See also the discussion and examples in McConvell (1997b).

4.2.4 Artefacts

Evans and Jones (1997) include a useful list of names for implements that are found in geographically separate 'Pama-Nyungan languages' (they accept the 'Pama-Nyungan' idea), although they also include cognates in 'non-Pama-Nyungan' languages.

Their forms and attestations are:

- (1) *gadji* 'sharpened stick, digging stick, yamstick' in B, E, H, WA, WD, WG, WH, NA (and see O'Grady and Tryon 1990: 5; Alpher 1991: 163).
- (2) *ga(r)na(y)* or *wana* 'digging stick, spear' in J, M, N, WA, WD, WF–WJ, NBb, NC, NF (and *ga:nha* in D and J; *karni* in Y; *kathira* in NA).
See also mention of this form in §4.1, and under 'boomerang' below.
- (3) *mir(r)u*, *murru* 'nulla nulla, wooden club' in F, H, J, M, N, WA (and *mir(r)u* 'woomera' in WD, WF–WH; *murruku* 'woomera' in Y, NA, NBd).
- (4) *djin(d)a(r)l* 'type of spear' in F, WI, WJ (and *djinali* 'spear' in NF).
- (5) *dhurna* 'yamstick, fighting stick' in Y, WF, WH, WI (and *tjun* 'woomera' in NBh).
- (6) *galga* 'spear' in B–F, H, J (Hale 1982b, O'Grady and Tryon 1990: 6 also mention *galga* 'stick with a crook at each end' in WF – see Moore 1842: 38; and note *galg* 'sticks' in Ta.)

Notice also *gala* 'spear' in D and G, suggesting an original form *galaga*. We also find *koelak* in A1, *gara* and *garna* in Y and *gula* in NC; these are unlikely all to be cognate. (See also Curr 1886, Vol 3: 438; and Alpher 1991: 147.)

Note that Australian languages tend to have several words for types of spear, and many word lists quote only one of these. It is likely that *galga/gala/galaga* has a much wider distribution than given here.

The best known Australian artefact is the boomerang which, as mentioned in §1.5, is missing from a number of peripheral regions – see map 1.2. It is found over a continuous area, the typical diffusion pattern. However, no term for 'boomerang' has more than a restricted regional occurrence. The main terms include (also see Elkin 1970: 711–12):

- *wa(:)gal* in D, E, G, H, J, L, M, NA (and *waji* in D, F; *wajila* in NAc);
- *garli* in WC–WJ, WL, NF; *garligarli* in Y, NBe, NBf; *gularligarli* in NBc;

- *barrgan* in M–O, WA;
- *wana* in V, WA, WB (this may possibly be cognate with (2) above, *ga(r)na(y)* or *wana* ‘digging stick, spear’);
- *wala(r)nu* in WD, WE, WG, WH.

4.2.5 Other nouns

(1) ‘tree’, ‘fire’ and ‘sun’. As mentioned in §3.1.1, in some languages the same form is used for both ‘fire’ and ‘tree’ (and typically, a single term has the senses ‘tree’, ‘wood’, ‘stick’, ‘firewood’). In other languages there are different terms, but ‘fire’ in one language may be cognate with ‘tree’ in another. We also find some interchangeability between ‘fire’ and ‘sun’. The main forms involved with these three concepts include:

- (i) *dhugi/djugi*, with assimilation and lenition yielding *dhugu/djugu*, *yugu*, *yigu*: ‘tree’ and ‘fire’ in B, D, H (and *djuggi* in Yc, *djuggu* in WI);
 ‘tree’ in B–H, WM;
 ‘fire’ in B (*djuggu* in NE, *dhuggu* in NH);
 ‘sun’ in V, WA
 (and note *yugu* ‘star’ in Jd; *yugu* ‘eye’ in K).
- (ii) *wiyi* or *wii*: ‘fire’ in L–N, T, WA;
 ‘sun’ in H;
- (iii) *garla*: ‘tree’ and ‘fire’ in WB, WC;
 ‘tree’ (form *galag*) in Q (and *gurla* ‘tree’ in NBf);
 ‘fire’ in WA–WH.
- (iv) *dhula*: ‘tree’ in I–L (*dhulu* in N, WA; *dhugal* in NA);
 ‘tree’ and ‘sun (high, at midday)’ in H3.
- (v) *baga* or *waga*: ‘tree’ in Je, WAc, WI
 (and *wagun* ‘tree, fire’ in H, *wagu* ‘fire’ in WG, *wagu* ‘tree’ in Nd).
- (vi) *gu(r)n(r)da* or *wurnrda*: ‘tree’ in X, WM, NCb;
 ‘sun’ in R.
- (vii) *gundu*–: ‘tree’ in Pb, NBg (and *gundjag* in NBf);
 ‘sun’ in NBg.
- (viii) *wi(r)n(r)da*–: ‘tree’ in WG (*wirntirri* in WK);
 ‘fire’ in NF.
- (ix) *wa(rn)rda*: ‘tree’ in WD, WE, WH.
- (x) *garndi*: ‘tree’ in WH, WJ.

Note that some of the forms (vi–x) may be related; this question is left for later study.

- (xi) *burnu*: ‘tree’ in WD, WF, WH, WJ, WL.
- (xii) *dhuma*: ‘fire’ in B–E (and *dhama* ‘fire’ in WH – see O’Grady 1966: 112).

- (xiii) *buri*: 'fire' in E, G, H, J (and *bu:rdi* in Ne, *buni* in H).
- (xiv) *waru*: 'fire' in WD, WL; *warlu* in WI–WK (and *wuru* 'tree' in WH).
- (xv) *buḡan*: 'sun' in B–G (and *poḡu* 'tree, fire' in NBI).
- (xvi) *garri*: 'sun' in H–J, L.
- (xvii) *dji(r)n(r)du*: 'sun' in WC–WE, WG, WH (*dindu* in WB).
- (xviii) *waggu*: 'sun' in WJ, NCa.
- (xix) *gamba*: 'sun' in B, X, WMa, NCb (and see the verb *gamba*- 'burn', (35) in §4.2.7).

(2) 'camp', 'fire'. Capell (1956: 90) mentions that the lexeme *ḡurra* is used for 'ground, camp' in many languages, and for 'fire' in some; see also Hale (1982b) and O'Grady (1966: 112). (Note that in some languages a single lexeme can cover most or all of 'ground', 'place', 'camp' and 'house' but other languages have several lexemes here.)

I have traced the following occurrences (this is not an exhaustive list):

- *ḡurra* 'camp' in H, K, M–P, WA, WC, WD, WG–WK (and *ḡurla* in Tb);
 - *ḡurra* 'fire' in NBd2 (and *ḡura?* in NBc1, *ḡurrdja* in Yb)
- (and see further references in Capell 1956: 90).

The following recurrent nominal lexemes are also mentioned in the literature:

- (3) *gagara* 'moon' (Hale 1982b; and Alpher 1991: 158, who relates this to *gagarra* 'east' in 'Centralian languages'); and see Elkin (1970: 708).

It appears that *gagara* 'moon' occurs in only a few languages, but these are quite widely dispersed. I have traced it in groups E, H, J, K and WB, with *kakur* in U, *kakalak* in NB1 and *kere* in NHa.

- (4) *buri* 'smoke' (Capell 1956: 90); see also *buri* 'fire' under (1–xiii) above.
- (5) *buna* 'ashes' (Hale 1982b).
- (6) *guwa* 'west' (Hale 1982b).
- (7) *gungarr* 'north' (Hale 1982b).
- (8) *yaba* 'person' (Hale 1982b).

There are doubtless many other nouns that occur in a fair selection of languages. And there are doubtless many more kinds of semantic change. It is appropriate to stress once more that one does have to be careful not to permit too much phonological and semantic latitude in assembling cognate sets, otherwise a given form may be relatable to almost anything (and there are then many alternative ways in which forms may be related together, demonstrating the error of the method).

4.2.6 Adjectives

I have not made a full study of adjectives (save for 'two') but there are certainly lexemes with similar meanings that are found across Australia. Those mentioned

in the literature are given here (with a sample, but far from exhaustive, list of their occurrences).

- (1) *gu(r)nga* 'raw, uncooked, alive' (Alpher 1991: 216).
Attested in at least E, H, J, WD, WI, WJ, NF (and *kunkuwa* in NA; *wungu* in WMa, *gangima* in NBb, NBm).
- (2) *guli* 'angry; anger, fight' (O'Grady and Fitzgerald 1997: 348; O'Grady and Tryon 1990: 102; Alpher 1991: 183).
Attested in at least B, D-H, N, S, T, V, WI, WJa, WM; *gula(r)* in M, O; *gulu* in WJb; *gulu* in L; *gili* in WK. (Meaning is extended to 'sharp' in H1, and to 'louse' in F.)
- (3) *buga* 'rotten; stink, smell' (Hale 1982b; O'Grady 1966: 112; Alpher 1991: 411).
Attested in at least B, E, H, K, M, N, V, WC, WE, WH-WK.
- (4) *bu(r)lga* 'big' (Capell 1956: 93).
Probably not so common as (1-3) but attested in at least H, WC, WD, WG, WJ (and as 'old man' in WH, WJ, WL and NF).
- (5) *dhurrkul* (and variants, with assimilation) 'straight, tall' (Alpher 1991: 3; Dixon 1970: 90).
Attested in at least D-F, H, T, WC, WD, WF, WH, WJ, WK and NBd (*thirrkirli* in NE).

Turning now to numbers:

- (6) *guman* 'one' (O'Grady 1990: 454; O'Grady and Tryon 1990: 102).
Attested as 'one' in at least G, WB, WC. Probably also occurs with shifted meanings, e.g. suffix *-guman* 'another, different' in Ja3, Warungu (O'Grady suggests other, extremely speculative, cognates).
- (7) *bula* 'two' and *gudharra* 'two' (Capell 1956: 93; O'Grady 1966: 113; Dixon 1970: 90).

Each of these lexemes has a wide attestation:

bula- 'two' in H-R, T, V, W, Y, WA-WB, WG; and *wulawa* in NBd (*djambula* in F, G and Jb may be a compound involving *bula*).
gudharra 'two' in X, WC-WM, NCb, NE (and *kiyarr* in NA, *kitjarrapa* in NBi); *gu(:)dhi*-, which may be cognate, is in B-E.

Most languages have a nominal (and/or pronominal) suffix indicating dual or 'a pair' and many of these forms are related to one of the lexical forms 'two'. Table 4.1 illustrates the possibilities. The languages in Set (a) have *bula*- or a related form as the lexeme 'two', with the suffix either being identical to this or a reduced form of it. Those in Set (b) have *gudharra* as 'two'; in Gurindji =*kutjarra* is also a nominal enclitic, and in Ngarluma there is a reduced form, *-kutha*, as a nominal suffix. Set (c) has *gudjarra* as the lexeme with the nominal suffix as *-bulu* (with allomorph *-wulu* after a

Table 4.1 *Dual or pair suffix or enclitic, and lexeme 'two'*

	dual or pair suffix or enclitic	lexeme 'two'
(a) Nc2, Wiradhurri	<i>-bula</i>	<i>bula</i>
WBa, Kadli	<i>-rla</i>	<i>purlatji</i>
NBd2, Nunggubuyu	<i>-wa</i>	<i>wulawa</i>
(b) WJa3, Gurindji	<i>=kutjarra</i>	<i>kutjarra</i>
WHc5, Ngarluma	<i>-kutha</i>	<i>kutharra</i>
(c) NCb3, Wambaya	<i>-bulu</i>	<i>kudjarra</i>
(d) H1, Dyirbal	<i>-djarran</i>	<i>bulayi</i>

vowel); this has developed from *bula* through vowel assimilation (which is common in Wambaya). Finally, Set (d) has the lexeme based on *bula* with the nominal suffix being a reduced form of *gudjarra* (with the addition of a final *-n*). Note that *gudharra* has reduced by losing the final syllable in Ngarluma and by losing the initial syllable in Dyirbal.

Bula is often the 3du pronoun, and sometimes the 2du pronoun – see chapter 7. In NBd1, Ngandi, *-bula* is a dual suffix on verbs.

4.2.7 Verbs

I list here a number of verb roots that occur across a fair selection of languages (not confined to one geographical region). The most pervasive are the monosyllabic roots (about thirty are listed here) which play a major role in languages that have a small number of simple (inflecting) verbs. In many languages they have now been assigned disyllabic roots – see §6.5.3. About thirty-five disyllabic roots are also listed (further study may show that some of them are related to monosyllabic roots, but the majority are unlikely to be). For some roots a consonant is included at the end of the root, after a hyphen. This is inferred to be the original root-final segment (see §6.5), which is sporadically retained in some modern languages as what is called a 'conjugation marker'.

Verbs are listed in rough semantic sequence – beginning with the domain of motion, then rest, giving, affect, consuming and other corporeal functions, talking and other noises, attention (seeing and hearing) and last of all, 'die'. For each verb I specify some of its varying meanings in different languages, and the groups in which it is known to occur.

This list should be regarded as tentative, intended as the basis for further definitive work, rather than being a definitive list in itself.

- (1) *ya-n* 'go' in B, C, E, H, J, L–U, WA, WD–WJ, NBd, NBh, NBi (*yaru-* in NC, *a-* in NG). The monosyllabic root is retained in some languages

from C, H, L, N, P, S, T, WD, WF, WG, WI, WJ, NB. In other languages the root has become *yana-*, *yanu-*, *yani-*, *yanda-*, *yang-a-*, *yanma-*, *yang-u-*, *yandha-*, *yaŋa-*, etc.

- (2) *ra-* 'go' in NBb, NBc, NB1, NF, NG.
- (3) *ga-* 'go' in Na, Nb, NBg, NBi, NCa, NIc (and *gaga-* in H2).
- (4) *waba-* 'go, come, arrive' in B, J, K, M, V, WA, WD, WG, WH, WJ–WL.
- (5) *gali-* 'go, come' in B, D, E, G, Y ('flow' in WJb; 'come here' in NL; 'return' in WHc).
- (6) *wal-m* 'get up, rise' in D; *wa-y* 'climb, rise, go up' in Ma; *walma-* 'get up, rise' in H; *walma-* 'come out, rise (of sun or moon)' in Y; *wangga-* 'wake up, get up' in G (may relate to *wa:-ŋ* 'follow' in WJ and NBa, and/or to *wa(a)-* 'turn' in M, NBg).
- (7) *dharrba-y* 'enter, dive' in B, F, X, WC–WH, WK, WL (and *djari-* in X; *dja:-* in NA; *djab-* in NBc; *thurpaŋ-* in ND); see O'Grady (1966: 108).
- (8) *ga(n)di-* and *wa(r)n(r)di-* 'climb' in H, J, M, N, T, V, W, WA, WB, WE–WI, WK (*warnrta-* in WK; *wendja-* in NBf; *wanjddji-* in NE); and see O'Grady (1990: 462).
- (9) *bara-* 'fly' in N, O, V; 'jump' in M, WH;
wara- 'fly' in WE, WG, WH; 'jump' in J, M; 'run' in J, T;
war(r)i- 'fly' in F, H.
- (10) *wanda-y* and *wandi-* 'fall' in B, E, G, H, WF, WH, WJ, WL
(and *warni-* in WB, WG, WH – see O'Grady 1966: 112).
- (11) *ba-n* 'fall' in Mf, WJb (longer forms beginning with *ba-* in H, J, WD, WH, NA, NC, NG; forms beginning with *wa(r)n-* in G, WC, WH, WJ at least, and with *wa-* in WA).
- (12) *bunga-* 'fall' (with assimilations):
bunga- in WD (*ba:nga* in V; *binga* in Mf);
bunda- in M, N;
bugga- in B, P, U, WB, WH, WI, NBf (see O'Grady 1966: 112); and *bugga-* 'burst out (e.g. when excreting)' in G2; *bugga-* 'empty out' in H1; *buggi-* 'sun sets' in Mg1.
- (13) *yu(:)ŋ(g)a-ø* and *dhuga-* 'swim' in E, G, H, J, M, T, WA.
- (14) *ŋaba-* 'bathe, swim' in G, H, J, WA, WH; *ŋabu-* in WH, WM; *ŋawu-* in NB.
- (15) *ga:-ŋ* 'take, hold, carry' in B, J–N, V, W, Y, WA–WJ, WL, WM, NB, NE, NF, NHa, NI. Monosyllabic root is retained in L, N, W, Y, WD, WG, WI, WJ, NB, NE, NI. In other languages the root has become *ga(:)ŋga-*, *ga(:)n(d)i-*, *ga(:)nda-*, *ga:nga-*, *gandja-*, *ganjdji-*, *ganha-*, *gadi-*, *gali-*, *gari-*, etc.

- (16) *nji:-n* 'sit' in B–E, G, H, J, K, M, N, Q, R, T, W, Y, WA, WC–WM. Monosyllabic root is retained in H, WC–WF, WK. In other languages the root is generally *njina-*, occasionally *njine-*, *njinga-*, *njid-*. *ni-* in NB, NE, NI; *ne-* in NHb (and note *niai* in A1, West Torres).
- (17) *dha:-n* 'stand' in B, E–H, J, K, M, N, P, S–W, Y, WA, WE, WK, WL, NBa, NBc, NBf, NBi, NBm, ND, NF, NHa. Monosyllabic root retained in WE, WK, NB, ND (as *dji-* in NBf, NBm). Other languages have *dhana-*, *dja(:)r(a)-*, *djaŋa-*, etc. (*dhaldi-* in NA); *da-* or *di-* in NBg; *darr* in NG.
- (18) *yugarri-* 'stand' (with omission of first syllable or last syllable): *yugarri-* in WG, WH; *garri-* in X, WG–WJ, WM (and note *karay* in A1); *yuga-* in WB, WC, WE, WF (*yu-* in NB); (*warra-* in M, N; *wara-* in NF).
- (19) *ŋu(:)-n* or *wu-n* 'lie down'. With initial *ŋ* in O, W, Y, WA, WE, WF, WH, WJ–WM, NC, NK. With initial *w* in B–G, J. Monosyllabic form retained in WK. Other languages have *ŋuna-*, *ŋurni-*, *ŋunga-*, *ŋu:ra-*, *ŋu(rn)da-*, *ŋurri-*, *ŋugu-*, *wuna-*, etc. May be related to *yu(:)-n* in H, M, N, T, WH, NB. Monosyllabic form retained in H, N, T, WH, NB; other languages have *yuna-*, *yune-*, *yunma-*, *yuwa-*, etc. (Note 'iuna' – perhaps *yuna* – in A1.)
- (20) *ŋurbi-* 'lie down' in WD, WH (*ŋarbi-* in WC).
- (21) *badha-* 'leave' in G, WH (*barda-* in WK; *ba-* in NBc); *wanhdha* 'leave' in J, WA, WB, WE, WH–WJ, WL; *wanda-* 'leave' in B, E, J, K, WB, WG (*banda-* in L; *wandi-* in WD, WI); *wana-* 'leave' in A1, B, H, M–O, P, T (and *gana-* in Y).
- (22) *njima-l* 'hold, pinch, squeeze' in G, H, Nc, P, WB (*njimdhu-* in Y; *nima-* in Mf, Na, NBd; *rima-* in NBf).
- (23) *ma:-nj/n* 'hold, get, take' in B–F, H, J–P, T, V, W, Y, WA–WE, WG–WJ, WL, WM, NA–ND, NK. Monosyllabic root retained in B, D, H, L–N, WD, WE, WG–WJ, NA, NB, ND, NK (final *-n* in most languages but *-nj* in NB). Other languages have *mana-*, *mani-*, *manu-*, *manda-*, *mandi-*, *manku-*, *mama-*, *manga-*, *mangu-*, *manha-*, *ma(nh)dhara-*, *ma(r)ra-*, etc. And note *mai-* ~ *mani-* in A1.
- (24) *dhu-n* 'put, tell, say' (with lenition to *yu-*) in J, L–N, P, Q, T, WC–WJ, NB, NF (and *yi:dja* in D, K; *yi:-* in NA; *yibara* in WM – see Hale 1982b). Monosyllabic root retained in L, M, P, Q, WD, WE, WH–WJ, NB, NF. Other languages have *dhuna-*, *dhumba-*, *dhuya-*, etc. (The verbal suffix *-dhu-* in Y may be a grammaticalisation of this verb – see Morphy 1983: 73–5.)

- (25) *nhu-ŋ* ‘give’, with assimilation and lenition yielding *ŋu-*, *yu-*, *wu-* (and *u-*):
nhu- in WE, WK;
yu- in D, P, Q, T, WA–WJ, NB;
ŋu- in M, N–P, R, S, U–W, WA, WB, WM, NC, NG;
wu- in B, D, E, H, J, L–N, T, NA, NB, NH;
u- in C, NI, NK.
 Monosyllabic root retained in D, E, H, L–O, T, U, W, WD–WK, NA, NB, NI, NK. Other languages have roots *ŋuga-*, *wuga-*, *ŋugi-*, *wugi-*, *ŋungu-*, *yungu-*, *yunga-*, *yuga-*, *yugu-*, *wuma-*, *wuda-*, *ŋu(n)da-*, *guna-*, *guni-*, *ŋunjdja-*, *wudji-*, *ŋurlu-*, *ŋura-*, etc.
- (26) *bu-m* ‘hit’ in D–H, J–N, P, T–V, Y, WA–WL, NB, NE–NH, NK, NL. Monosyllabic root retained in D, E, H, L–N, T, Y, WD, WE, WG, WI–WK, NB, NE–NH, NK. Other languages have *buma-*, *bumi-*, *bumga-*, *bumdu-*, *buwa-*, *bugi-*, *buŋu-*, *bugga-*, *buggu-*, *bundja-*, *budha-*, *budhi-*, *burba-*, *burda-*, *bura-*, etc. (W1, Kalkatungu, has causative suffix *-buni*, which may be a grammaticalisation from this verb – Blake 1979a: 84–5.)
- (27) *luwa-ø* ‘hit with a missile’ in WJ; *ruwi-* in WI; *yuwa-* in WG; *duwa-* in WA. (Evans 1988a: 104 adds *do-* in NBe, NBg, and *dauwa-* in Ta1 – see the discussion in §4.3.1 below.)
- (28) *gunba-l* ‘cut’ (sometimes also ‘hit’) in H, J, N (*gudba-* in O);
gunda-l in D, G, J, WB, WD, WH, NBa, NBf; *gunbu-* in N (and see O’Grady and Tryon 1990: 138).
- (29) *dhu-* ‘cut, chop; spear’ in M, N, P, Y, WD, WJ, NB, NE. Monosyllabic root retained in N, Y, WD, NB, NE. Other languages have *djonbo-*, *djuŋa-*, *dju(:)rra-*, *djabge-*, etc.
- (30) *baga-l* ‘pierce, dig, spear, copulate with’ in A1, D, F–H, J, N, T, Y, WA, WC, WD, WG, WH, WJ, WK, NB–ND, NH (*waga-* in V, WF; *ga-* in Ba);
bagi- in M, WB, WC, WE, WF, WL;
bagu- in J, M, WA.
- (31) *la-/ra-/da-/ya-m* ‘spear, throw’:
la- in T, U, Y, WJ, WM, NA, NB (*lha-* in W, Y; *lɔ* in NB);
ra- in Y, NA, NB, NE, NK; *re-* in D, NB;
da- in NBf3;
ya(:)- in H, WE.
 Monosyllabic root is retained in most languages; longer roots include *laki-* in U and *larla-* in WJ.
- (32) *garrbi-* ‘tie’ in W, Y, WD, WE, WG–WJ (*garba-* in WB, WK).
- (33) *nhamba-* ‘cover, paint, bury’ in H, J, N, X, WA, WB (*nhambi* in G; *namba-* in WM);
nhaba- in WA, WD, WF, WH; *appa-* in WK.

- (34) *ma-l* 'do, make, tell, say' in D, M, N, V, WD, WE, WH, WJ, WM, NB, NC, NE–NI. Monosyllabic root retained in D, M, N, WC–WE, WH, WJ, NB, NE–NI. Other languages have roots *mana-*, *mara-*, *maga-*, *maga-*, *mali-*, etc. The factitive and/or causative suffixes are *-ma-* in many languages, very likely a grammaticalisation of this verb or of (23) *ma-nj/n* 'hold, take, get'.
- (35) *gamba-y* 'burn, cook, melt' in G, H, J, WB–WE, WG–WL, NE, NG; *ganda-* in G, H, J (*wanda-* in V); *ga(r)na-* in N, O, P, NA.
- (36) *banjdji-* 'cook, burn' in B, D, E (*wanjdja-* in V); *wadju-* in E–G, J; *wadji-* in WA; *waydju-* in D.
- (37) *ba(:)wa-* 'burn' in D, T, WC, WG; *bawu-* in WD, WE, WG.
- (38) *na-* 'burn (intransitive)' in A1, WF, NA–ND. Monosyllabic root retained in NA, NB. Other languages have roots *nara-*, *nada-*, *nami-*, *nali-*, *nadjbi-*, etc. (Roots commencing with *nha-* are found in H, J, T, Y.)
- (39) *dha-l* 'eat, consume' in D, H, J, L–V, X, Y, WA, WG, WK, WM, NB, NI (*dji-* in NA, NB, NHa; *da-* in NC – and see Evans 1988a: 100). Monosyllabic root retained in L, N, P, T, WM, NB, NH, NI. Other languages have roots *dhala-*, *dhadha-*, *dhadji-*, *dhaŋi-*, *dhaŋga-*, *dhama-*, *djana-*, *dhali-*, *dhayi-*, etc.
- (40) *ŋa-l* 'eat' in E, W, WB–WJ, WL, NB, NE, NH. Monosyllabic root retained in WG, WI, WJ, NB. Other languages have *ŋala-*, *ŋalgu-*, *ŋana-*, *ŋanha-*, *ŋari-*, etc.
- (41) *ŋu-ŋ* 'eat' in U, Y, NB, ND, NE. Monosyllabic root is retained in NB, ND, NE. Other languages have *ŋundu-*, *ŋulk-*.
- (42) *ba-* and *badha-* 'bite, eat, drink, smoke': *badha-rr* (occasionally *bidja-* or *baya-*) in B, D–E, G–H, J–L, N–P, T, W, Y, WA–WE, WG–WJ, WL, WM, NA, NB (*bayga-l* in F; *bidjba-* in X); *ba-*, *bay-*, *bayi-*, *be-* in NB; *wa-* in NB, NC.
- (43) *bidha-* (or *widha-*) 'drink, swallow, lick' in E, F, J, N, O, V, WB, WJ, WM.
Note that some occurrences of *bidha-/widha-* may come from (42) **badha-*, but most of them do not. Compare the following pairs:
Ja3, Warungu: *badja-* 'bite, chew', *bidja-* 'drink, swallow, suck';
Eb1, Yir-Yoront: *pay-* 'bite, eat, drink', *piy-* 'lick, suck';
Na2, Gadjang: *badji-* 'bite', *bidja-* 'drink';
Nc2, Wiradhurri: *badha-l* 'bite', *widha-l* 'drink'.
- (44) *madha-l* 'chew, bite, suck, eat' in F–H, J, N, WA, WB, WM (*manda-* in V; and *madja-* 'kiss' in NBF).

- (45) *bu(:)(nh)dha-* (and *wu(:)(nh)dha-*) ‘bite, drink, lick’ in B, D–F, H, N, T, WA, WG, WL (*bunjʔ-* in NB; *binhdha-* in WH; *bunda-* in T);
bu(:)(nh)dha- ‘kiss’ in M–O, WF–WH (*bunjʔ-* in Y, NB; *budjma-* in NB).
- (46) *nhu(:)nhdha-l* ‘kiss’ in G, H; *njunjdju-* in WD; *njunjtji-* in WJ (*nhunda-* in J);
mundhdha-l ‘kiss’ in WH, WI; *munhu-* in N, V (*wunhdhi-* in Y, *muthi-* in Nd).
- (47) *nju-* ‘blow nose’: *nju:lj-pu* in WJb; *njudj-* in NB; *njunj-* in NE; *njin-* in NF (see Evans 1988a: 102).
- (48) *dhu(:)ba-l* ‘spit’ in Q, S, V, Y, WD (‘rain pours down’ in T; *djubi-* ‘spit’ in Na; *djiba-* ‘spit’ in NG; *djibe-* ‘spit’ in NH – see O’Grady 1990: 453).
- (49) *gama-* ‘vomit’ in F, G; *gawa-* in V, WA, WJ; *garma-* in T; *werma-* in NB.
- (50) *barnrdilbandi-* ‘smell’ in M, WC–WJ, WL, NA; *barnrda-* in WK (*wandi-* in NBg, NL);
banhdhi- in U, NA; *banhdha* in WA; *banjdju-* in NE; *badhi-* in Nd, R, U; *banj-* in NB.
- (51) *nhu:-ŋ* ‘smell’ in H4; *njuŋ-* in NBb;
nhuŋga- in B, E, G;
nhu:ma- in B–D, F–H, K, M, Y; *numa-*, *nome-* in NB;
nhumba- in Mf;
nhu:dha- in B, E, J.
- (52) Verbs ‘blow’ tend to begin with *bu-* across the languages of the world, as a universal instance of sound symbolism. Australia is no exception, with most languages having a form commencing with *bu-*. These include:
bu- in NB, NE–NG;
buwa- in M, S; *buwi-* in WE, WG; *buwu-* in WF;
buya- in A1, E, H, J, WH, NB; *buyi-* in T; *buyu-* in Y, WD, WH, WI, NB;
bu(:)ba- in V, WA, WG, NB; *bubu-* in U, W; *bu:bi-* in N; *buybu-* in G;
burba- in NC; *burbi-* in WI; *bulbu-* in J; *bun(j)ba-* in NA; *bu(:)ljpa-* in WH;
buma- in WG; *buʔma-* in NB; *bumi-* in WG, ND; *bunma-* in WJ;
bumba- in N, P, WE; *bumbi-* in M, N;
bunga- in WG, WH; *buŋgu-* in J; *burnga-* in T;
bulga- in WA; *bulgu-* in WA; *bunga-* in WA; *bundju-* in F;
bunja- in B; *budja-* in D, NC; *bu(:)ldja-* in WH; *bun(j)dja-* in WC;
buni- in O, WE; *buli-* in NC; *bulu-* in T; *bura-* in NC
(there are also forms beginning with *wu-*).
- (53) *dha:-n* ‘swive, copulate with’ in E, J, K, M–O, Q, T, W, WA, WB, WJ, WK, ND;
da:- in NA, NBd, NI (and *da:d* ‘pierce, stab’ in NG).

Monosyllabic root retained in M, N, WJ, NA, NB, NI. Other languages have *dhanda-*, *dhanku-*, *dha:ba-*, *dhalba-*, *dhanhdha-*, *dhanga-*, *dharra-*, *dharri-*, etc. (and *yaŋa-* in O).

- (54) *lu-/ru-/du-/yu-ŋ* ‘cry, sob, weep’:

lu- in K, T, W, WJ, NB, NI (*rli-ki-* in NA);

ru- in B, NB; *rø-* in NH;

du- in G, H, M, N, P, S, NB, NH;

yu- in WD, WG (and *dhugar-* in WA; *dhunga-* in N, O); *ula-* in WC).

Monosyllabic root retained in M, N, NB. Other languages have roots *luŋa-*, *duŋa-*, *ruŋga-*, *duŋga-*, *yungga-*, *dunhu-*, etc.

- (55) *ba:ri-* or *ba:di-* ‘cry, sob, weep’ in B, E–H, J (*ba:dji-l* in Dd1, Eb1; *barra-* in K).

- (56) *ŋa(:)dhi-* ‘cry, sob, weep’ in Y, WH (see O’Grady 1959).

- (57) *ginga-* ‘laugh, play, dance’ (with assimilations *gi-* > *dji-*, *-ng-* > *-nd-*, *-ng-* > *-ŋg-*, *-i-a-* > *-i-i-*, *-i-a-* > *-a-a-*):

ginga- in F, J, WM; *gingi-* in WJ; *ganga-* in WG (*gangi-* in WB; *gangi-* or *gaggi-* in U);

ginda- in J, M, N, V, WA; *gindi-* in M;

ginga- in WA; *gingi-* in WA; *ganga-* in WG;

djinga- in K, WA;

djinga- in WA, WJ (*yinga-* in WA; *yiga-* in WD); *djanga-* in B, E.

- (58) *wangga-* ‘speak, call out’ in WA–WH, WJ, WK (‘sing’ in WA; also a noun ‘speech, language’ in many languages); *wengga-/waga-* in NBf; *waga-* in Y; *wangi-* in U, WJ; *waga-* in X; *yanga-* ‘call out’ in T; *yanga-* ‘sing’ in P; *wangi-* ‘sing’ in N;

ganga- ‘call, cry’ in J, M, WL.

- (59) *ya:-l* ‘speak’ in M, N, NBd;

yagar- in NBb (*yagana-* ‘sing out’ in W); *yaŋbi-* in NBd;

yanda- in V, WA; *yad-* in NK;

yadha- in WA; *yanha-* in WA; *yanjba-* in X; *yadjun-* in Y;

yamba- in WM.

- (60) *badha-* ‘sing, call out’ (with lenitions and assimilations):

badha- in B; *badhi-* in D;

baya- in G, H, J, N, S;

bayi- in B, J, WI, WJ (and as ‘scold’ in WD, ‘ask’ in WH);

biya- in K, WH (and as ‘ask’ in Je);

biyi- in K;

and *wiya-* ‘speak’ in Na; *wiyaba-* ‘cry out’ in WM; *wayini-* ‘call out’ in NBg; *wadji-i* ‘speak’ in M.

- (61) *dhu-n* ‘swear at, be angry, scold’ in WJ, NA, NB, NHb, NI, NK (monosyllabic root retained in all).
- (62) *dja-* ‘ask’ in Ma;
dha(:)ba(ra)- in D, G, NBf; *dhawa-* in WM, NB;
dhaba(:)- in WD, WG–WJ; *dhawi-* in X
(da:mi- in NA, *dhirabi-* in WA).
- (63) *wi(r)nba-* ‘whistle’ in N, WH, WI (and see O’Grady 1979: 119);
wi(r)nbi- in WH, WJ; *wimbi-* in WH; ‘winburra’ in P;
winjba- in M, N; *wind-* in NB;
wil(j)pa- in N, WA, WB; *wilbi-* in WA, WB;
wirpa- in WB; *wirr?* in NBc; *wir-* in NBb
(wu:njpa- in WD, WG).
- (64) *nha(:)-ŋ* ‘see, look at’ in B, D–P, R–U, Y, WA–WK (*yaŋa-* in WM);
na- in W, X, NB, NHa, NI, NK; *nagi-* in A1.
Monosyllabic root retained in D, E, H–J, L–O, T, U, Y, WD, WE, WG–WK, NB, NH, NI, NK. Other languages have roots *nhaga-*, *nhagu-*, *nha(:)gi-*, *nhaŋa-*, *nhaŋu-*, *nha:wa-*, *nhawu-*, *nhanha-*, *nhanji-*, *nhadha-*, *nhadjji-*, *nhama-*, *nhana-*, *nhaya-*, *nhayi*, *nadjba-*, etc. See also the tabulation in §6.5.3 below.
- (65) Verbs for ‘see, look at’ commencing with *ŋa(:)-* (unlikely all to be cognate) include *ŋa- ~ ga-* in WMa; *ŋawu-* in NC; *ŋarra-* in N; *ŋaŋa-* in T; *ŋama-* in C; *ŋaldja-* in J.
- (66) *ŋa:-m* ‘hear, understand’ in T, Y, NB (and see O’Grady 1959);
ŋara- in H, M–P, WA; *ŋarwa-* in J;
ŋawa- in J, WL, NBc; *ŋawe-* in NHa; *ŋawi-* in WA;
ŋaŋga- in J, K; *ŋaŋgu-* in WG; *ŋagu-* in WE;
ŋamba- in H; *ŋana-* in NG.
- (67) *bula-* ‘die, disappear’ in Jd;
wula-ø in F–H, J, W; *wuda* in NHb;
bulu- in WH; *buli-* in P (*beli-* in NI).
- (68) *ba(r)lu* ‘die’ in M, N, WA–WD, WH, WJ;
bali- in N, Y, WA, WJ; *wali-* in M;
bala- in N, WK.

4.3 Observations

It will be seen that the recurrent forms listed in §4.2 are fairly well distributed across the languages of the continent, with no real evidence of relative concentration in one region, or relative scarcity in another region. In the appendix to chapter 2,

I refute the idea that the lexicons of ‘non-Pama-Nyungan’ languages (my groups NA–NL) are very different from the lexicons of other languages. I have compiled a list of 116 lexemes (from those given in §4.2), each of which is found in at least two of the four sets of groups B–J, K–Y, WA–WM and NA–NL. Of these, 105 occur in WA–WM, 98 in K–Y, 93 in B–J and 89 in NA–NL. That is, there are slightly fewer in NA–NL but not significantly fewer (the difference between the figure for NA–NL and that for B–J is less than the difference between the figure for B–J and that for K–Y, and also less than the difference between the figure for K–Y and that for WA–WM). And, as pointed out at the beginning of §4.1, we also need to take account of the fact that some of the languages of groups NA–NL have fused forms, while others have noun class prefixes attached to every noun, together with the fact that words in these languages have undergone considerable phonological changes. All of these factors make it difficult to identify roots and recognise cognates. It is likely that more detailed study will turn up further cognates in the NA–NL languages.

Another widespread belief which does not stand up under serious investigation is that the Yolngu subgroup, Y, is lexically similar to the non-N languages and different from those in groups NA–NL. The most striking fact is that rather few of the 116 recurrent lexemes are found in Y – only 35 of them. Of these, 26 also occur in languages of groups NA–NL, 27 also in B–J, 28 in K–X and 32 in WA–WM. That is, there is a very slight slant of the lexicon of subgroup Y towards non-N groups, but this is scarcely significant. It is likely that the handful of forms which Y shares only with languages from WA–WM are the relic of an earlier period when Y was in geographical proximity with some of groups WA–WM (this would also account for Y having the Idu pronoun *ɲali*). Earlier in this chapter I mentioned a number of forms that Y shares with some of the N groups, undoubtedly the result of diffusion during recent contact history – *wa(:)li(dj)* ‘vegetable food’, shared with NK; *wurrrarn* ‘emu’, shared with NBc and NBf (both in §4.2.1); and *maga(rr(a))* ‘thigh’, shared with NBd and NIc (in §4.2.2). The status of subgroup Y is discussed under (6) in §13.1, where it is shown that it shares rather few grammatical forms with the languages of groups B–X, WA–WM.

We can now draw some tentative conclusions from the forms surveyed in §4.2 and their distributions.

4.3.1 Phonological observations

(1) *Initial l, r, d and y.* Three of the well-attested lexemes mentioned in §4.2 show an alternation of the initial segment, between *l*, *r*, *d* and *y*. We can usefully repeat these data, in comparative format.

§4.2.2 (7) 'tooth, mouth'

<i>lirra</i>	<i>rirra</i>	<i>dirra</i>	<i>yirra</i>
K	Ja3	F, G, H1, Ja4	H2-4, I, Ja1/2, Jc, Jd
Ya	L, Yc	M, Na, S	Nc, Pa/b
WJ, WM	WI		WB-WE, WG, WH
	NBf1/2/4, NBk	NBa	
		NHa-d	

§4.2.7 (54) 'cry, sob, weep'

<i>lu-</i>	<i>ru-</i>	<i>du-/rdu-</i>	<i>yu-, dhu-</i>
K	B	G, H1,	
T, W		M, Na, Pb, S	Nc, O
WJ			WA, WD, WG
NBb, NBg2, NBi	NBc-e, NBf1/2	NBh1	
NI	NHa	NHc	

§4.2.7 (31) 'spear, throw'

<i>la-</i>	<i>ra-</i>	<i>da-</i>	<i>ya(:)-</i>
	D		H4
T, U, Ya	Yc		
WJ, WM			WE
NAa, NAb2	NAb1		
NBg2, NBi	NBd, NBf1/2/4, NBg1	NBf3	
	NE, NK		

Table 4.2 summarises the distribution of initial consonants. It will be seen that a number of groups and subgroups are split between the columns in this table. There are some splits between languages that were placed in groups on an areal basis,

Table 4.2 Occurrence of initial *l*, *r*, *d* and *y* in three recurrent lexemes

<i>l</i>	<i>r</i>	<i>d</i> / <i>rd</i>	<i>y</i> (/ <i>dh</i>)
K,	B, D,	F, G, H1,	H2-4, I,
T, U, W,	Ja3, L,	Ja4, M,	Ja1/2, Jc/d,
Ya	Yc	Na, Pb, S	Nc, O, Pa/b
WJ, WM	WI		WA-WE, WG, WH
NAa, NAb2,	NAb1,		
NBb,	NBc-e,	NBa,	
	NBf1/2/4,	NBf3,	
NBg2, NBi, NB1,	NBg1, NBk,	NBh1,	
	NE, NHa,	NHa-d	
NI	NK		

without any presumption that they constitute genetic subgroups – H, J, N, NB, and NBg within NB; we would not expect all languages within such a group to necessarily have the same profile. But there are also splits within putative genetic subgroups:

- Ja, Maric proper subgroup: Ja1, Bidjara, and Ja2, Biri, have *yirra* ‘tooth’; Ja3, Warungu, has *rirra*; and Ja4, Ngayungu, has *dirra*.
- Y, Yolngu subgroup: Ya, the southern branch, has *lirra* ‘tooth’ and Ya3, Ritharngu, has *rla-* ‘spear’; Yc, the western branch, has *rirra* and *ra-*.
- NAb1, Kayardild, has *ra:dja-* ‘to spear’, while NAb2, Yukulta, has *la:dja-* and NAa, Lardil, has *ladha-*.
- NBf1, Burarra, NBf2, Gurrgoni, and NBf4, Ndjebbana, all have ‘tooth’ and ‘to spear’ commencing with *r*; in addition, NBf1/2 also have ‘to cry’ beginning with *r*. In contrast, NBf3, Nakkara, has *da-* for ‘to spear’ (it lacks cognates for ‘tooth’ and ‘to cry’).

It will be seen that almost every language has the same initial segment for whichever of these three lexemes it includes. There are just five languages which appear to show variation:

- Pb1, Dharawal, has *yirra* ‘tooth’ and *duŋ(g)a-* ‘cry’;
- Tb1, Bungandik, has *lunga-* ‘cry’ and *yanda-* ‘throw’;
- WAA1, Pitta-Pitta, has *rdunjdji-* ‘cry’ and *dharri-* ‘spear, stab, weave’;
- NBI1, Wagiman, has *lu-* ‘cry’ and *ra-* ‘throw’, *re-* ‘spear’;
- NHa, Patjtjamalh, has *tirra* ‘tooth’ and *rɤna-* ‘cry’.

There can be various possible explanations for these irregularities. One is that some of the forms listed here do not properly belong in the cognate sets; this may apply to *yanda-* in Bungandik, and to *dharri-* in Pitta-Pitta, for example. Another is that a language could well have borrowed one of the forms from a neighbouring language which has a different profile with respect to this parameter.

There is one other verb from the inventory in §4.2.7 which may relate to the parameters in table 4.2 – (27) ‘hit with a missile’. This is *luwa-* in languages of subgroup WJ, *ruwi-* (< *ruwa-*) in WI, and *yuwa-* in WG; these initial segments accord with the profile already recognised. We find *duwa-* in WAA1, Pitta-Pitta; this is one of the languages showing variation, and the initial *d* here accords with the segment in ‘cry’. Evans (1988a: 104) suggests as further cognates *do-* in NBe, Dalabon, and NBg1, Mayali, and *dauwa-* in Ta1, Wemba-Wemba. These initial segments do not accord with what is found in the other three lexemes (*r* in NBe and NBg1, and *l* in T); adding this to the phonological non-correspondence (no second syllable *wa-* in Dalabon and Mayali, and an intrusive *-a-* in Wemba-Wemba) we should be cautious about adding them to the cognate set.

We should ask why there is this variation in the initial segments of these lexemes when most others have the same initial segment in all languages in which they occur. Well, *d*, *l* and *r* all have marginal status in word-initial position in Australian languages. In some languages they are all found initially, but with very low frequency. There are many languages that allow no initial laterals, quite a few that have no initial rhotic, and a handful that do not permit apical stops in word-initial position. In contrast, all languages have a fair number of words beginning with *y*. The varied phonotactic possibilities undoubtedly play a role in determining whether these four (and other) lexemes have an initial *l* or *r* or *d* or *y* in a given language.

This comparison should be regarded as entirely suggestive. Obviously, much more work is needed. This should involve study of the phonotactics of each group, and also looking at individual languages within groups. There has plainly been sporadic phonological change involving *l*, *r*, *d* and *y* (noting also common lenitions *dh* > *y*, *dj* > *y*). This is a fertile topic for future research.

(2) *Initial laminal and apical segments.* There are a number of lexemes which have an initial laminal stop or nasal (*dh/dj* or *nh/nj*) in some languages and an initial apical (*d* or *n*) in others. The apical-initial words are predominantly found in the central north, in some of the groups NA–NL. As mentioned in the appendix to chapter 2, Evans (1988a) has studied this phenomenon and suggested that a number of forms originally had an initial apical but changed this to a laminal just in the ‘Pama-Nyungan subgroup’ (my groups B–Y, WA–WM). His hypothesis depends on these lexemes having an initial apical in ALL the N groups (NA–NL) and an initial laminal in ALL the other, non-N groups (B–Y, WA–WM) in which they occur. There are, however, exceptions for every lexeme save one:

- ‘thigh’, (4) in §4.2.2: *dharra*, *darra*
dh/dj in non-N groups, and in NBa, NBh, NCb, NHc/e;
d in NA, NBe, NBg, NHb.
- ‘sit’, (16) in §4.2.7: *nji(:)-n*, *ni-nh/nj* in non-N groups;
n in N groups.
- ‘burn’, (38) in §4.2.7, *nha-*, *na-nh/nj* in H, J, T, Y;
n in N groups and in WF.
- ‘smell’, (51) in §4.2.7, *nhu-*, *nu-nh/nj* in non-N groups and in NBb;
n in NBa/e/f/g.
- ‘swive, copulate with’, (53) in §4.2.7, *dha:-n*, *da-dh/dj* in non-N groups and in ND;
d in N groups.

- ‘see’, (64) in §4.2.7, *nha(:)-*, *na-nh/nj* in non-N groups;
n in N groups and in W and X.

It will be seen that, of these six lexemes, only ‘sit’ accords exactly with Evans’ scheme. There are also some forms with initial laminal in N groups for ‘thigh’, ‘smell’ and ‘swive’, and some forms with initial apical in non-N groups for ‘burn’ and ‘see’. Other forms could be added to this list. For example, (17) from §4.2.7, ‘stand’, is *dha-* or *dja-* in all non-N languages in which it occurs and in most N languages, but *darr* is reported for NG (and *di-* for NBg1).

It may be possible to explain some of these exceptions, but surely not all of them. Evans’ idea that an initial apical shifted to be a laminal in some words is a sound one, but the evidence suggests that it was change spread by areal diffusion, applying to a slightly different region for each lexeme, rather than being a defining feature of B–Y and WA–WM (Evans’ ‘Pama-Nyungan’) as a genetic grouping.

The perceptive reader may have noted that A1, West Torres, has possible cognates for ‘sit’, ‘see, look at’ and ‘burn’, that begin with the apical nasal, *n*. There is a simple explanation – A1 only has three nasals, *m*, *n*, and *ŋ*; it lacks a laminal nasal (although it does have voiced and voiceless laminal stops).

4.3.2 Possible cognates between word classes

It is interesting to examine the recurrent noun and verb forms, to see whether there are any likely cognates between them. There are a few suggestive possibilities (see Dixon 1980: 407):

noun from §4.2.2	verb from §4.2.7
(2) <i>mara</i> ‘hand’	(23) <i>ma:-nj/n</i> ‘hold, take, get’
(3) <i>dhana/dhina</i> ‘foot’	(17) <i>dha:-n</i> ‘stand’
(7) <i>dha:/dhawa</i> ‘mouth’	(39) <i>dha-l</i> ‘eat, consume’

There seems to be some correspondence here, but its exact nature is elusive. It may indeed be at so deep a time level that it cannot be fully retrieved from the data in modern languages.

A number of instances of a noun in some languages appearing to relate to a verb or adjective in others were mentioned in §4.1 – *bina* ‘ear, hear, knowing’, *mi:l* ‘eye, see’, and *guwal* ‘language, talk’.

4.3.3 The status of A1, West Torres

We have mentioned a handful of possible reflexes of recurrent lexemes in A1, West Torres:

- verbs in §4.2.7:
(16) *niai* ‘sit’;
(18) *karay* ‘stand’;

- (19) *iuna* (perhaps *yuna*) 'lie down';
- (21) *wanar* 'leave';
- (23) *mai* ~ *mani* 'take; give';
- (30) *pagan* 'spear';
- (38) *natai* 'burn';
- (64) *nagi* 'see'.
- nouns in §4.2.2:
 - (3) *san* 'foot' (normally *dhana* or *dhina*);
 - (5) *kuma* 'excrement' (normally *kuna*);
 - (8-xiii) *ŋuki* 'water' (possibly relating to *ŋugu* in other languages);
 - (17) *sib* 'liver' (normally *djiba*).

Other possible cognates are *ipi* 'wife' (may relate to *pipi* or *yibi* 'woman' in §4.2.2); *ay* 'food' (may relate to *mayi* 'vegetable food' in §4.2.1); and *koelak* 'spear' (may relate to *galaga* in §4.2.4).

Note that if the body part terms are cognate with forms found across the rest of the continent, they involve special correspondence *dh/dj* : *s* and *n* : *m*. For *ibi* and *ay* we would have loss of initial and of one final segment. Some of these may in fact be accidental resemblances of form, rather than true cognates.

It will be seen that the number of recurrent lexemes which can be recognised in West Torres is small, and some of these involve speculative phonological changes. Of the twelve or so pronouns in West Torres about half have formal similarities with pronouns found in Australian languages. There are no other cognates involving grammatical forms.

Capell (1956: 108) came to the judicious conclusion that 'it seems best not to classify these western dialects [e.g. A1, West Torres] as Australian but as Australian-influenced Papuan, the linguistic evidence falling together with the physical'. (The label 'Papuan' is used to cover all languages spoken in New Guinea and the surrounding islands which do not belong to the Austronesian language family or to the Australian linguistic area.)

Interestingly, of the recurrent forms occurring in both West Torres and Australian languages, a number are not found in languages of subgroup Ba, whose territory abuts the Torres Strait, e.g. lexemes *ma-n* 'take' and *baga-l* 'spear', in addition to 3sgf pronoun *ŋan-* and interrogative *ŋaan-* 'who'. This suggests that, when the Australian substratum was taken into West Torres, this language was in contact with a different set of Australian languages from those which are now located to the south of it. (A less likely alternative is that languages of subgroup Ba have lost these forms, some time after loaning them to West Torres.)

Case and other nominal suffixes

Most Australian languages do not have adpositions (prepositions or postpositions). They have a system of suffixes (or, in some languages, enclitics) that mark the function of a phrase in its clause. Only in some of the languages that have developed both prefixes (with bound pronouns) and noun classes (with noun classes being marked on the 3rd person pronominal prefixes) has the case marking of NPs in core syntactic functions been lost, or is it being lost; see §10.7.1. Generally, there are still suffixes to mark non-core relations. Adpositions are used in just a sprinkling of languages, mostly of the prefixing type. The use of prefixes to mark the syntactic function of an NP is rare in Australian languages; those languages in which it does occur are discussed in §10.5 and §10.7. (Suffixes which do not mark syntactic function but simply supply semantic modification are briefly mentioned under (g) in §3.3.6; and dual suffixes are mentioned in §4.2.6.)

It is useful to recognise fourteen types of syntactic function, covering functions of a phrase within a clause, and also of a phrase within a phrase; these are introduced in §5.1. It should be noted that there is a degree of similarity – in meaning and function – between suffixes that are given the same label in different languages, but never complete equivalence.

No language has as many as fourteen distinct case-type suffixes or enclitics. There are always some syncretisms, with one form covering two or more functions; however, the syncretisms vary from language to language. §5.4 discusses the recurrent forms, and §5.4.8 summarises the syncretisms that are found.

There can be varying kinds of case marking – in system and in form – for different types of NP constituents: for common nouns, proper nouns, pronouns, demonstratives, etc. The systemic differences are discussed in §5.1.1 and the formal ones in §§5.4.1–2.

Analysis of Australian languages throws up some interesting theoretical questions. What is a case? Is the distinction between inflection and derivation useful and valid? Can we get ‘double case’, i.e. one case marker followed by another? These points are discussed in §5.3. Meanwhile, §5.2 briefly surveys the variations across languages in how case-type suffixes are allocated to the words of an NP.

5.1 Functions of noun phrases

Firstly, §5.1.1 discusses the three core clausal functions (A, S and O) and §5.1.2 deals with five peripheral clausal functions (purposive, dative, instrumental, causal and aver-sive). §5.1.3 considers the marking of a phrase that functions within another phrase, as modifier of its head (genitive, comitative and privative). Then, §5.1.4 discusses the local phrases (locative, allative and ablative) which can always function within a clause and sometimes also within a phrase.

5.1.1 Core clausal functions

Verbal clauses are either intransitive, with a single core argument in S (intransitive sub-ject) function, or transitive with two core arguments in A (transitive subject) and O (transitive object) functions.

There are two quite different kinds of marking that languages employ on core argu-ments. The most familiar and most common mechanism is to always mark A (for every type of verb and in every context of use) in the same way, and similarly for S and O; we can call this ‘syntactic marking’. The alternative is to just mark A or S when the referent is in control, in that instance of the activity, and/or just to mark O when its referent is af-fected by the activity; this can be called ‘semantic marking’ (see Dixon 1994: 23–35).

Most Australian languages employ syntactic marking. One of the reasons for mark-ing core functions is to distinguish A from O within a transitive clause. Since S oc-curs in a different clause type there is no need for it to be marked differently from both A and O. It is typically marked like A (an accusative system) or like O (an ergative system). Thus (also see (7) from §3.3.5):

nominative case	$\left\{ \begin{array}{l} \text{A} \\ \text{S} \\ \text{O} \end{array} \right\}$	ergative case
accusative case		absolutive case
accusative system		ergative system

The recurrent pattern in Australian languages is for (free and bound) pronouns to follow an accusative and common nouns an ergative system. In each system the case which marks S function (nominative and absolutive) is likely to have zero realisation.

There is a third possibility, for all of A, O and S to be marked differently (again, S is generally accorded zero marking). This applies to singular pronouns in a number of languages, and to other pronouns and/or nouns in a few. This and other variants on the recurrent pattern will be discussed below, in this and the following chapters.

Semantic marking is found in NE1, Njigina/Yawuru. Here a nominal suffix *-ni(m)* has been roughly identified, by some linguists, as marking A, but in fact it carries an implication that the referent of the A argument exercises volitional control over the activity (it is not included with a non-controller A). The suffix may also be used on S arguments in certain circumstances, where volition is to be emphasised, especially for contrast (e.g. 'you-*ni* go that way, I-*ni* will go this way', Hosokawa 1991: 254 on the Yawuru dialect). Labels such as ergative, absolutive, accusative and nominative are best restricted to description of syntactic marking and not also used for semantic marking (Dixon 1994: 32–3). Stokes (1982) employs the label 'active suffix' for a suffix to an NP marking its referent as a volitional agent, which is a felicitous choice. (This semantic contrast carries over into head marking. Stokes reports that in the Njigina dialect there are two sets of pronominal prefixes to the verb marking A/S. The choice of one over the other relates to the controlling character of the subject argument.)

In the adjoining languages of the NF, South Kimberley, subgroup, there is a nominal enclitic *-(y)iŋgu* that has been given the label 'ergative'. But it may be omitted from the A argument when the clause is low in affectedness, and it is sometimes included on an S argument. This appears to be a similar type of marking to that found in NE – as an areal phenomenon – and the term 'ergative' is then not an appropriate one.

A few other languages are reported to have semantic marking, including one from the other side of the continent – F, Kuku-Yalanji. This in fact has syntactic marking (an ergative suffix is always included on an NP in A function) and semantic marking as a secondary feature. There are two variants of ergative, and also of dative, locative and ablative cases. These are called by Patz the 'neutral' and 'potent' forms. 'Potent' forms are used when an NP referent is animate and is a volitional actual or potential participant; and 'neutral' forms are used in all other circumstances. Compare 'the eel [POTENT ERGATIVE] bit the girl' with 'the eel (meat) [NEUTRAL ERGATIVE] made me sick'; and 'he is going to town for his elder brother [POTENT DATIVE]' with 'I'm sweeping the ground for a camp [NEUTRAL DATIVE]' (Patz 1982: 212–15, 221, 207ff).

(Languages of G, the Cairns subgroup, immediately to the south of F, just have syntactic marking on NPs; a single ergative case suffix is always used on A irrespective of whether or not its referent acts volitionally. But these languages employ a derivational affix, *-(:)dji-*, on a transitive verb when its A NP acts without volition – see §11.3.1. There is again an areal feature of control marking, although it is marked on NPs in F and on the verb in G.)

5.1.2 *Peripheral clausal functions*

Leaving aside local functions ('at', 'to', 'from', etc.) which will be discussed in §5.1.4, we can identify five major non-core functions at the clause level – purposive, dative,

instrumental, causal and aversive. (There is helpful discussion of these and other case functions in Blake 1977, 1987a: 31–54.)

(a) *Purposive*, and (b) *Dative*. It is useful to distinguish two clausal functions here. Purposive marks the goal of an activity, e.g. ‘going out FOR (i.e. to catch) KANGAROOS’; ‘call them FOR (i.e. to eat) FOOD’. The common purposive suffix *-gu* (see §5.4.4) is a recurrent suffix on verbs (also generally glossed ‘purposive’). Thus, we can say ‘he’s setting a trap FOR FISH’ (purposive suffix on the noun ‘fish’), or ‘he’s setting a trap TO CATCH FISH’ (purposive suffix on the verb ‘catch’). The purposive case suffix is often used on a nominalised clause (and this may possibly be the origin of the verbal purposive). ‘Why’ is most frequently expressed by purposive case added to the interrogative ‘what’, i.e. ‘for what’.

Dative is used to mark other kinds of peripheral argument, typically the second argument of an intransitive verb such as ‘cry FOR X’, ‘laugh AT X’, ‘be sorry FOR X’, ‘be proud OF X’, and the third argument of a transitive verb such as ‘give’, ‘tell’ or ‘show’ (generally, dative would be used on the NP describing the recipient for ‘give’, the addressee for ‘tell’ and the person to whom something is shown). It can also mark a beneficiary, as in Ya1, Djapu (Morphy 1983: 38):

- (1) η ali dja:ma burnbu_O djamarrkurli-w?
 Idu.incA make shelter children-DAT
 we’ll make a shelter for the children

The contrast between dative and purposive is illustrated in the following pair of sentences in G2, Yidinj:

- (2) (a) bunja_s badi- η munga:-nda
 woman cry-PRES husband-DAT
 the woman is crying for (her) husband (perhaps he’s sick)
 (b) bunja_s badi- η munga:-gu
 woman cry-PRES husband-PURP
 the woman is crying for (a) husband (i.e. she wants to get one)

(For further examples of the contrast between dative and purposive in Yidinj, see Dixon 1977a: 259–61, 342–3.)

The two cases contrast in a single sentence in V, Baagandji (Hercus 1982: 64):

- (3) ma:dha-ri warrga-la-ana [yarnrda mandi]
 boss-DAT work-TOPICALISER-PARTICIPLE money PURP
 working for a boss for money

Only a minority of languages have separate case forms for dative and purposive. In most, one suffix covers both functions (and often also allative and/or genitive, see §5.4.4). The most common form is *-gu*.

In some languages with two case forms, the recurrent *-gu* marks purposive with dative being shown by some language- or group-specific form, e.g. by *-ɲunda* in subgroup G (> *-nda* in example (2a)). In others it is the dative which is *-gu* (or based on *-gu*) with purposive being some other form, e.g. *-purru* in W1b, Mangala, and WJa1, Walmatjarri, and *-yunguyuy* (**yuy-gu-yuy*) in NBd2, Nunggubuyu. In V, Baagandji, neither form relates to *-gu*, dative being marked by suffix *-ri* and purposive by postposition *mandi*.

Case suffixes identified as purposive or dative (or combined dative/purposive) have a degree of functional commonality, but the full range of use and meaning does, of course, differ a little from language to language. And in some languages there is further formal articulation. For instance, Mf, Bandjalang, has desiderative case *-gi* (e.g. 'I want SOME TEA') and benefactive *-ga:ya* ('she is cooking FOR HER HUSBAND') in addition to the regular dative/purposive *-gu* (Crowley 1978: 52–69).

In a number of languages some typical dative functions (e.g. recipient with 'give') are marked by locative case, and there is a separate purposive (e.g. WD, the Western Desert language, and Nc1, Yuwaalaraay). In Nc3, Ngiyambaa, the recipient argument of 'give' is – like the gift argument – in absolutive case, but the suffix *-gu* is used for most of the other normal dative/purposive senses.

Some of the languages in WHc, the Pilbara/Ngayarta areal group, have moved from an ergative to an accusative system of noun inflection, probably by re-analysing what were subordinate clause types to be main clauses; see (d) in §11.4. The new accusative marking is *-gu*, from the old dative/purposive. But *-gu* also continues to function as dative/purposive so that, with a ditransitive verb such as 'give', both gift and recipient are marked by *-gu*.

(Dixon 1976: 422–82 consists of fourteen chapters on 'the bivalent suffix *-ku*' across a selection of languages.)

(c) *Instrumental*. In the great majority of Australian languages, the core case ergative (marking A function) and the peripheral case instrumental have the same form. However, two underlying cases can be distinguished on various criteria, such as (a) only an ergative-marked argument can be cross-referenced by bound pronouns; (b) a passive or antipassive derivation will affect an A argument but leave an instrumental NP unchanged; (c) in some languages there is an applicative derivation which places an instrumental argument into O function but leaves an ergative-marked argument as is. In a few languages, instrumental and locative have the same form; there are again syntactic criteria for distinguishing two underlying cases. (See Blake 1987a: 41; and Dixon 1980: 299–304, 444–7.)

Instrumental is always used to describe the use of a weapon ('he hit it WITH A CLUB') or tool ('she cut it WITH A KNIFE'), generally also extending to body parts ('the crocodile held me WITH ITS CLAWS'). (In WAa3, Arabana, the instrumental suffix cannot be used with a body part noun, a causal suffix being used instead – Hercus 1994: 78–9.)

Only in some languages can instrumental be used on a noun referring to the material out of which something is made. Thus in Ja1, Marrganj (Breen 1981a: 307):

- (4) *ɲaya gunhu_O bandil-u dhumba:-nhi*
 1sgA humpy bark-INST erect-RECENT.PAST
 I made a humpy (house) out of bark

Other languages would use a different suffix for an NP referring to material – ablative (for example in H1, Dyirbal), causal (in Dd1, Guugu Yimidhirr) or comitative (in WJa2, Djaru).

In some languages there are several construction types available for a verb of giving. In one the gift will be in O function with the recipient being marked by dative or genitive suffix. In another the recipient will be in O function and the gift is marked by instrumental case. Thus, in H1, Dyirbal:

- (5) *ɲayguna wuga [djanu-ɲgu damba-ɲgu]*
 1sgO give+IMP piece-INST damper-INST
 give me a piece of damper!

In all languages an instrumental argument can be included in a transitive clause with certain classes of verbs. In some it may also be used in an underived intransitive clause, e.g. ‘come BY RAFT’, ‘walk WITH A STICK’. However, derived intransitives always permit an instrumental NP if this could occur in the corresponding transitive. That is, if a passive, antipassive, reflexive or reciprocal derivation acts to detransitivise a clause, the instrument NP is unaffected. Thus, in NHd1, Murrinh-patha (Walsh 1976b: 407; Lys Ford p.c.):

- (6) *m-e-m-njeyrt nandji-marimari-re*
 1sg-REFL-PAST-cut CLASSIFIER:THING-knife-INST
 I cut myself with a knife (on purpose)

(There is discussion of instrumental marking in a score of languages in the papers in Dixon 1976: 313–417.)

(d) *Causal*. This can cover a variety of meanings relating to cause and reason, including:

(i) Physical result, e.g. ‘this wound is FROM A HORNET (biting me)’, ‘this mark (on my skin) is FROM AN (old) WOUND’, ‘he is intoxicated FROM (chewing) PITURI’.

(ii) The reason for an action. This can be involuntary, e.g. ‘shiver BECAUSE OF THE COLD’, or voluntary, e.g. ‘get up BECAUSE OF THE ANTS’ or, in WAA3, Arabana (Hercus 1994: 77):

- (7) *thilkirri-ɲa kurda kutha-ra*
 shoulder-LOC put water-CAUS
 [he] put [his grandson] on his shoulder on account of the floodwater

(iii) An emotional state, as in WGa1, Watjarri (Douglas 1981: 219):

- (8) *ŋatja mayu-kutja mamanji-manja*
 1sgS children-CAUS become.angry-PRES
 I'm becoming angry because of the children

or an emotionally charged activity, e.g. 'they're fighting OVER THE WOMAN' or 'she ran away BECAUSE OF HER HUSBAND'.

Similar examples are quoted for G2, Yidinj (Dixon 1977a: 333), W1, Kalkatungu (Blake 1979a: 47), and WHc3, Panyjima (Dench 1991: 146).

Only a minority of languages have a distinctive marking for causal case. In others it may have the same formal marking as ablative, genitive, instrumental or locative. Or the causal functions may be divided up between several case suffixes.

(e) *Aversive*. The aversive (or 'fear') syntactic function is a distinctive and pervasive feature of Australian languages. An aversive NP has a referent that has undesirable potential. The verb of the clause describes what was done – or what should be done – to avoid this referent. For instance, 'don't swim there FOR FEAR OF THE CROCODILE' or, in NHb2, Marrithiyel (I. Green 1989: 58):

- (9) *ambi-ya guwa-wultharri-ya gan duknganan-fang*
 NEG-PAST 3sg+NOM+stand-return-PAST HERE policeman-AVERS
 he never returned here, for fear of the policeman

or, in WJa1, Walmatjarri (Hudson 1978: 31):

- (10) *yapa-warntiS pa-lu tjurtu-karrarla laparnkanja natji-karti*
 child-PL+ABS INDIC-3plS dust-AVERS ran.away cave-ALL
 the children ran into the cave because of the dust storm

In addition, verbs of fearing generally have aversive marking on their complement NP, e.g. in G1, Djabugay (Patz 1991: 268):

- (11) *djama-lan ŋawu yarrnga-nj*
 snake-AVERS 1sgS be.afraid-PAST
 I was afraid of the snake

Only a few languages are like Marrithiyel, Walmatjarri and Djabugay in having separate marking for aversive function; in others the same marking is used as for ablative or causal or locative or dative/purposive. Where there is a distinct aversive marking it is generally based on one of these suffixes. There appears to be a recurrent tendency, in Australian languages, to evolve an aversive suffix and this is being implemented in varying ways in different languages. (There are more details in §5.4.7.)

5.1.3 Phrasal functions

We can identify three types of marking of an NP which functions within another NP, as modifier to its head. These are genitive, marking a possessor; comitative, with the meaning ‘having’; and privative, ‘lacking’.

(a) *Genitive*. It was pointed out in chapter 3 that there are two broad types of possession in Australian languages. A whole–part (inalienable) relationship is generally marked just by apposition of words referring to whole and to part. All other types of possession are typically marked by a genitive suffix to the possessor (which can be a full NP, or just a noun or a pronoun). We can contrast – from H2, Warrgamay – a whole–part relationship in (12a) and alienable possession in (12b):

- (12) (a) η adja [djambi binganj]_O η unda-y
 1sgA old.woman foot see-UNMARKED
 I saw the old woman’s foot
- (b) η adja [djambi- η u bada]_O η unda-y
 1sgA old.woman-GEN dog see-UNMARKED
 I saw the old woman’s dog

For alienable possession it is the possessed noun which is head of the NP – *bada* in (12b). For whole–part relationship it is the ‘whole’ noun or pronoun which is head – *djambi* in (12a). (In a language with noun classes it is this head which determines the noun class of the whole NP, for instance.) The whole-plus-part is taken to be a single unit. As mentioned in §3.1, there is a measure of similarity between a whole-plus-part and a generic-noun-plus-specific-noun combination.

Most languages have a genitive suffix on nouns and pronouns for all non-whole–part possession – of an artefact (‘my spear’), of domestic animals (‘the wise man’s dog’), of places (‘your house’, ‘her country’), of kin (‘their mother’) and of groups (‘John’s people’). In a number of languages genitive may also be used to mark the recipient with a verb of giving (in a construction where the gift is in O function). For instance, an alternative to (5) from §5.1.2 (in H1, Dyirbal) is:

- (13) [djanu damba]_O wuga η aygu
 piece damper give+IMP 1sg+GEN
 give me a piece of damper!

There are two ways of analysing this. One is to say that *η aygu* ‘my’ is here a possessive modifier within the O NP – literally ‘give my piece of damper [to me]’ (something which I have a right to expect you to give me, because of your kinship relation

to me). The other is to say that genitive here marks a clausal function, with *ḡaygu* constituting a separate NP from *djanu damba*. (Note that word order is quite free in Dyirbal, and so affords no criterion.) It is hard to choose between these alternative analyses.

A number of languages show additional possibilities for marking possession. For (some or all) body parts, the possessor may be shown by bound pronominal affixes. In the prefixing language NG2, Ungarinjin, one would say (Rumsey 1982a: 43):

(14)	<i>ḡiya-murlar</i>	‘my forehead’
	<i>a-murlar</i>	‘his forehead’
	<i>nja-murlar</i>	‘her forehead’

A similar system, but with bound pronominal suffixes, is found in Ta1, Wemba-Wemba (Hercus 1986: 34). There may also be special affixes for marking kinship possession.

In some languages alienable possession must involve a possessive pronoun, and the possessor noun can be in apposition to this (without itself taking any affix). Thus in NBf2, Gurrioni (R. Green 1995: 120):

(15)	Jon Hart	<i>an-niyépu</i>	<i>mutika</i>
	name	it-his	car
	Jon Hart’s car (lit. Jon Hart his car)		

Some of the prefixing languages have several possessive constructions; most possessed nouns can only occur in one but for some there is a choice available, generally with a meaning difference. In Gurrioni, for instance, the body part *ḡar* ‘mouth’ will generally occur in a construction with the verb ‘to stand’ (here used in a possessive sense), but it may be used in a different construction type when employed metaphorically, e.g. ‘she has a hard mouth’, meaning that she is tight-fisted (R. Green 1995: 98, 111; and see §3.3.7 above).

Non-prefixing languages may also have alternative marking for different kinds of possession. In Dyirbal there is a ‘simple genitive’ *-ḡu* (with cognates in other languages), indicating straightforward possession, and also a ‘general genitive’ *-mi* (particular to this language), indicating non-current possession. For instance *ḡuma-ḡu waḡal* (‘father-GENITIVE boomerang’) refers to my father’s boomerang, which he owns and possesses, whereas *ḡuma-mi waḡal* might be used for a boomerang which he has lost or temporarily abandoned, or lent to someone else (it is owned but not currently possessed by father), or it may refer to the boomerang of my dead father (Dixon 1972: 105–10).

(b) *Comitative*. Almost every Australian language has a suffix with the meaning ‘having’ but its semantic scope varies. The possible meanings can usefully be divided into three sets.

- (I) *Attributes*:
 - (a) Physical characteristics of a person, e.g. ‘moustache-HAVING’
 - (b) Alienable possession of a person, e.g. ‘yamstick-HAVING’
 - (c) Characteristics of a place, e.g. ‘water-HAVING’
 - (d) Mental or corporeal state of a person, e.g. ‘jealousy-HAVING’, ‘hunger-HAVING’.
- (II) *Accompaniment*:
 - (a) Person in motion with something that does not assist their motion, e.g. ‘man boomerang-HAVING is going’ (the man with a boomerang is going)
 - (b) Person at rest, with something inanimate, e.g. ‘man boomerang-HAVING is sitting’
 - (c) Person in motion, with human(s), e.g. ‘woman children-HAVING is going’ (woman is going with some children)
 - (d) Person at rest, with human(s), e.g. ‘man wife-HAVING is sitting’ (man is sitting with his wife)
 - (e) Person in motion with something that does assist their motion, e.g. ‘man walking.stick-HAVING is climbing’ (man is climbing with the aid of a walking stick); ‘man horse-HAVING is going’ (man is going on horseback)
 - (f) Person doing something to someone/something with an instrument.
- (III) *Temporal*, e.g. ‘we wintertime-HAVING go to coast’ (we go to the coast in wintertime).

Within each group the senses are listed in order of likelihood of occurrence. Thus, under (I) some languages have just (a) and (b), some have (a–c) and some all of (a–d). The occurrence of these senses of comitative in a selection of languages is discussed in the thirteen chapters on this topic in Dixon (1976: 203–310); see especially the introduction and summary (pp 203–4, 306–10).

Sense (If) would, in most languages, fall under instrumental function. However, some languages can also use comitative here, e.g. H3, Nyawaygi (Dixon 1983: 458). In WJa1, Walmatjarri, a body part as instrument (e.g. ‘he hit the dog WITH HIS HAND’) can take just ergative case, but for any other type of instrument one must use comitative plus ergative, e.g. (Hudson 1978: 20):

- (16) kunjarr_O pa pi-nja [ɲanpayi-rlu mana-tjawu-rlu]_A
 dog INDIC hit-PAST man-ERG stick-COMIT-ERG
 the man hit the dog with a stick

This is, literally, '[man with stick]_A hit dog'; languages that use an instrumental case would express this sentence as 'man_A hit dog with stick_{INST}'.

Sense (III) is also restricted to just a few languages. In G2, Yidinj, one can say (Dixon 1976: 213):

- (17) *nanjdji gindanu-yi burgi-ŋ*
 In-sgS moon-COMIT go.walkabout-NONPAST
 we (could) go walkabout by moonlight

After having learnt this construction in Yidinj, I tried to construct a similar sentence using the comitative suffix (here *-bila*) in the neighbouring language Dyirbal. It was firmly rejected – 'that would mean you've got the moon in your pocket', I was told. The translation into Dyirbal of (17) would have 'moon' marked with locative case.

Some languages have several 'having' suffixes (called comitative or propriative or associative). Nc3, Ngiyambaa, has the neutral *-buwan* 'with' and also *-bil* 'with a lot' (e.g. place with a lot of mud), *-girr* 'nasty with' (e.g. eye nasty with pus), *-burra* 'with prominent' (e.g. with a prominent jaw), and *-bidja:l* 'with big' (e.g. with big eyes) (Donaldson 1980: 107–13). WAa3, Arabana, has a general comitative *-purru* 'having' and also *-mara* 'accompanied by', which can only be used with kinship terms. Hercus (1994: 93) contrasts:

- (18) *nhupa-mara* 'accompanied by a spouse' (i.e. married couple)
nhupa-purru 'having a spouse' (i.e. married person)

One frequently finds adjectival expressions involving a comitative suffix, e.g. 'sickness-HAVING' for 'sick'. Sometimes a metaphorical expression can involve a body part noun plus comitative, e.g. *munda-yaru* ('stomach-HAVING') 'pregnant' in WJa2, Djaru (Tsunoda 1981: 229) and *waʔa-thimri* ('ear-HAVING') 'knowledgeable' in Ba6, Anguthimri (Crowley 1981: 168).

(c) *Privative*. The great majority of Australian languages also have a suffix with phrasal function that is the negative correspondent of comitative, with the meaning 'lacking'. (There are just a few languages with comitative but no privative, e.g. the NF subgroup.)

The semantic range of privative generally covers almost the semantic range of comitative in that language. For instance, privative in Yidinj covers all of the senses listed above but for (III), and note that it is only used in sense (IIif) for a tool ('grind with a stone') not for a weapon ('hit with a club'). Thus one can say 'hair-PRIVATIVE' (bald); 'the child came mother-PRIVATIVE' (without its mother); 'the people sat around fire-PRIVATIVE' (with no fire).

Comitative and privative are often used in apposition, to contrast the lack of one thing with the presence of some related thing. Thus in NB12, Wardaman (Merlan 1994: 85):

- (19) *yi-nayin_s* *wu-loyi-rri-ya* *mobonji*
 NOUN.CLASS-naked+ABS 3n.sg-dance-PAST-NARRATIVE night
 djorrgon-garaŋ *yiwarlŋ-wagbawun*
 cockrag-COMIT+ABS clothes-PRIV+ABS
 they danced naked last night, with cockrag on, no clothes

Individual languages have other suffixes with phrasal function. Added to a noun or to a full NP they derive a constituent that can modify the head of an NP. Many languages have an 'associated with' suffix, often added to a place name, e.g. *Ga:rngarn-buyŋu* 'person from Ga:rngarn' in Ya1, Djapu (Morphy 1983: 45); see also §3.3.6. There is sometimes a semblative suffix 'like a', as in Mg1, Gumbaynggirr (Eades 1979: 286):

- (20) [*yarraŋ gi:barr_s*] *bawgi-ŋ* *bulu:ŋgal-buganj*
 that boy swim-PAST fish-SEMBLATIVE
 that boy was swimming like a fish

See also Blake (1977: 58).

5.1.4 *Local functions*

Every language has some grammatical marking for the three basic spatial functions: (a) locative, 'at', 'in', 'on', etc; (b) allative, 'to (a place)'; and (c) ablative 'from (a place)'.

A minority of languages distinguish between two types of allative and/or two types of locative and/or two types of ablative. Where there are two allatives, they generally distinguish 'to (where the goal is reached)' and 'towards (where the goal is not necessarily reached)'. This contrast is made in W1, Kalkatungu (see §5.5), G1, Djabugay, W1a2, Karatjarri, WHc3, Panyjima, NG2, Ungarinjin, and NF2, Guniyandi, for instance.

Two locatives are less frequently found – they are attested for W1, Kalkatungu (see §5.5). And Bb, Umpila (Thompson 1988: 18) and Ta1, Wemba-Wemba (Hercus 1986: 31–2), both distinguish between 'on' and 'in, at'. Two ablatives are also rather rare; F, Kuku-Yalanji, has one that refers to movement detached from a place (e.g. 'the woman chases the dog FROM THE HOUSE') and another which relates to action from a place without the actor leaving the place (e.g. 'they are throwing the fruit FROM THE TREE', 'she is singing out FROM THE HOUSE') (Patz 1982: 226–8).

A few score languages (again, scattered across the continent) have a further local suffix, perlative (or pergressive), with the meaning 'through, across' (examples include

F, Kuku-Yalanji, WD, the Western Desert language, NBd1, Ngandi, and the NF subgroup). Other languages may simply use locative, or add a clitic onto locative (e.g. H1, Dyirbal – Dixon 1972: 57).

Some languages (especially in the prefixing area) have adpositions to provide further spatial specification (e.g. ‘under’, ‘in front of’) while other languages may use modifying nouns, e.g. ‘[top mountain]-LOCATIVE’ for ‘on top of the mountain’.

There is generally some way of expressing motion and rest with respect to time. Quite often allative is also used for ‘time until’ and ablative for ‘time since’, e.g. ‘yesterday-ABLATIVE’ is ‘since yesterday’. However, some languages use different affixes for ‘until’ and ‘since’. Locative may also be used for ‘time at’ with nouns such as ‘wintertime’ or ‘night-time’, although temporal shifters such as ‘yesterday’, ‘tomorrow’ and ‘now’ are (as in English) generally used without any marking for the ‘time at’ sense.

NPs with (spatial or temporal) local marking can always function as a peripheral argument of the clause, like dative, instrumental, causal, etc. In many (but not all) languages, some or all types of NPs with local reference may also have phrasal function, modifying the head noun of an NP. This is just like in English, where a spatial NP such as *on the chair* can have clausal function, as in *the cat is asleep on the chair*, or phrasal function, as in [*the cat on the chair*] *is asleep* (with an implied contrast, e.g. *the cat on the mat is still awake*).

When an NP with local marking is used in phrasal function it may – just like an NP with genitive, comitative or privative marking – also take case marking for the function of that phrase in the clause. This is discussed further in §5.3.1.

5.2 Case attachment

It should first be pointed out that Australian languages are characterised by considerable freedom of constituent order. In no language can the syntactic function of an NP be fully inferred from its place in order (as happens in English, for example). In some languages there is a preferred order of phrases (most typically AOV and SV) which is adhered to most of the time; but it is always possible to vary this, for reasons of discourse emphasis, or perhaps just speaker’s whim.

In some languages it is not just the order of phrases in a clause that is free, but the order of words in a clause. Dyirbal is an extreme example – if there is one NP in A function, another in O, and a further NP in dative case, each consisting of several words, then the words in each phrase may be freely scattered through the clause (see Dixon 1972: 107–8). In other languages all the words in a phrase are generally placed together but, exceptionally, the phrase may be split into two or more parts. (Often, there will be one word before the verb and the remainder of the phrase after it; see §3.1.3.)

§5.1 discussed marking the function of a phrase in a clause or within another phrase. There are two basic alternatives for the attachment of this marking: (a) on every word in the phrase; or (b) on just one word in the phrase.

If the marking goes on just one word there are various possibilities:

- on the head, e.g. Ba6, Anguthimri (only if the head noun is omitted and an adjective or demonstrative is the sole word in the phrase will this take a function-marking suffix);
- on the first word, e.g. Wla2, Karatjarri, NE1, Yawuru, and NF1, Bunuba;
- on any word, e.g. NF2, Guniyandi;
- on the final word; this is found in many languages, e.g. groups Bc, De, Ea, WAb, WD, WJ, NB.

Languages which have marking on every word in a phrase are also widespread, including groups G, H, W, Y, WAc, WH.

As would be expected, languages with the free-order of words within a clause do have obligatory marking on each word in a phrase. The function of words – which phrase they belong to – can be seen from the suffix(es) they bear, whatever their position in the clause. Those languages that generally only mark function on one word in a clause are those that most often keep the words of a phrase together. But these languages do have the possibility of breaking up a phrase, and when this happens the function marker must go on each part (on the last word of each part, or on the first word, etc. – according to the convention employed in that language).

We noted in §5.1.1 that different types of NP constituents may have different systems of case marking – a common noun may have ergative case for A function and absolutive for S and O, while a demonstrative may have nominative for A and S, and accusative for O, for instance. If an NP in A function includes a noun and a demonstrative, then the noun will take ergative case and the demonstrative nominative. If A function is only marked once on the phrase, say on the last word, then it will be marked in the way appropriate to whichever word comes last. If we have noun followed by demonstrative then the demonstrative will be given nominative marking and the noun left unmarked. For the opposite order, the noun will receive an ergative case suffix and the demonstrative will be left unmarked.

An important point to note is that languages tend to behave in the same way with respect to marking of clausal function and of phrasal function. That is, if instrumental or locative marking goes onto every word of a phrase in this function, then so will genitive or comitative. Suppose that an NP in instrumental function includes a genitive NP, as modifier of its head noun; instrumental case will go onto every word of the NP, including every word of the embedded genitive NP (after the genitive marking).

For instance, in H1, Dyirbal (note that *-ndjin-* is a catalytic suffix which must come between genitive and a following case suffix):

- (21) [[yara-ŋu-ndjin-du gunbin-u-ndjin-du]_{GEN} waŋa-ru]_{INST}
 man-GEN-CAT-INST old-GEN-CAT-INST boomerang-INST
 with the old man's boomerang

Note that the words in this NP can occur in any order, without fear of ambiguity.

Similarly, if a clause function such as instrumental or locative is marked just on the last word of a phrase, then so will be a phrasal function such as genitive or comitative. Thus in WL1, Aljawarra (Yallop 1977: 117) we get:

- (22) [ayliyla [artwa ampu-kinh-ila]_{GEN}]_{INST}
 boomerang man old-GEN-INST
 with the old man's boomerang

Presumably the words in (22) could not be permuted (otherwise it might be impossible to distinguish 'the old man's boomerang' from 'the man's old boomerang').

(There is useful discussion of this topic, with examples, in Blake 1987a: 77–91.)

5.3 Interpretation

Linguists sometimes miss important insights through just analysing surface forms instead of examining the nature of the underlying systems. In the classical Indo-European languages (Latin, Greek, Sanskrit), a single morphological system combines a number of markers that have different syntactic functions – there is one marker of phrasal function, genitive, and a number of markers of clausal functions, e.g. nominative, accusative, dative. In the tradition based on Greek grammar these are all referred to as 'cases'. However, the greatest grammarian of all, Pāṇini, did look at more than surface morphology in his analysis of Sanskrit. He recognised a category of 'karakas', for the six nominal suffixes which mark clausal function, explicitly excluding genitive, since it marks phrasal function (even though it belongs in the same morphological system).

A clear distinction of terminology is needed. Either one should talk of 'clausal cases' (ergative, dative, aversive, etc.) and of 'phrasal cases' (covering genitive and also comitative, privative, semblative, etc.), or one should restrict the term 'case' to clausal functions (like Pāṇini's *karakas*) and use some other label for markers of phrasal function. Here I chose to follow the second alternative.

The terms 'inflection' and 'derivation' are used in a variety of ways. Normally, inflection refers to an obligatory morphological system which is determined by the function of the word (or phrase) to which it is added (and does not change that function).

An inflectional system is an instance of 'what MUST be specified' in speaking that language. It will typically indicate tense and/or aspect and/or mood on a verb, and number and/or definiteness and/or case (in the sense of clausal function) on a noun or NP. Inflection is the last morphological process to apply to a word; if it is realised by affixation, then the affix will almost always be on the rim of the word.

Derivation refers to an optional morphological process which may just add a semantic element to the word (e.g. negation or diminutive) or may change word class. It applies before inflection and, if realised by affixation, then a derivational affix will almost always come between root and inflectional affix.

For marking the function of an NP in a clause we have a prototypical inflectional system, the system of case. Every NP in a clause must make one choice from the system – ergative, dative, locative, etc. One choice in the system may have zero realisation (this is absolutive or nominative); but the zero marking is a clear indicator of syntactic function. For instance, within a typical Australian ergative–absolutive system, the absence of case marking on an NP with a noun as head, in a transitive clause, indicates that the NP is in O function.

The markers of phrasal function – genitive, comitative, privative, etc. – are prototypical derivations. When genitive or comitative or privative is added to a noun (which would, without derivation, function as head of an NP), it derives a form with modifying function, e.g. 'dog's' ('dog-GENITIVE'), or 'hairy' ('hair-HAVING') or 'wifeless' ('wife-LACKING'). It is useful to think of genitive, comitative and privative nouns (and NPs) as derived adjectivals, since they have a similar modifying function to adjectives. (For some languages it has been argued that there is no justification for setting up a class of adjectives, distinct from nouns, e.g. Dench 1995. In such a scenario, genitive etc. will simply be seen to derive a modifying nominal.)

I am thus suggesting that markers of clausal function – ergative and absolutive, or accusative and nominative, plus dative, purposive, instrumental, causal and aversive – form an inflectional system of cases. And that markers of phrasal function – genitive, comitative, privative – are appropriately regarded as derivations. But what of the local functions, locative, allative and ablative? In all languages they have clausal function, and belong to the case system. In a number of languages some or all of the local specifications also have phrasal function. That is, they have double status, as an inflection and as a derivation.

As already mentioned (and as will be illustrated in §5.4) there are many examples of two of our basic functions having the same marking. These may cross categories, involving a marker of clausal function and one of phrasal function, e.g. dative and genitive, aversive and comitative, and also instrumental and locative, dative and allative, causal and ablative, aversive and locative. Stating, for example, that one suffix can function both as a clausal ablative case inflection, and as a phrasal ablative derivation,

is no different from stating that one suffix can function as dative case within a clause, and as genitive marker of a modifying element within a phrase.

An inflection or derivation may semantically/functionally relate to the head of an NP (e.g. gender) or to the whole NP (e.g. number, case). However, the actual marking of inflection or derivation must be in terms of words; and it can go onto every word in a phrase or just on one word (or on some but not all words). The location(s) of the marking in the NP is a surface matter, and does not affect the interpretation of a given type of marking as inflection or derivation (or as case or non-case).

Inflection and derivation are morphological processes. They may be realised in one of a number of ways (Sapir 1921: 61ff), e.g. change in stress or tone; reduplication; change in quality or quantity of a stem-internal vowel; and affixation. In some Australian languages syntactic function is marked just by lengthening a stem-final vowel (e.g. ergative in X1, Waanji and locative/instrumental in G2, Yidingj) but generally suffixing is used. Even the languages which have developed prefixes generally retain suffixes for marking the syntactic function of an NP. (However, a few languages do use prefixes, e.g. NC, the Mindi subgroup, which has portmanteau prefixes showing noun class and case. And some show function markers which have prefixal and suffixal components, e.g. comitative *barta-* . . . *-yi?* in NBc2, Ngalakan; see §10.5 and §10.7.)

(Some linguists give criteria to distinguish affixes from clitics, and treat certain function markers as clitics; see, for example, McGregor 1990: 173, 276. This is an interesting matter, but one which will not be entered into since it is not critical to the discussion in this and subsequent chapters.)

Blake (1987a: 34–5) provides a short discussion of adpositions; a few languages have a handful of prepositions, a few have postpositions, and some have both. In NHb1, Emmi, the locative adposition *yene* can either precede or follow its NP (Ford 1998: 113–15).

5.3.1 Double case

Discussion of whether one can have ‘double case’ (one case marker followed by another) is often muddled by using the term ‘case’ to cover genitive, a marker of function in a phrase, in addition to markers of function within a clause.

Suppose that a phrase includes a modifying phrase with the appropriate marking for its phrasal function. Now the larger phrase will take marking for its function in the clause. According to the conventions of that language for attaching markers of phrasal and of clausal function, these may occur (in that order) on the same word. In (22), from WL1, Aljawarra, marking of both phrasal and clausal function goes on the last word of the phrase. In this example the genitive modifier, ‘old man’s’, follows the head noun, ‘boomerang’; and the modifier in the genitive phrase, ‘old’, follows the head noun, ‘man’. By the marking conventions of the language the adjective ‘old’ – which is the last word in both the embedded genitive phrase and in the complete instrumental

phrase – takes both genitive and instrumental suffixes. In (21), from Dyirbal, genitive marking goes onto every word of the possessor phrase and instrumental marking onto every word of the complete instrumental phrase; here both ‘man’ and ‘old’ are marked with genitive plus instrumental.

If the ordering and marking conventions were different, we might not get a marker of phrasal function and one of clausal function falling on the same word. If these went on the first word of the phrase we would get (with the same word order as in Aljawarra) [‘boomerang-INSTRUMENTAL’ [‘man-GENITIVE’ ‘old’]]. Or, if a genitive NP preceded the head noun, but markers still went on the last word of each phrase, we would get [[‘man’ ‘old-GENITIVE’] ‘boomerang-INSTRUMENTAL’]. (WGa1, Watjarri, is like this.)

In summary, with the appropriate ordering and marking conventions, we would expect to get a single word showing, in order:

- (i) marking of phrasal function (genitive, comitative, privative, etc.);
- (ii) marking of clausal function (ergative, causal, etc.).

We fail to get this only when markers of both phrasal and of clausal functions are placed in the same surface morphological system, from which only one choice can be made. This applies to Latin and Greek, on which so much of the tradition of linguistic theory is based. In both the Latin sentences (a) ‘I gave the cook’s dog to the slave’, and (b) ‘I gave the dog to the cook’s slave’ the noun ‘cook’ would be marked just as genitive. In languages which do not make genitive marking mutually exclusive with case marking, ‘cook’ would be marked by genitive plus accusative in (a) and by genitive plus dative in (b). For linguists with a eurocentric bias, instances of genitive plus case (which they call ‘double case’, regarding genitive as a further case) are remarkable. In a wider perspective they are normal, and it is the lack of genitive plus case, in Latin and Greek, that has to be regarded as exceptional.

It is the normal situation in Australian languages to have a marker of phrasal function (genitive, comitative, privative) followed by a case inflection, in the appropriate circumstances. This is found in almost every non-prefixing language, and also in many languages of the prefixing type, those where dependent marking still plays a significant role, e.g. NG2, Ungarinjin (and NBd2, Nunggubuyu, where genitive pronouns – but not genitive nouns – can inflect). However, in a number of prefixing languages where head marking is assuming a major role and dependent marking is gradually receding in importance, although there is a suffix marking genitive, and there are suffixes marking clausal functions, genitive cannot be followed by a case inflection (e.g. NBd1, Ngandi, NBc2, Ngalakan, and NB12, Wardaman).

Quite a bit has recently been published on ‘double case’ in Australian languages (see especially Dench and Evans 1988 and Schweiger 1995). Claims of a case being followed by another case can usefully be divided into three categories:

- (a) marking of phrasal function (genitive, comitative, privative) plus marking of clausal function (ergative, accusative, dative, instrumental, etc.);

- (b) local marking plus marking of clausal function;
- (c) marking of clausal function plus marking of clausal function.

Most of the examples of so-called double case are of Type (a). As noted above, if genitive is called a case (and if it is then so should comitative, privative, semblative, etc. be) then a distinction should be made between phrasal case and clausal case. It is the normal situation to get phrasal case followed by clausal case (Latin, Greek and Sanskrit are exceptional languages in not permitting this).

Turning to Type (b), we noted in §5.1.4 that local NPs always have clausal function, and that in a number of Australian languages some or all types of local NP can also function as modifier within a phrase. It is then to be expected that – like genitive, comitative, etc. – they could be followed by a marker of the clausal function of the NP in which they occur. For instance, in WHc3, Panyjima (Dench 1991: 186), we can get:

- (23) kukunjtjarri-ku_O mana-rta [ɲunha-ŋka-ku patikū-la-ku]_O
 sheep-ACC get-FUT THAT-LOC-ACC paddock-LOC-ACC
 [kurikura-ŋarni-ku]_O
 wool-COMIT-ACC
 get the sheep, the woolly ones in that paddock

Here the (discontinuous) O NP has 'sheep' as head, being modified by a locative NP 'in that paddock', and by a comitative noun 'with wool'. In this language, marking of syntactic function goes onto every word in an NP. The accusative case for the O NP goes onto 'sheep', onto 'that-LOC', onto 'paddock-LOC' and onto 'wool-COMIT'.

In some languages only an ablative NP (not a locative or allative one) can function as modifier within a phrase, and be followed by a case inflection. This applies in H1, Dvirbal (Dixon 1972: 224), and in WMB3, Warluwara (Breen 1976a: 332):

- (24) rlarri-dji ŋali-nha gatunurla-ŋurlu-ŋu_A
listen-GERUND 1du.inc-ACC inside-ABL-ERG
(she) has been listening to us from inside

(See also Blake 1977: 55.) In Mf, Waalubal dialect, only locative NPs can be phrasal modifiers, and followed by a case suffix (Crowley 1978: 67).

Languages in which ANY local NP can be modifier within a phrase, and be followed by the case suffix appropriate to that phrase, include those from groups WJ (with Walmatjarri and Warlpiri) and WH (with Panyjima).

Type (c), when a clausal case is followed by another clausal case, is found when a subordinate clause fills a functional slot in a main clause. An NP in the subordinate clause may be marked both for its own function in the subordinate clause, and for the subordinate clause's function in the main clause. This is reported in WJb1, Warlpiri

(see Hale 1982a: 281ff), in WHc3, Panyjima (Dench 1991: 196ff) and in NAb1, Kayardild (Evans 1995a, b). A Kayardild example is:

- (25) dan-da banga-a [kakudju-ndha raa-djarra-ndha walbu-ṅunji-indj]
 this-NOM turtle-NOM uncle-OBL spear-PAST-OBL raft-INST-OBL
 this is the turtle, which uncle speared from the raft

Here *walbu* 'raft' is marked with instrumental case for its function in the subordinate clause, and – like all other words in the subordinate clause – with oblique case for that clause's function in the main clause (Evans 1995a: 5). Dench (ms.-c) reports a most complex scheme of case combination in WHc9, Nyamal, where an NP can take up to three case suffixes.

There can be restrictions of a number of kinds on the combination of two function markers. Dench and Evans (1988: 35–43) provide a full inventory, with examples, which I will just summarise here. For instance, many languages have a specification that genitive should take a catalytic element (or ligature) before accepting any further suffix (this is illustrated in (21) above).

We often find a restriction on two occurrences of the same suffix, e.g. genitive-plus-genitive may not be allowed (just one genitive marker occurs where two would be expected). In WHa, Tjiwarli, a sequence of genitive/dative suffixes are possible only if they have different allomorphic shapes. Thus (Dench and Evans 1988: 37, from Peter Austin, p.c.) one can say:

- (26) tjuma-rti_s tjirril-arri-a [thuthu-wu ṇanatju-wu
 child-PL afraid-INCH-PRES dog-GEN/DAT 1sg-GEN/DAT
 yakan-ku-wu]
 wife-GEN/DAT-GEN/DAT
 the children are afraid of my wife's dog

Sentence (26) includes a portmanteau genitive/dative pronoun followed by the productive suffix *-wu*, and *yakan* followed by the *-ku* allomorph and then the *-wu* allomorph of genitive/dative. If, however, we wished to say 'the children are afraid of the woman's dog', *purrarti* 'woman' would take genitive–dative allomorph *-yi*, and then the allomorph appropriate to follow *purrarti-yi* would also be *-yi*. Rather than *purrarti-yi-yi*, we would just get *purrarti-yi*.

Panyjima allows many sequences of two cases, but has the restriction that accusative and agentive cannot be followed by any other suffix. If the grammar should generate a case following one of these cases, the following case is simply omitted (Dench 1991: 196–8).

In Ya3, Ritharngu, sequences of function-marking affixes are avoided by the following rules: (a) if genitive would be followed by the marker of a local function, gen-

itive is omitted; (b) if genitive would be followed by a non-local marker of clausal function, then genitive is retained, and the following marker omitted (Heath 1980a; Schweiger 1995: 354–5).

There is one other grammatical phenomenon that has been described as ‘double case’. As outlined in §5.4.1, some languages form one case by an increment to another, e.g. ablative may be formally based on locative or causal or ergative. But this is not a syntactically motivated combination of two case markers, rather it is a morphological analysis of complex forms. However, we can sometimes get a combination of two independent markers of local function, with the combination having a distinctive meaning. In H1, Dyirbal, the suffix, *-rru*, which has an allative meaning with adverbial modifiers ‘to there’ and ‘to here’ (but not with nouns) can be added after a locative suffix on a noun with the whole then having perlocative meaning, ‘through’ or ‘along by the side of’, e.g. *midja-gga-rru* ‘through the camp’ (Dixon 1972: 57, 255).

In summary, we find in Australian languages: productive sequencing of a marker of phrasal function and a marker of clausal function; together with just a few examples of a clausal marker (of function in a subordinate clause) plus another clausal marker (of function of the subordinate clause in a main clause); and examples of the type cited in the last paragraph, where two local markers combine to form a further local marker (all with clausal scope).

Further complexities can come in as the result of historical developments. In an earlier stage of Kayardild there were subordinate constructions where the verb was nominalised and bore a case suffix; the case suffix also went onto every word of the clause. The subordinate clause type was then reinterpreted as a main clause with the original nominaliser plus case now having the status of a TAM marker. And the original case still goes onto NPs in the clause, as what Evans calls a ‘modal case’. Compare (Evans 1995a: 1–2):

- (27) *danga-a_A* *raa-dja* *bidjarrba-y_O* *wumburu-ŋuni*
 man-NOM spear-ACTUAL dugong-MODAL.LOC spear-INST
 the man speared the dugong with a spear
- (28) *danga-a_A* *raa-dju* *bidjarrba-wu_O*
 man-NOM spear-POT dugong-MODAL.PROPRIETIVE
 wumburu-ŋuni-wu
 spear-INST-MODAL.PROPRIETIVE
 the man will spear the dugong with a spear

For a verb taking the ‘actual’ TAM inflection, its O NP must be marked with modal locative, and for a verb taking potential inflection, its O NP is marked with modal proprietary. In addition, modal proprietary is added after instrumental case on the instrumental NP in (28) (but modal locative is not added after instrumental, in (27)).

Sentence (25) illustrated one type of double case marking in Kayardild and (27–8) another. These may be combined, as in (Evans 1995a: 5):

- (29) *ŋada* *muŋurru* [*maku-ntha* *yalawa-djarra-ntha* *yakuri-naa-ntha*
 1sg+NOM know woman-OBL catch-PAST-OBL fish-MODAL.ABL-OBL
 thabudju-karra-ŋuni-naa-ntha *midjil-ŋuni-naa-nth*]
 brother-GEN-INST-MODAL.ABL-OBL net-INST-MODAL.ABL-OBL
 I know that the woman caught the fish with brother's net

The noun *midjil* 'net' is marked by instrumental case, showing its function in the subordinate clause; by modal ablative, a suffix determined by the 'past' TAM on the verb of the subordinate clause; and by oblique, marking the function of the subordinate clause in the main clause. The noun *thabudju* 'brother' bears genitive marking, plus the three suffixes that follow *midjil*, a total of four function markers, or TAM markers that are historically derived from function markers.

5.4 Case forms

§5.1 discussed fourteen major syntactic functions:

- core clausal functions: S, A and O;
- peripheral clausal functions: purposive, dative, instrumental, causal, aversive;
- phrasal functions: genitive, comitative, privative;
- local functions: locative, allative, ablative.

There is no Australian language that has fourteen suffixes, one for each of these functions. Most languages have about eight to ten distinct markings. That is, there will always be some syncretisms – as already mentioned, A-marking (ergative) and instrumental typically fall together; dative and genitive often do; and ablative and causal are marked in the same way in quite a few languages.

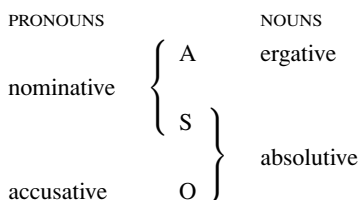
It must be borne in mind that some languages make further distinctions within these functions (there may be two allatives, 'to' and 'towards', etc.) or recognise additional ones (e.g. perlocative, semblative).

Although each language has about eight to ten markers of syntactic function on NPs, only four or five forms recur across the continent. Other suffixes marking clausal and phrasal function are confined to a limited geographical region, or to a single language. It can be inferred that at an earlier stage there were fewer function-marking suffixes, and that individual languages (particularly in the non-prefixing area) have added to the original set, as part of the trend towards becoming more morphologically synthetic.

§§5.4.2–7 summarise the forms of suffixes for marking phrasal and clausal functions, and then §5.4.8 summarises the syncretisms found. But first we need to consider the variation in core marking of different types of words in an NP.

5.4.1 Variation across NP constituents

As already mentioned, pronouns and nouns tend to mark core clausal relations in different ways:



Nominative and absolutive are generally (but not quite invariably) marked by zero inflection. The forms of accusative and of ergative are discussed in §5.4.2–3.

In fact, types of NP constituent can be ranged along a hierarchy, shown in figure 5.1. The topmost portion of the hierarchy will operate with nominative–accusative marking and the bottom-most portion with absolutive–ergative marking. The division may be made anywhere. That is, accusative marking extends some way down from the top, and ergative some way up from the bottom. Indeed, they may overlap, with A (ergative), S (zero marking) and O (accusative) all being marked differently for a section in the middle of the hierarchy.

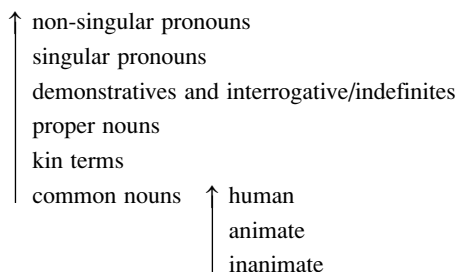


Figure 5.1 The nominal hierarchy, which determines case splits

Case marking on pronouns is discussed in chapter 7. Demonstratives and interrogative/indefinites vary considerably in form and inflection across Australian languages and a full study has not yet been made of them; this remains a priority for future research.

§5.4.2 discusses the scope and form of accusative in different languages. Apart from differences associated with accusative, just a few languages show different formal markings depending on the reference of a noun. The major semantic divisions that are found include:

- (a) higher animate versus others, in *Mf*, *Bandjalang* (see table 5.1);
- (b) human versus non-human, in *Ya1*, *Djapu* (see table 5.1); in *WAa3*, *Arabana* (see table 5.1), and in *WBb1*, *Parnkalla*, where allative is *-ru* on nouns with non-human reference and *-rdrnuru* on those with human reference, etc;

- (c) kin and proper nouns versus others, in Mg1, Gumbaynggirr (see table 5.1); and in WAb1, Yandruwanhdha, where dative is *-gi* on kin terms and proper nouns, and *-gari* on other nouns (see also Alpher 1991: 34 on Eb1, Yir-Yoront, and Hall 1972 on Ea1, Kuuk Thaayorre);
- (d) proper versus common nouns, as in WD, the Western Desert language (see table 5.1); a very similar system is found in WGa1, Watjarri, and a fairly similar one in WGa2, Parti-maya.

We can now consider the variations in form. The general pattern is for that class of nouns which is highest on the hierarchy to add certain case suffixes to an oblique stem, while for other nouns these suffixes are added directly to the root. Table 5.1 shows how the oblique stem is formed, and how it is used for nouns of the class highest on the hierarchy.

Generally, other markers of phrasal and clausal function are the same on all nouns in these languages. However, in Gumbaynggirr, dative is *-gu* and allative *-gu* onto kin terms and proper names, but both are marked by *-gu* on other nouns; and there is also a non-zero marker for S function just on kin terms and proper nouns (*-ga* after a vowel or *ŋ*, and *-ba* elsewhere).

Table 5.1 *Examples of the use of oblique stems*

LANGUAGE	SUFFIX FORMING OBLIQUE STEM	CASES AFFECTED
Mf, Bandjalang	<i>-ba:</i>	For higher animate nouns, oblique stem used alone for allative (for other nouns allative–dative involves suffix <i>-gu</i>); regular case endings added to oblique stem for desiderative, locative and two ablatives (Crowley 1978: 53–4).
Ya1, Djapu	<i>-gall/-wal</i>	For human nouns, oblique stem used alone for locative (<i>-gur</i> on other nouns), for allative (<i>-lil</i> on other nouns), and for instrumental/causal (ergative <i>-dhu</i> used on other nouns); regular case endings added to oblique stem for ablative, perlative and associative (Morphy 1983: 34).
WAa3, Arabana	<i>-nta</i>	For human nouns, oblique stem is used alone for dative and locative (<i>-ku</i> and <i>-ŋa</i> respectively on other nouns); regular causal inflection is added to oblique stem (Hercus 1994: 61).
Mg1, Gumbaynggirr	<i>-(ŋ)umba</i>	For kin and proper nouns, regular locative, <i>-la</i> , and ablative, <i>-ŋa</i> , added to oblique stem (Eades 1979: 273).
WD, Western Desert language	<locative form>	For proper nouns, locative (<i>-la</i> /V–, <i>-Ha</i> /C–) acts as oblique stem to which regular allative and ablative are added.

The Western Desert language has *-lu* and *-la* for ergative and locative on proper nouns ending in a vowel, but *-ngu* and *-nga* on common nouns; this is discussed in §5.4.3. Gumbaynggirr also has different markers for A function on the two classes of noun.

In Na1, Awabagal, there are distinct sets of case suffixes for common and for proper nouns (not involving any oblique stem) – see Threlkeld (1834).

There are a couple of rather unusual case-marking systems in group WA. Breen (1976f) has shown how in WAc1, Wangkumara, third person masculine and feminine pronouns have become attached to nouns and function like case markers; there are now different allomorphs of case suffixes for (a) masculine singular; (b) dual; and (c) all other nouns. WAb2, Diyari, has different allomorphs for (a) singular common nouns; (b) female personal names; and (c) male personal names and non-singular common nouns. There is no obvious historical source in this language, but they may well have developed in a similar way to Wangkumara.

5.4.2 Accusative

The pan-Australian form of the accusative suffix, marking O function, is *-nha* (becoming *-nja* in a single-laminal language). This typically occurs on pronouns. In some (but by no means all) languages it is also used on certain nouns from the upper part of the hierarchy – typically proper nouns, sometimes kin terms, occasionally extended to nouns with human reference, and so on.

Thus, accusative marking is found just on proper nouns and kin terms in Mg1, Gumbaynggirr (see §5.4.1), in H1, Dyirbal, and in Ja, the Maric proper subgroup; just on human nouns in WAa3, Arabana, and Ya1, Djapu; just on higher animates on Mf, Bandjalang; and so on. In a very few languages accusative *-nha* has been generalised to be the accusative suffix on all nouns – this has happened in WAc1, Wangkumara and several languages from groups WG and WH (see Dixon 1970: 94–7).

In WHc9, Nyamal, the suffix *-nja* has shifted its function to be the marker of proper nouns, irrespective of their syntactic function in a clause. Thus, every proper noun must be followed by *-nja* (as an indication that it is a proper noun), and this suffix is then followed by the appropriate case inflection; for this language, S and O always receive zero case marking (Dench ms.-c).

The accusative suffix can be generalised in another direction, to mark both O and S functions with a certain class of nouns. Thus, the marker of O function from a nominative–accusative system (on pronouns) becomes an absolutive suffix (marking S and O functions) in an absolutive–ergative system (on nouns). This has applied in WMb3, Warluwara; in WD, the Western Desert language; and in WGal, Watjarri. In each of these languages S and O are marked by zero on common nouns but by an erstwhile accusative suffix on proper nouns – in Warluwara this is *-nja/i-*, *-nha/u-*, *a-* and in the Western Desert language and Watjarri it is *-nja/V-* and *-na/C-*.

Most head-marking languages, especially those of the prefixing type, are light on NP marking and do not use the accusative suffix on nouns. But it is retained on pronouns. In the prefixing area, *-nha* typically reduces to *-n*. There are also examples of *-nha* becoming *-na* and then *-n* in non-prefixing languages, e.g. *-na* is in H1, Dyirbal, Nd, Muruwarri, and V, Baagandji; and *-n* in Bb, Umpila, Da2, Lama-Lama, and NAa, Lardil.

There is another form of the accusative, *-ŋa*, found in a number of widely scattered areas. The details are:

- (a) In WD, the Western Desert language, and WGa1, Watjarri, the S/O suffix on proper nouns is *-nja/V-* but *-ŋa/C-*. The accusative suffix on pronouns (all of which end in V) is *-nja*.
- (b) A group of languages from the central east coast mark accusative on proper nouns/kin terms/human nouns/animate nouns (details vary slightly) by *-ŋa/V-*, *-a/C-*. The languages are L1, Darambal, Ma2, Gureng-Gureng, Ma3, Gabi-Gabi, and Mg1, Gumbaynggirr. L1 and Mg1 use *-nha* as accusative on pronouns, while Ma2 also has *-ŋa* on pronouns (the data on Ma3 are unclear for pronouns).
- (c) A group of languages in far North Queensland has *-ŋan* as accusative marker on pronouns (but lacks any accusative on nouns). These languages include F, Kuku-Yalanji, Ea2, Oyikangand (where *-ŋan* marks O and dative), and Dd1, Guugu Yimidhirr (where *-ŋan* marks O and dative and genitive). In Dc1, the Flinders Island language, accusative on pronouns is *-ŋin*.
- (d) NBa, Mangarrayi (from the central north), has *-ŋan* as accusative suffix on non-singular pronouns (*-n* is accusative on singular pronouns) and *ŋan-* as accusative prefix on feminine singular nouns, together with *-ŋan* as accusative suffix on dual and plural nouns.
- (e) The Atampaya dialect of Ba2, Uradhi (to the north-west of languages in Set (c)), has *-ŋa(nha)* as accusative suffix on non-singular pronouns (there is no accusative marker on nouns).

These forms are summarised in table 5.2. These data might be taken to suggest that accusative was originally *-ŋanha*, reducing to *-nha* (or *-nja*) in most languages, but to *-ŋa* in a few, becoming *-ŋan* in two areas, and being retained as *-ŋanha* just in the Atampaya dialect of Ba2, Uradhi. However, a close examination of the Atampaya paradigm (Crowley 1983: 354) shows that here all non-nominative non-singular pronominal forms include *-ŋa-*. It appears that *-ŋa-* forms an oblique stem to which regular suffixes (such as accusative *-nha*) are added.

The relationship of *-ŋa* and *-ŋan* accusative suffixes to the more widespread *-nha/-nja* must be left an open question, on which more work is needed.

Table 5.2 Accusative suffixes commencing with -ŋa-

		pronouns	nouns
(a)	WD, WGa1	-nja	-nja/V-, -ŋa/C-
(b)	L1, M	-nha, -ŋa	-ŋa/V-, -a/C-
(c)	D, E, F Dc1	-ŋan -ŋin	— —
(d)	NBa	-ŋan, -n	ŋan-, -ŋan
(e)	Ba2	-(ŋa)nha	—

5.4.3 Ergative, locative and instrumental

The prototypical situation in Australian languages is for there to be a number of allomorphs for ergative, and also for locative, conditioned by the number of syllables in the stem and/or its final segment and/or its word class (e.g. proper noun, kinship term, generic term). Ergative most often ends in *u*, for all allomorphs, and locative in *a*. Indeed, in a number of languages locative is identical to ergative – across a variety of allomorphs – save for final *a* in place of *u*. We will first consider ergative, then locative, and finally instrumental (which tends to fall together with either ergative or locative).

After a consonant-final stem, ergative is generally a homorganic stop (H) plus *u*, demonstrating the assimilation that pervades Australian languages. Sometimes a liquid drops from before ergative; or, alternatively, the stop of the ergative suffix can drop after a liquid. For example, in Mg1, Gumbaynggirr, the ergative suffix has allomorphs: *-bu* after a stem ending in *m*; *-du* after *n*; *-dju* after *nj* or *y*; *-gu* after *ŋ*; *-du* after *l* with elision of the *d* (e.g. *ŋa:mbul* ‘magpie’, ergative *ŋa:mbul-u*); and *-du* after *rr* with elision of the *rr* (e.g. *ni:garr* ‘man’, ergative *ni:gadu*) (Eades 1979: 273).

After a vowel-final stem there are a variety of forms, including *-lu*, *-rru*, *-ŋgu*, *-gu*, *-ŋu*, *-dji*, *-yi* and *-dhu*. Sands (1996) undertook a thorough study of these forms and their occurrence, with full attestation. The following paragraphs summarise her argumentation and conclusions.

(1) *-lu*. This is characteristically used with any NP constituent that is not a specific common noun. That is, it is typically found on demonstratives, interrogative/indefinites, proper nouns, kin terms and generic nouns, and on pronouns in those languages that have an ergative affix on pronouns (Sands 1996: 12–24).

In WD, the Western Desert language, WGa1, Watjarri, and WGa2, Parti-maya, *-lu* is just found on vowel-final proper nouns and kin terms, with *-ŋgu* being used with vowel-final common nouns. However in adjacent languages – those from groups WJ and WH and also WGd, Yingkarta, and WGb, Nhanta – the allomorph *-lu* is used with vowel-final nouns of three or more syllables, and *-ŋgu* on disyllabics.

Hale (1976a) and Dixon (1980) had suggested that number of syllables was the original conditioning factor for the *-ŋgu/-lu* choice, and that this phonological criterion (retained in WJ, WH, etc.) was reinterpreted in WD, etc. as relating to a proper/common noun distinction, since most common nouns are disyllabic, and the majority of proper nouns have three or more syllables. While number of syllables may be relevant for the development of *-ŋgu* (see below), Sands argues that it is the proper noun criterion (retained in WD, etc.) that was original for *-lu*, and that WJ, etc. have reinterpreted this as a phonological criterion. Evidence for this includes the fact that demonstratives and interrogatives in WJ languages, although disyllabic, take ergative *-lu* and not *-ŋgu*.

Individual languages may retain ergative *-lu* on only some of the types of words it originally applied to, e.g. many languages from the Cape York area have *-lu* on just a handful of nouns, most or all of these generics (in a few languages it also occurs on demonstratives and interrogatives). Some languages have generalised *-lu* so that it is the only ergative suffix, on all vowel-final nouns, of whatever type, e.g. WAA1, Pitta-Pitta, and WAc3, Badjiri. In others, **-lu* is reflected as *-ru*, e.g. WAA2, Wangka-yutjuru, which has undergone a regular change *l > r*.

Note that the classes of words characterised by ergative suffix *-lu* for A function are similar to those that take accusative *-nha* (or *-ŋa*) for O function.

	A	S	O
demonstratives, interrogatives, proper nouns, kin terms (and pronouns in some languages)	-lu	∅	-nha(/-ŋa)
other nouns	-dhu, etc	∅	∅

However, the similarity of occurrence between *-lu* and *-nha(/-ŋa)* is only approximate; there is no evidence that accusative tends to be used with generic nouns, for instance. This is just a tentative observation, which requires further study.

(2) *-dhu*. The ergative allomorph on common nouns with the widest geographical distribution is *-dhu* (or *-dju* in languages with a single laminal series). Since the initial stop and following vowel are at different places of articulation, there is a tendency towards assimilation, either to *-gu* or to *-dji*, and then lenition, to *-yu* or *-wu* or *-yi*. There is also a tendency in some languages for a homorganic nasal to be inserted before the stop, giving *-nhdhu* or *-ŋgu* or *-njdji*. Briefly, the occurrences are:

(a) *-dhu* (or *-dju*)

- Pb1, Dharawal, *-dju* /i-/, *u-* (assimilates to *-dja* after *a*);
- W1, Kalkatungu, *-dju* /V- on a stem of three or more syllables (with lenition yielding *-yu* in the neighbouring language, W2, Yalarnnga);
- Ya, Southern Yolngu, *-thu* /C-, *-y* /V- (and this *-thu* was then borrowed into the adjoining NBd1, Ngandi);

- WIa, Marrngu subgroup, *-tju* /C– (with *-lu* /V–);
- Wlb, Mangala, *-tju* as the ‘elsewhere’ form;
- Nc, Central Inland NSW subgroup, *-dju* /rr– (and *-dju* /i–, *-gu* /a–, *u–*).

We also find *-thV* (where the V assimilates to the preceding vowel) as one allomorph of ergative in Ba6, Anguthimri; and *-dj* after non-singular nouns in Wmb1, Wagaya. A further cognate may be *-dja*, inferred from the scanty materials available on Ta3, Wuy-wurrung.

(b) *-nhdhu* (or *-njdju*)

- WK, Warumungu, *-njtjV* (where V assimilates to the preceding vowel) after a vowel-final stem of three or more syllables.

(c) *-yu*

- Mf, Bandjalang, *-yu* /V–.

Note that a number of languages have *-dju* or *-yu* or *-njdju* just after *i* and/or *y*, but this may have been a recent assimilation conditioned by the preceding segment, rather than a direct reflection of **-dhu*; these languages include Ja2, Mg, Nb1 and WMa.

(d) *-dji* or *-njdji-* or *-yi*

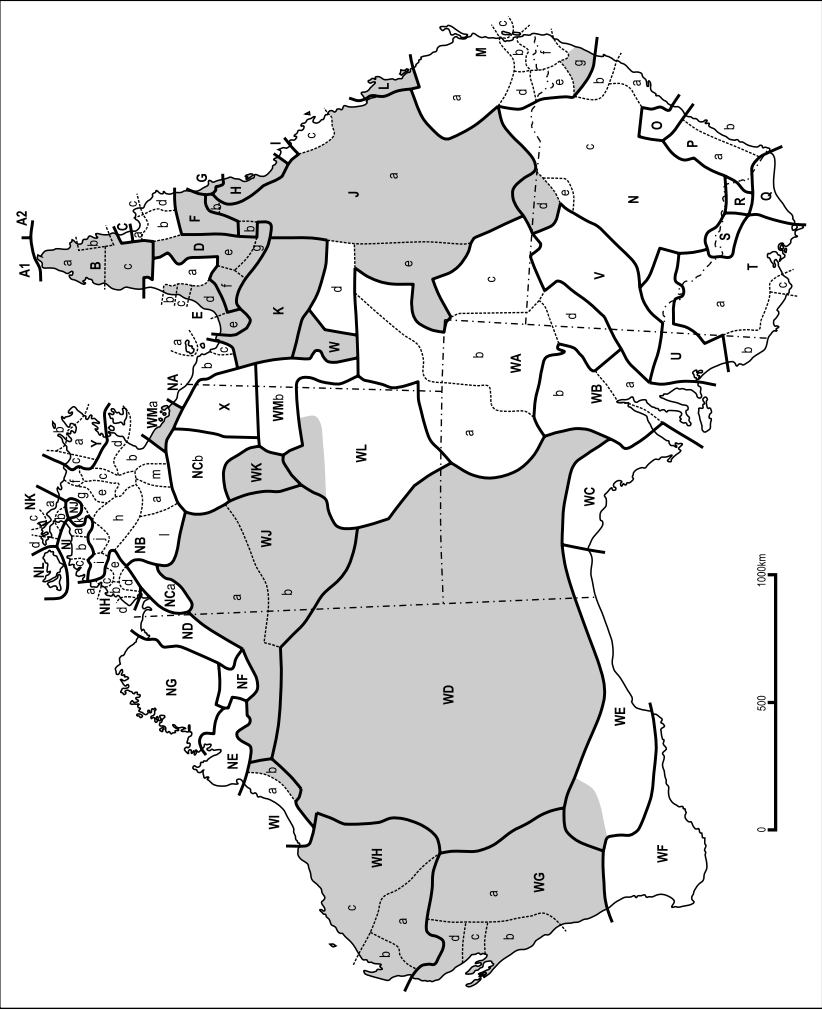
- De1, Kuku-Thaypan, *-nhdhi* /C–;
- Yc, Western Yolngu, *-dji* is a major allomorph (conditioning not given in sources);
- NBI2, Wardaman, *-dji* /stop–, *-nji* /nasal–, *-yi* elsewhere;
- NBm, Alawa, *-dji* /C–, *-rri* /V–.

Some other prefixing languages in group NB have ergative *-yi* or *-yi?* which may be used sparingly (and is undoubtedly on the way to being lost) – NBc, NBe, NBh2, NBj, NBI1.

I mentioned *-gu* and *-ngu* (and *-wu*) as other possible developments from **-dhu*. These will be discussed separately.

(3) *-ngu*. In contrast to reflexes of *-dhu*, which are found scattered across all parts of the continent (excepting the south-west), the ergative allomorph *-ngu* occurs in two main geographical sets of languages, with two outliers; these are shown on map 5.1. All occurrences are on vowel-final stems.

(a) *-ngu* is on disyllabic stems in about twenty-five languages in groups WG, WH, Wlb, WJ, WK and WMa. (Note that WMa has *-ngu* while Wmb has *-gu*, but in Wmb languages there is a regular rule omitting the nasal from a nasal-stop cluster. The WM group is now geographically discontinuous but it is reasonable to assume that WMa and Wmb were continuous not too far in the past.) In addition, *-ŋə* on reflexes of disyllabic stems in WL2, Kaytetj, probably comes from **-ngu*. All of these languages have *-lu* on longer stems excepting Wlb which has *-tju* and WK which has *-njtjV*.



Map 5.1 Distribution of the ergative allomorph -ŋgu

In three adjoining languages (WD, WGa1, WGa2), *-ngu* is found on common nouns, and *-lu* on proper nouns.

(b) *-ngu* is the main ergative form after vowels (just a few generic and other nouns may show *-lu*) in an eastern block of languages – groups F–K (bearing in mind that there is no grammatical information on I) plus the adjoining Nd, De and W (and some occurrences in Eb–e). This area comprises about thirty languages in all. There is no proper/common conditioning in this area, and the only languages with conditioning by number of syllables are:

- W group (Kalkatungu and Yalarnnga), *-ngu* after a disyllabic and *-dhu* or *-yu* after a longer stem.
- H1, Dyirbal, *-ngu* after a disyllabic and *-gu* after a longer stem.

(c) Just one language from the south-east has ergative *-ngu* – Mg1, Gumbaynggirr.

(d) Some languages in subgroup B have *-ngu* as one ergative allomorph. Unlike languages in the other three groups, they also have allomorphs involving other nasal-stop clusters, e.g. *-mbu*, *-njdju*.

Now it is unexpected to find a suffix such as *-ngu*, commencing with a consonant cluster, in languages with basic syllable structure CV(C). Some explanation is needed for this. Since in Australia we are dealing with a large area, showing considerable time-depth, and since the occurrence of *-ngu* falls into four geographical regions, there may in fact be several different explanations for the evolution of *-ngu*, each applying to a cluster of languages. We can look at two possible explanations, admitting that there may well be others.

Explanation 1 is due to Hale (1976a), who suggested a historical origin for the ergative forms in Set (d). Originally, noun stems could end in a nasal, and ergative added a homorganic stop plus *-u*, e.g. stem *Xŋ*, ergative *Xŋ-gu*; *Ym*, ergative stem *Ym-bu*. Then the final nasal was lost from the stem (through phonotactic change); the ergative forms stayed the same but the morpheme boundary shifted, e.g. stem *X*, ergative *X-ŋgu*; stem *Y*, ergative *Y-mbu*.

Hale also suggested that at some time in the past one group of Australian languages had all vowel-final disyllabic forms given a closed final syllable by the addition of a final *ŋ* (then taking ergative *-gu*). Later, the final *ŋ* was dropped, leaving ergative *-ŋgu* just on disyllabic stems. Justification for this suggestion is the fact that in some languages (in groups B, Q, T, WL, ND – see Hale 1976a: 416; Sands 1996: 12; and §12.9.2 below), vowel-final disyllabic forms (but not, in most cases, monosyllabics or trisyllabics) have been supplied with a final *ŋ*. As stated in §12.1.3, only a minority of modern languages allow word-final *ŋ*. Most of those that do (e.g. groups M–U) do not have *-ngu* as an ergative allomorph (Mg1, Gumbaynggirr, being an exception).

Hale explained the ergative allomorph *-ngu*, after vowels, as emanating from allomorph *-gu* (homorganic stop plus *-u*) occurring after a consonant, the velar nasal.

Explanation 2 treats *-ŋgu* as involving the addition of homorganic nasal *-ŋ-* before vowel-following allomorph *-gu*. The first stage in this explanation is unproblematic, the evolution of ergative *-gu* from an original **-dhu*, through assimilation. There are many examples in Australian languages of the assimilation in place of articulation of an initial consonant to a following vowel; for example *ŋi-* > *nji-* in the 2sg pronoun, *nhu-* > *ŋu-* in the 3sg pronoun; verb *ginga-* > *djinga-* 'laugh, play, dance', at (57) in §4.2.7 (and see §12.7.1). We noted above ergative **-dhu* > *-dji*; along similar lines, **-dhu* > *-gu* is a natural development.

The examples quoted above also include a few languages in which *-dhu* > *-nhdhu* and *-njdji*. In keeping with this, *-dhu* > *-gu* > *-ŋgu* (or *-dhu* > *-nhdhu* > *-ŋgu*) is a plausible further development. H1, Dyirbal, provides a clue as to why and how a homorganic nasal should be added. In Dyirbal there is a tendency to insert a nasal before a stop at a morpheme boundary if this comes soon after the main stress of a word (which falls on the initial syllable) – eight examples are given in Dixon (1972: 283–4). In association with this, ergative in Dyirbal is *-ŋgu* after a disyllabic and *-gu* after a longer vowel-final stem. We could suggest that ergative is basically *-gu* (a reflex, after assimilation, of **-dhu*) and that the *ŋ* was inserted after just a disyllabic stem.

In summary, there may be varied explanations for the fact that some Australian languages, with syllable structure CV(C), have a suffix beginning with two consonants. Explanation 1 has been shown by Hale to be applicable for languages in Set (d) and may also apply for some or all languages in the western area, Set (a). This suggests that *-ŋgu* may have developed just on disyllabic stems and then contrasted with *-lu*, which was the original form on proper nouns. In some languages these different criteria have been rationalised to common-versus-proper (with the disyllabic conditioning on *-ŋgu* being replaced by a semantic conditioning factor: on common nouns). And in other languages they have been rationalised to disyllabic-versus-longer (with the proper noun criterion for *-lu* being replaced by phonological conditioning: that it be used on all stems of three or more syllables). Hale's explanation may also apply to group W, on the western fringe of the eastern group, Set (b), where we find *-ŋgu* on disyllabics and the original *-dhu* on longer stems ending in a vowel.

In Dyirbal we get *-ŋgu* only on disyllabics but the use of *-gu* on longer stems suggests that here Explanation 2, the insertion of *ŋ* before *-gu*, may be appropriate. Note that the remaining languages in the eastern area, Set (b), (F–K, and Nd, De) use just *-ŋgu* on all vowel-final stems, without any disyllabic conditioning factor. This may possibly have originated as in Dyirbal, with the allomorph *-ŋgu* then being generalised to apply on vowel-final stems of any number of syllables (the trait having diffused over the languages of this geographical region).

Set (d), consisting just of Mg1, Gumbaynggirr, is geographically isolated from the other languages. It has *-ngu* or *-lu* (the conditioning is not understood) on stems of any length ending in *a* or *u* but *-dju* or *-yu* on those ending in *i* (or *y*). It may be that at an earlier stage Mg1 was situated next to the languages of Set (b), and then moved away.

These ideas should be regarded as exploratory; more work is needed on the evolution of ergative allomorph *-ngu*, from **-dhu*, in these four areas. We are currently some way off a full understanding of this matter.

(4) *-gu* and *-ŋu*. We have clear examples of *-ngu* reducing by regular change to *-ŋu* in some languages (e.g. WJa1, Walmatjarri) and to *-gu* in others (e.g. WJa2, Djaru, and the WMb subgroup). In other languages there is ergative allomorph *-gu* which could have come about either by reduction of *-ngu* or by direct assimilation from **-dhu*; further work is needed to decide between these alternatives for groups such as Na, Nc and Ta. Work is also needed to explain ergative *-ŋu* found in WAc2, WAd, WC and WE1.

A variety of ergative allomorphs and a number of different conditioning factors have been mentioned, together with assimilations and lenitions. These have led to many different combinations of allomorphs. In addition to those already mentioned, we find:

- WJa1, Njangumarta: *-lu/V-*, *-dju/C-* (with no assimilation);
- Wlb, Mangala: *-ngu/V-* on disyllabics, *-dju* elsewhere (with assimilation to *-tu* after an apical consonant);
- Mg1, Gumbaynggirr: *-ngu* or *-lu* /*a-*, *u-*; *-dju* or *-yu* /*i-*, *y-*; *-Hu/C-* (and *-du* after a long vowel).

In summary, I hypothesise that the original forms of ergative case (which relate to forms in the great majority of modern languages) were:

**-dhu* after specific common nouns;

**-lu* after proper names, kin terms, generic nouns, demonstratives, interrogative/indefinites (and pronouns in some languages).

Assimilation and lenition have yielded diverse developments from **-dhu*, including *-nhdhu*, *-yu*; *-gu*, *-ngu*, *-wu*; *-dji*, *-njdji*, *-yi*.

A very few languages retain *-dhu* or *-dju* as the ergative allomorph after a consonant-final stem, with no assimilation. However, in most languages there is assimilation, with the ergative suffix now being a stop homorganic with the stem-final consonant, plus *u*.

Earlier discussion of ergative allomorphs was inadequate in several ways. Dixon (1980: 292–321) placed too much emphasis on the *-ngu* forms, made only passing reference to *-dhu*, and suggested a proto-form **-du/-lu*. In fact *-du* is only found after apicals whereas *-dhu* is found in every sort of environment. Sands (1996) made a major

contribution to comparative Australian studies by positing and justifying **-dhu*, from which all recurrent allomorphs other than *-lu* can be shown to have developed.

Unfortunately, Blake (1988) and Evans (1988a) have taken over the partial discussion in Dixon (1980) and suggested *-ngu* as an innovation diagnostic of 'Pama-Nyungan' as a genetic grouping. But *-ngu* is attested for no more than a third of the putative Pama-Nyungan languages (and is not found in subgroup Y, which has been suggested to be a Pama-Nyungan outlier). There is no justification for taking the 'innovation of *-ngu* as ergative marker' to be a defining feature for all languages in groups B–Y, WA–WM constituting a high-level genetic subgroup. And, as discussed above, languages of group NB do show ergative *-dji* or *-yi*, reflexes of **-dhu*. The most likely hypothesis is that ergative *-ngu* is one of several modern reflexes of original ergative **-dhu* (alongside *-dji*, *-gu*, etc.).

Other prefixing groups may also show reflexes of **-dhu*; however, due to the drastic phonological changes, etc. that have applied, it is hard to be sure. These include *-djiya* in NA (the *-dji-* may relate to **-dhu*), *-yiggu* in NF (the *-yi-* may come from **-dhu*), *-dji* on dual nouns in NCB3, Wambaya, *-dje* in NIB2, Wuna, and *-idj* in NIA, Ubugarla.

This discussion has covered the forms of ergative in most languages. We have seen that some instances of *-rru* come from **-lu* by regular change (e.g. in WAa2); there are, however, further instances of *-rru* that cannot obviously be explained in this way (details are in Sands 1996: 35–8). Other languages do show ergative allomorphs with quite different forms, including *-mbal* in C, Umbindhamu; *-gun* in Dd1, Guugu Yimidhirr; *-bu/V-* in Ma2, Gureng-Gureng; *-bu/u-* in Nb1, Djan-gadi; *-ana* in U2, Ngayawang; and *-na* in U5, Yitha-Yitha. In the prefixing area we get *-ni* as ergative in NC and NHe (and *-ni(m)* as a semantic marker of control in NE1, Njigina – see §5.1.1). Further work is needed to tell whether these are related. Subgroup NK has *-(k)iya*. And so on.

We can now look at locative. As already mentioned, the allomorphs of locative may exactly (or almost exactly) parallel those of ergative, with final *a* in place of *u* (or *i*). In some languages ergative and locative have fallen together, either through the final *a/u* having been lost, or through its having been fully assimilated to the stem-final vowel. But in a fair number of languages ergative and locative suffixes have quite different forms. And in a few (mostly in the prefixing area, where dependent marking is being lost), locative is shown by an adposition rather than by an affix.

In a survey of the *c.* 165 languages for which ergative and locative suffixes have been reported, about thirty (six of these being in groups NA–NL) have exactly the same form for the two functions; about sixty (one in the N groups) have the same form but for the final vowel being *a* on locative and *u* or *i* on ergative; and about seventy-five (twenty-five in NA–NL) have quite different suffix forms for ergative and locative.

The evidence is suggestive of locative having had original forms *-la* after a proper noun, kin term, generic noun, demonstrative or interrogative/indefinite (and possibly also pronouns) and *-dha* after a specific common noun, paralleling ergative *-lu* and *-dhu*. Parallel changes would then help to explain the isomorphism between modern sets of allomorphs. But if this does hold it can only be part of the story; there must also have been extensive analytic reformulation – and diffusion of analogical changes – to establish or complete the isomorphism.

I listed four geographical sets of languages with ergative *-ŋgu*. All of the *c.* 25 languages in the western set, (a), have locative and ergative differing only in final *a* versus *u* (or being identical, in WK, where there is vowel assimilation). Of the *c.* 30 languages in the large eastern group, (b), all have ergative and locative differing only in final *u/a*, or coinciding, except for languages in groups D and W (on the edge of the area) and Jb. Set (c), Mg1, Gumbaynggirr, also has the *u/a* isomorphism but in Set (d), consisting of languages from subgroup B, locative and ergative are quite different.

There are about a dozen languages that lack the *-ŋgu/-ŋga* allomorphs but show the *u/a* correspondence – all involve suffixes *-dhu/-dha*, *-gu/-ga* or *-ŋu/-ŋa*.

There are a number of languages in the prefixing area that have ergative *-dji* or *-yi* (through assimilation and lenition) and retain locative *-dja*:

- NBI2, Wardaman: ergative *-dji/stop-*, *-nji/nasal-*, *-yi* elsewhere; locative *-dja*, *-nja*, *-ya* (same conditioning).
- NBe, Dalabon: ergative *-yi* (used optionally); locative *-dja*.
- NBc1, Rembarrnga: ergative *-yi?*; locative *-djdja(m)*.

(Note that NBc2, Ngalakan, also has ergative *-yi?*, but locative *-kaʔ/-gaʔ*.)

The languages where locative suffixes show no similarity to ergative involve a variety of forms, mostly language-specific. There are just a few forms that occur in more than one language but each of these is confined to a limited region, e.g. *-(ngi)n* in X1, *-na* in V, *-ina* in WA, *-na ~ -ŋa* in Yb (and locative formed by adding *-na* to allative in WK). There is also *-bay/-way* in Dd, *-ba/-wi* in De and *-w(a)* in Jb. And *-luk* or *-lik* in NBh alongside *-layiŋ* in NB11 and postpositions *lakarni* in N1b1 and *garni* in NB11.

Instrumental is marked by the same case forms as ergative in over 150 languages (about 90 per cent of those that have an ergative case suffix or enclitic). Those prefixing languages that have lost the ergative inflection have innovated a new instrumental clitic or adposition, e.g. *mirni* in NBd3, *Aninhdhilyagwa*, *bewe* in NBg1, *Gunwinjgu*, *yan an* in NJ, *Giimbiyu*. (Note that a reflex of **-dhu* is never kept in instrumental function after being lost from ergative function.)

Where there is an ergative suffix and it does not also cover instrumental there are two main possibilities, which are discussed in the following.

(i) Instrumental coincides with locative. This is found in a sprinkling of languages – groups G, V, WD, WL; just X2, Garrwa, from subgroup X; and just WMa, Yanyuwa, and WMb3, Warluwara, from subgroup WM (and perhaps also U1, Yarlalde, from group U, the information here being scanty). In WHc5, Ngarluma, an instrument NP can be marked either by locative or by a separate instrumental suffix *-wari* (Kohn 1994: 16).

Interestingly, the other members of groups X and WM have instrumental coinciding with ergative. Groups X and WM are in the same area, with X intruding geographically between WMa and WMb. The languages from this area with ergative the same as instrumental (X1, WMb1 and WMb2) are adjacent, effectively forming an ergative-equals-instrumental subarea within the overall WM/X locative-equals-instrumental area.

(ii) There is a separate marker for instrumental function, distinct from ergative and locative. This is found just in northern languages – groups Y and NA and also NCb2 and NCb3 (other languages from the NC subgroup have ergative-equals-instrumental) and NHa.

In a few languages ergative is used for instrumental function but in restricted circumstances. In WJa1, Walmatjarri, and the neighbouring NF1, Bunuba (and also X2, Garrwa), ergative case form is used to mark just body part instrumentals. For other types of instrumental, the comitative suffix is added to the instrumental NP and then ergative case (i.e. the instrumental-plus-comitative-marked noun appears to be a modifier to the head of the A NP). In some of the languages from group WHc that have adopted an accusative morphology, the old ergative/instrumental is now used for passive agent and for instrumental in a passive clause; in active clauses instrumental NPs are marked by the comitative suffix (Dench 1991: 139; 1995: 71, 84–6).

In many languages the meaning ‘through’ or ‘along’ is handled by the locative case. A special perlocative (or pergressive) marker has been reported for about twenty languages, most of them in the prefixing area. There is no recurrence or similarity of forms except between adjacent languages; thus the Yankuntjatjarra dialect of WD, the Western Desert language, has perlocative *-wanu* and the nearby language WJb1, Warlpiri, has *-wana*. Other forms are: *-bilinji* in NF, *-ya* in NBB1, *-ḡur* in Ya, *-murru* in Yb, *-wi* in NBC, and *-ḡa/-da/-ra* in Ma4. In L1, Darambal, perlocative involves the addition of *l* to locative (which is *-Ha/C-*, *-ḡa/V-*).

5.4.4 *Purposive, dative, genitive and allative*

Certainly the most common suffix in Australian languages is *-gu*. This occurs on verbs in several dozen languages with a prototypically purposive meaning (‘in order to’, ‘want/need to’), sometimes shifted to future. And it is the most widespread suffix on nouns.

About 64 per cent of the languages for which data are available have a nominal suffix *-gu* (the breakdown is about 35 per cent for languages in groups NA–NL and about

73 per cent for other languages). Its prototypical sense is purposive, in most instances also extended to dative and often also to genitive and/or allative.

The basic patterns are:

- (a) *-gu* is purposive, with a different dative, e.g. G, Mb, NCa2;
- (b) *-gu* covers both purposive and dative, e.g. Mf, Y, Wla, NG;
- (c) *-gu* is used for dative/purposive and also genitive, e.g. O1, W, WJ, NBa, NF;
- (d) *-gu* is used for dative/purposive and also allative, e.g. De1, H1, Mg1;
- (e) *-gu* is used for dative/purposive, genitive and allative, e.g. Nd, WC;
- (f) *-gu* is used for purposive and genitive (dative differs) in WD;
- (g) *-gu* is used for purposive, genitive and allative (dative differs), e.g. Nc1;
- (h) *-gu* is used for genitive (dative/purposive and allative all differ), e.g. WBa1 and WGa1.

It is interesting to list those areas where the nominal suffix *-gu* is not found. It is absent from the geographical block of languages comprising groups P–V (excepting Pa1), WAb and WBb; from another block made up of NBb, NBd2/3, NBm, NCb, WM, X and NA; from a block consisting of ND and NH; and also from Da–d, Eb1/2, NE, NBf and NJ–NL (some of the latter have no nominal suffixes at all).

We noted that ergative **-dhu* can undergo assimilation (and lenition) to *-dji* or *-yi* or *-gu* or (with homorganic nasal added) to *-ngu*. In purposive *-gu*, stop and vowel have the same position of articulation, so there is no scope for assimilation. In some languages we do get *-gu/C–* but with lenition to *-wu/V–* (and sometimes assimilation leading to *-yu/i–*). In NBc, NBe and NBh1, dative/purposive is *-gun*, with final *n*.

Unlike ergative *-gu* (<**-dhu*) there is no insertion of a preceding *ŋ*; this may possibly be because of a perceived link to verbal purposive *-gu* (which is the most likely of all verbal suffixes to preserve its form). Note that there are some languages in which a homonymy between ergative and dative has developed, in certain phonological environments. In H1, Dyirbal, for instance, purposive/dative/allative is *-gu* on all nouns, and ergative is *-gu* on a vowel-final stem of three or more syllables.

There is a scattering of languages in which genitive or allative is a polysyllabic form beginning with *-gu*; in some (or all) instances this may go back to purposive/dative *-gu* plus some increment (whose etymology is not yet known); for example, Pb1, Dharawal, has dative/purposive *-gu/C–*, *-wu/V–* and genitive *-guli/C–*, *-wuli/V–*; WJb has dative/purposive *-ku* and allative *-kurra*.

Where dative is not marked by *-gu*, the forms used vary. That with widest attestation is *-nu*, found in Ma3, Mb, NCa2, NH and NIa1, with *-anu* in U2 (I am not suggesting that these are necessarily all cognate). Dative function is covered by the locative suffix in a few languages, e.g. Dd1, Nc, U1, WD.

Genitive is marked by the same suffix as dative (whether this is *-gu* or some other form) in at least fifty languages, including Ea1, Pa1, W, X, WAd, WGd, NBc, NCa2, NF and NHc. Genitive and locative/instrumental coincide in V. The only other recurrent

genitive form on nouns is *-ɲu*, which is probably analogised across from pronouns; this is found in groups G–M, U and WHc.

Allative falls together with dative and/or purposive in about thirty languages, with locative in twenty-five or so, and with ergative in WMa (and perhaps also Dg). In NHa, Patjtjamalh, allative falls together with instrumental (which is different from ergative). In a handful of languages, allative involves an addition to dative or locative or ergative. Other allative forms are particular to a specific language (or a small areal group). In a few cases the noun from which an allative suffix developed can be identified – compare *karti* ‘side’ in WHc3, Panyjima, and WHc9, Nyamal, with allative *-karti* in WI, WJ and in some dialects of WD (and the reduced form *-rti* in WE2).

5.4.5 Ablative and causal

Most languages have a distinct ablative suffix, but the forms used show considerable variation. Those found in more than a small local area are:

- (a) *-muntu* in D, G, Ja and K; *-munu* in B, *-munj* in F, *-mu* in Eb1 (and *-m* in C, *-m^o* in Jb).
- (b) Forms beginning with *-ɲu*. These are found right across the continent but with great variation in what follows the *-ɲu*. They include:
 - just *-ɲu* in Ma, Mf, Nd, WGd, Wlb;
 - ɲunu* in H1;
 - ɲuna* in WBb1;
 - ɲura* in Yb;
 - ɲuru* in Ya, WD, WHa, Wla (reduced to *-ɲu* in WE2);
 - ɲurlu* in WJ, WM;
 - ɲurni* in WBb2, WC, WJa1;
 - ɲun* in WGc;
 - ɲuŋ* in NCa2.

In a few languages some other suffix also covers ablative function. These include:

- genitive (where this differs from dative), e.g. Ee, NBd3;
- ergative, in WAa3 and WAc1.

In other languages, ablative involves an increment to locative or, occasionally, allative, e.g.

- locative + *-m* in L
 - + *-ɲ* in Ta1
 - + *-ɲu* in W
 - + *-biraŋ* in Na1
 - + *-gay* in Nb1
- allative + *-mi* in NCb1

Note the similarity between the increments *-m* and *-ŋ(u)* to locative, and the case forms *-muntu* and *-ŋu+* mentioned above. It may be that, at an earlier stage, ablative involved an increment to locative (or allative) in more languages than at present. We might have had: ablative = locative + *-muntu*. There would then have been two types of development: (a) the locative component drops, and *-muntu* comes to be added directly to the noun stem; (b) the combined suffix is maintained but the second part is drastically shortened, e.g. to *-m*. A similar explanation might apply for the *-ŋu+* forms, except that some explanation is needed for the wide variety of forms of the syllable (or consonant) following *-ŋu*. (There may be some link between ablative *-ŋu* and the *-ŋu* genitive on pronouns and sometimes on nouns; or this formal similarity may be entirely coincidental.)

Languages in subgroup Nc have an interesting array of case forms:

	ergative	locative	ablative
after a vowel	-gu	-ga	} -dhi/-dji
after a consonant	-dhu	-dha	

This suggests, parallel to an original **-dhu* for ergative and **-dha* for locative, **-dhi* for ablative. Unfortunately, there are no other examples of an ablative beginning with *-dhi* or *-dji*.

Quite a few languages have a distinct causal inflection, but the forms used differ from language to language or group to group. More frequently, causal is a secondary function of some other case affix:

- ablative in many languages, e.g. B, Dd, WJa, WK;
- ergative, e.g. Ja, Ya;
- locative, e.g. Mg1, WJb2;
- dative, e.g. F (and see examples from NG3 and WMb3 in Blake 1977: 41);
- genitive, e.g. Ec.

In W, causal involves the addition of *-ŋu* to ergative.

Goddard (1985: 81, 88) reports that in the Yankuntjatjarra dialect of WD, the Western Desert language, ablative marks prior cause, as in (30), and locative present cause, as in (31):

- (30) paluru wama-ŋuru kata_S kuya-ri-ŋu
 3sgS liquor-ABL/CAUS head bad-INCH-PAST
 his head went funny (intoxicated) from (having drunk) liquor
- (31) ŋayulu warri-ŋka tjititiŋa-nji
 1sgS cold-LOC/CAUS shiver-PRES
 I'm shivering because of the cold

There are probably other languages in which causal functions are divided between several cases. (Many grammars do not mention causal function, and it is sometimes difficult to gather full information.)

In at least one language – H1, Dyirbal – cause cannot be marked by a nominal suffix. One has instead to use a full subordinate clause. Rather than saying ‘his leg is sore from a snake’ (as one can in most Australian languages) one must instead say something like ‘his leg is sore from being bitten by a snake’ (literally, ‘being bitten by a snake, his leg is sore’).

5.4.6 *Comitative and privative*

The most frequently occurring markings for comitative include:

- dhirri* (and -*dhirr*, -*dhi*, -*yi*) in at least groups B, D, E, G, J, N, NBa, NBc, NBg (in NBc2, Ngalakan, comitative involves prefix *bata*- and suffix -*yi*?);
- dharri* (and -*djarra*) in WD, WJa1;
- garray* (and -*garra*, -*garri*, -*gi*) in H, Ma, Na, Nc, WJa (and note dyadic kin suffix -*garra* in WH – Dench 1997).

We also find -*wadjerri* in U1, -*wandji* in NBm.

Several of these forms may be related. There is a recurrent similarity to a verbal suffix *-*dharri* that generally has an intransitivising effect (reflexive and/or reciprocal, sometimes also passive and/or antipassive) – see §7.6 and §11.3.1. Indeed, even in languages with different suffix forms for these two functions, they can coincide, e.g. -*mi(rri)* in Ya, -*parri* in WGd, and WHa1 (Dixon 1980: 433).

Another comitative form that occurs over a fair geographical area is -*bil(a)* in H1, Nc, Nd, Ta.

As mentioned before, comitative can sometimes be used with a mild instrumental sense, e.g. ‘look with a light’ (Breen 1976a: 334). It was stated in §5.4.3 that instrumental function is generally marked by the ergative suffix. However, some prefixing languages have lost ergative (taking its instrumental sense with it). A new instrumental marker is needed. Heath (1978a: 77–9) describes how NBb2 and NBd2–3 have borrowed the comitative suffix -*mirri* from the neighbouring (non-prefixing) subgroup Y, and given it an instrumental meaning.

Comitative falls together with locative in WBa1 and WMa.

Almost all Australian languages have a privative nominal suffix ‘lacking, without’. It is often cognate with, and can develop from, other markers of negation. This suffix is discussed in the section on negation, §3.3.11.

5.4.7 Aversive

The aversive function can be a secondary sense of some other suffix. The possibilities include:

- locative in many languages, e.g. H, Mg, WJa2, NF;
- ablative, e.g. Ba, Ja, Mf;
- causal, e.g. W, WAa;
- dative/purposive, e.g. Eb2;
- allative, e.g. Ta1.

It is also common to find aversive involving an increment to some other case suffix, e.g.

- WD, locative+*tawarra* or locative+*marra* (dialect variations);
- WJa1, locative+*marra*;
- G1, locative+*bi*;
- Mg1, dative+*mbala* (on proper nouns and kin terms);
- WJb1, dative+*tjaku*;
- WJb3, dative+*ma*;
- W11, dative+*tj*;
- G2, historically comitative -*dji(rr)* plus locative -*da*.

Only a small number of languages have an aversive marker for which there is no obvious etymology in terms of some other cases, e.g. WK -*k(k)atjtji*; NHb2 -*faŋ*; NHb3 -*andi*. (An aversive function is a characteristic feature of Australian languages but one which has been overlooked by some grammarians, working from a eurocentric bias. As a result, information on the coding of aversive function is not available for all languages.)

Alongside the aversive inflection on nominals, many languages have a 'lest' inflection on verbs (e.g. 'don't go there LEST the policeman catch you'). Sometimes the 'lest' verb form involves the verb being nominalised and then taking the nominal aversive suffix (this happens in WK, Warumungu). In other languages, 'lest' is a verbal inflection, and it may be cognate with aversive case (there are examples in Blake 1993: 45–7). (In H1, Dyirbal, the 'lest' inflection on verbs, -*bila*, has the same form as comitative on nominals; in this language aversive function is covered by locative case.)

It will be noted that aversive is generally either the second sense of some other case, or has recently developed its own marking through an increment to another case. Indeed, the recognition of an aversive function, and the evolution of distinct aversive case marking, appear to be recent developments that have diffused across the whole Australian linguistic area.

5.4.8 Summary of relations between forms

It is clear that (leaving aside absolutive, which marks S and O functions and generally has zero realisation) there are three 'foundational' nominal cases in Australian

languages – ergative, locative and purposive. To these can be added comitative, as a marker of phrasal function.

Other clausal cases, and markers of function within a phrase, typically coincide with one of the foundational cases (shown on figures 5.2 – 5.4 by —) or are based on them (shown by $\longrightarrow$) or both (shown by $\Longrightarrow$). Dative and purposive most often fall together and it is convenient to consider them as a single unit. Figure 5.2 shows the relations between foundational cases, and between them and instrumental, genitive, allative and comitative; figure 5.3 deals with ablative and causal; figure 5.4 deals with aversive.

It should be noted that although the same form may be used for marking two of the fourteen syntactic functions, the functions themselves can still in most cases be distinguished. There are a number of ways in which this may be achieved.

In many languages, two functions that are marked in the same way on common nouns may be distinguished on pronouns, or on interrogatives or demonstratives, or on

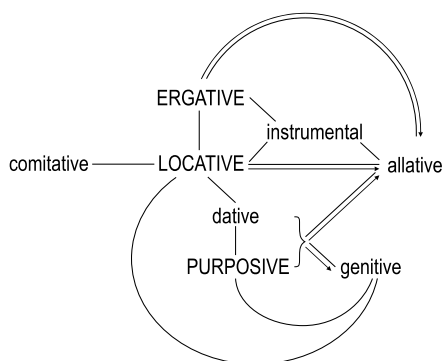


Figure 5.2 Relations between foundational cases, and between them and instrumental, genitive, allative and comitative

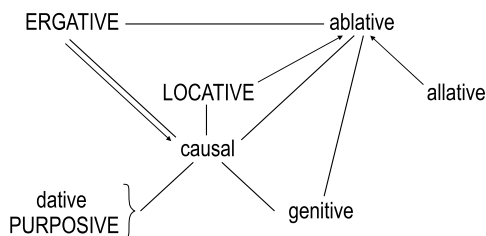


Figure 5.3 Relations between ablative and causal and other cases

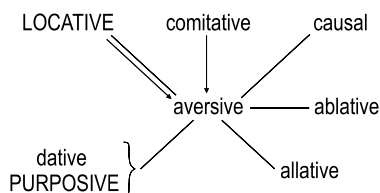


Figure 5.4 Relations between aversive and other cases

proper nouns. In Mg1, Gumbaynggirr, dative and allative are both marked by *-gu* on common nouns, but with kin terms and proper nouns allative is *-gu* and dative is *-ŋu/V-*, *-u/C-*. In H2, Warrgamay, we get:

	ergative	instrumental	locative	aversive
minja 'what'	-ŋgu	-lu	-ŋga	-la
vowel-final nouns	-ŋgu		-ŋga	

(Similar examples are mentioned in Dixon 1980: 296; 1972: 236.)

Other ways of distinguishing the two functions of a single suffix can relate to cross-referencing on the verb (e.g. an ergative NP will be cross-referenced, but not an instrumental); to inflection (e.g. in many languages only a noun with genitive marking may take a case suffix, not one with dative marking); or to syntactic operations (e.g. an antipassive or passive derivation may affect an ergative NP but not an instrumental NP).

5.5 Conclusion

The evidence points towards there having been a small number of nominal suffixes at an earlier stage of the Australian linguistic area – perhaps just our foundational cases (ergative, locative and purposive) plus comitative. Each of these could have had a wide functional range. Increments may have been added to the foundational cases to mark secondary functions; this would have been one way in which new clausal cases and markers of phrasal function developed.

Some modern languages which show a number of archaic characteristics include among these the practice of adding increments to foundational cases. Thus (a further example is found in W1b, Mangala):

(a) L1, Darambal (Holmer 1983) has (where H is a stop homorganic with the preceding consonant):

- locative: *-ŋa/V-*, *-Ha/C-*
- ablative: locative plus *-m*
- perlative: locative plus *-l*

(b) Ta1, Wemba-Wemba (Hercus 1986) has:

general oblique: *-ga/V-*, *-a/C-* (used for allative and aversive functions, and probably also for purposive – data are scanty)

- locative₁ ('on, direction towards'): general oblique plus *-l*
- locative₂ ('in'): general oblique plus *-da*
- ablative: general oblique plus *-ŋ*

(c) W1, Kalkatungu (Blake 1979a) has:

ergative/instrumental: *-ŋgu/V-* (two syllables); *-dhu/V-* (three or more syllables); *-Hu/C-*

- causal/aversive: ergative/instrument plus *-ŋu*

locative₁ ('at, in, on'): *-dhi/V-* (three or more syllables); *-biya* elsewhere

- ablative: locative₁ plus *-ŋu*

locative₂ ('facing, onto'): *-ŋii*

- allative₂ ('towards'): locative₂ plus *-nha*

purposive/dative/genitive: *-gu/C-*, *-(ya)/V-*

- allative₁ ('to'): purposive/dative/genitive plus *-nha*

It will be seen that in Kalkatungu the increments *-ŋu* and *-nha* each occur twice, to derive a secondary from a primary case form.

In this chapter I have attempted to provide an overview of the way NP functions are marked in Australian languages; it has been in some respects simplistic, and many details have been omitted. There are a multiplicity of odd correspondences between distant languages that have not been touched on. For instance, *-ŋarru* is the semblative suffix 'like a' in H1, Dyirbal (an entirely dependent-marking, non-prefixing language from the east coast), and also in NE1, Njigina (a head-marking, prefixing language from the west coast; Stokes 1982: 380–4). Is this formal/functional similarity a coincidence, or is it a common genetic inheritance, or is it evidence for some earlier geographical placement of languages? A thorough comparison of Dyirbal and Njigina reveals little else that is similar, beyond pan-Australian features. The same thing applies to the many other instances of isolated correspondences between geographically distant languages. There is unfortunately no evidence for subgrouping in these points of similarity. This is, in fact, what one would expect in a linguistic area that has been in a state of equilibrium for tens of millennia.

A feature of Australian languages is the recurrence of kinds of grammatical homonymy. These tend to apply even when the forms involved are non-prototypical. They include:

ergative and instrumental	dative and purposive
dative and genitive	dative and allative
ablative and causal	

All of these homonymies apply in other languages (from other parts of the world) and they all seem semantically appropriate, and intuitively right. The agent (ergative

case) wields an instrument. In English, *to* covers the Australian allative ('go to a place') as well as some senses of dative ('give it to the child') and also purposive ('go to get some eggs'), while *from* covers both ablative ('come from a place') and causal ('be tired from the walk'). Dative is used for the recipient of an action of giving ('give a basket to Mary') and genitive for the resulting relationship of possession ('Mary's basket').

Note that in Australian languages these are homonymies, not a single suffix with two senses. Although ergative and instrumental are generally marked by the same case form, the two functions can be clearly distinguished (only an ergative NP may be cross-referenced on the verb; only an instrumental NP may be brought into O function by an applicative derivation, etc.). But when ergative case is lost in a head-marking language with noun classes (see §10.7.1), it takes its instrumental homonym with it, and a new instrumental marker is developed. (In §5.4.6 we noted Heath's example of the comitative suffix *-mirri* from subgroup Y being borrowed into three languages of group NB as a new marker for instrumental function).

Aversive is a point of particular interest. All the evidence points towards this being a recent innovation across the continent. First of all, the CATEGORY of an aversive clausal function developed and diffused. Each language tended to mark aversive function in its own way – by adding it as an additional function to an established nominal suffix (locative, ablative, causal, dative/purposive or allative) or by adding an increment to an established suffix. Given more time (another millennium or two), the great variety in the ways of marking aversive in modern languages might reduce, as the case forms themselves diffuse across geographical regions.

At the beginning of this chapter I mentioned that core case functions are, as a rule, marked differently on pronouns, with one case form (nominative) for S and A functions and another (accusative) for O function. More frequently than nouns, pronouns tend to have different forms for genitive and dative/purposive (the latter is still predominantly shown by suffix *-gu*). In some languages pronouns have no further forms, while in others they may take the full set of non-core suffixes available for nouns (generally added to an oblique pronominal stem). Pronominal case forms are discussed in chapter 7.

Verbs

There are three main parameters of variation for verbs in Australian languages – compounding, transitivity and conjugation. In §6.3 we discuss compounding, whether a language has a large number of simple verbs, that take verbal inflections, or just a small number of inflecting verbs, each of which occurs in compounds with a number of non-inflecting verbal forms, that I call coverbs. §6.4 discusses valency-increasing derivational suffixes on verbs (and verbalising suffixes on nominals) and how they may have evolved.

In most Australian languages each verb belongs to one of two transitivity classes – strictly transitive and strictly intransitive; this is discussed in §6.1. In over 70 per cent of the languages there is an independent parameter – a set of between two and a dozen or more conjugational classes. Each verb takes the inflectional allomorphs appropriate to one (very rarely, more than one) conjugation class, as discussed in §6.5. There is generally a correlation – but not a correspondence – between conjugation class and transitivity; that is, most of the members of a given conjugation class have a certain transitivity value. Only in a handful of languages has conjugation come to coincide with transitivity.

The varying techniques which Australian languages employ for adverbial modification of a verb are briefly mentioned in §6.2. In §6.6 we discuss the transference of nominal inflections onto verbs (through an intermediate stage of nominalisation). Finally, §6.7 briefly covers verbless clause types, and copula verbs.

6.1 Transitivity

Leaving aside verbless and copula clauses (which will be discussed in §6.7) every clause in an Australian language is of one of the following types:

intransitive – with one core argument, in S function.

transitive – with two core arguments, in A and O functions.

(Some minor exceptions to this generalisation will be mentioned below.)

Verbs thus fall into the following possible classes:

- (1) Strictly intransitive – verbs that may only be the head of a predicate in an intransitive clause.

- (2) Strictly transitive – verbs that may only be head of a predicate in a transitive clause.
- (3) Ambitransitive – verbs that may function in an intransitive or in a transitive clause.

It is important here to distinguish the two varieties of ambitransitives:

- (3a) S = A type, where the S of the intransitive clause corresponds to the A of the transitive (e.g. ‘I_S have eaten’/‘I_A have eaten lunch_O’).
- (3b) S = O type, where S corresponds to the O of the transitive (e.g. ‘the cups_S broke’, ‘I_A broke the cup_O’).

(There may be a third type of ambitransitive, the ‘reflexive’ type, where the S of the intransitive relates to a situation in which A and O are coreferential – compare ‘John_A shaved me_O’ and ‘I_S shaved (sc. myself)’.)

In most Australian languages it is an easy matter to determine the transitivity of a clause (even if, say, one core NP is omitted) and hence the transitivity of the verb in the clause. As discussed and exemplified in §3.3.5, in a prototypical dependent-marking language we get cases assigned as follows:

PRONOUNS		NOUNS
nominative	A	ergative
nominative	S	absolutive
accusative	O	absolutive

Suppose that in Dd1, Guugu Yimidhirr, we have a sentence:

- (1) *bidha* *diiŋa-l*
 child+ABS laugh-NON.PAST

Now *bidha* is in absolutive case (marked by zero inflection) which covers S and O functions. It could be the O NP in a transitive clause, with the A NP omitted, or it could be the S NP in an intransitive clause. We can decide between these alternatives by substituting a pronoun for *bidha*, say 1sg. The form required is *ŋanhi*, the accusative (and not *ŋayu*, the nominative), i.e.

- (2) *ŋanhi* *diiŋa-l*
 1sgO laugh-NON.PAST

From this we see that *bidha/ŋanhi* is in O function, that ‘laugh’ is a transitive verb in Guugu Yimidhirr (better glossed as ‘laugh at’) and that (1) and (2) are transitive clauses with the A NP omitted, meaning ‘(someone) laughed at the child/me’.

When there is pronominal cross-referencing this also clearly indicates the transitivity value of a clause since there are generally different cross-referencing forms for the core functions. And there can be other criteria as well. In many languages a predicate can involve several verbs providing that they agree in final inflection and

in transitivity. Thus, for instance, a verb in antipassive form can be seen to be a derived intransitive from the fact that it may occur with an (underived) intransitive, not with an (underived) transitive (for an example see Dixon 1972: 150).

The typical transitivity pattern for Australian languages is that reported by Rumsey (1982a: 80) for NG2, Ungarinjin, where every verb 'is rigidly specified as either transitive or intransitive', i.e. there are no ambitransitives. This applies to the great majority of languages, both of the prefixing and non-prefixing types. There are, however, two varieties of exceptions – three kinds of exceptions within languages that are basically of the prototypical pattern and some exceptional languages.

The first kind of exception (within a language of the prototypical type) is that there may be just a few verb roots that can function either transitively or intransitively. In languages with conjugations, such a root almost always belongs to different conjugations for the two transitivity values. Thus in H1, Dyirbal, there are five known ambitransitives, including:

TYPE	INTRANSITIVE	TRANSITIVE
S = O	ŋaba-y 'bathe'	ŋaba-l 'immerse (something) in water'
S = A	wiyama-y 'do what'	wiyama-l 'do what to (something)'
reflexive	giba-y 'scratch (self)'	giba-l 'scrape, trim'

See also Donaldson (1980: 168–9) on Nc3, Ngiyambaa.

Only very occasionally do we find a language with conjugational classes that has an ambitransitive verb which takes the same conjugational allomorphs for both its transitive and intransitive functions; Morphy (1983: 62) mentions such a verb for Ya1, Djapu – *waŋa-ø* 'talk' (intr) and 'say [something]' (tr); it is of type S = A.

At least forty Australian languages make no conjugational distinctions. In most (or perhaps in all) cases the erstwhile conjugational classes have simply fallen together through various sorts of change (discussed in §6.5.3). Some of these languages have a small set of ambitransitive verbs which necessarily take the same inflectional forms in transitive and intransitive clauses. These include:

- (a) The languages in NE, the Fitzroy River subgroup, have up to 150 simple verbs with about 20 of these being ambitransitive, apparently all of type S = O, e.g. *gurla-* 'tie (tr), get tied, get dressed (intr)'; *marra-* 'burn, cook (tr), be affected by heat, be aflame (intr)' (see Stokes 1982: 255–6; Hosokawa 1991: 123–4; McGregor 1996: 39).
- (b) For W1, Kalkatungu, Blake (1979a: 51) reports just two ambitransitive verbs, both of type S = O: *manil-* 'burn (intr/tr)' and *artil-* '[rain] falls (intr), lay egg (tr)'.
- (c) For V, Baagandji, Hercus (1982: 183) notes a handful of ambitransitive verbs, apparently of type S = A, including 'eat', 'drink' and 'speak'.

- (d) For NB12, Wardaman, Merlan (1994: 205) mentions one ambitransitive verb, *yana-* ‘say, do’, of type S = A.
- (e) For WL1, Arrernte, Wilkins (1989: 224) reports two ambitransitives, both of type S = A: *amp-* ‘[fire, etc] burns (something)’ and *wərn-* ‘[wind] blows (something)’.

It will be seen that ‘burn’ (type S = A) and ‘speak, say’ (type S = O) recur in these short lists.

In languages that make much use of complex verb constructions, a given coverb may be assigned different transitivity values by combination with simple verbs of varying transitivity, e.g. NBm, Alawa (Sharpe 1972: 102–3), and NBc2, Ngalakan (Merlan 1983: 135); this is discussed in §6.3.

The second kind of exception involves unusual case frames. Austin (1981a: 116–17, 1982) describes how in WAb2, Diyari, there are six verbs (‘speak’, ‘lie, sleep’, ‘dance’, ‘play’, ‘wear’ and ‘be painted’) which take an S argument and also what Austin calls a ‘cognate object’ NP (although in fact the forms of the nouns are not cognate with the respective verbs, unlike in English and other languages where we do find actually cognate objects, e.g. *He sang a (pretty) song, I dreamt a (most frightening) dream*). For example:

- (3) *thana* [pukartu wima]_O kirli-rna wanhthi-yi
 3plS ochre corroboree dance-PARTICIPLE AUXILIARY-PRES
 they danced the ochre corroboree

The odd thing about (3) is that, by an army of syntactic tests, *thana* is in S and *pukartu wima* is in O function. This construction is only found when the referent of the O NP ‘shares some semantic content with the verb’.

Mf, Bandjalang, has a set of eight transitive verbs that take an A NP but cannot include an O NP, e.g.

- (4) [mali-yu dandaygam-bu]_A yarbi-ni
 THAT-ERG old.man-ERG sing-PAST.DEFINITE
 that old man sang (a song)

The verbs that behave in this way are ‘sing’, ‘dance’, ‘yawn’, ‘urinate’, ‘defecate’, ‘smoke [cigarette]’, ‘make [noise]’ and ‘put on [clothes]’. As Crowley (1978: 107) remarks, these verbs refer to ‘very specific actions associated with the body in various ways. Since the action is so specific, for each of these verbs there is only one possible object’. Note that Bandjalang has an antipassive derivation that only applies to transitive verbs, putting the underlying A NP into S function and adding *-li/-le-* to the verb. The derivation does apply to this set of verbs, supporting Crowley’s claim that the single core NP is in A function.

The interesting point is that verbs from the unusual sets in Diyari and in Bandjalang correspond semantically to verbs in English that take a cognate object (in some cases, this may be the only type of object that they take, e.g. *yawn*). In each language there is an unusual syntactic pattern but it is totally different in the two instances. In Bandjalang there is a transitive verb with an A NP but no possible O NP (where one would be expected) and in Diyari there is an intransitive verb with an S NP and also an O NP (where one would not be expected).

The third kind of exception is that in some languages (with a basically prototypical profile) there are a few verbal roots that can occur in a transitive construction, with A and O arguments, or in an intransitive construction but still maintaining the same arguments – the erstwhile A is now S and the original O argument is placed in dative case (what is sometimes called a ‘middle’ construction). There is a semantic difference – the middle downgrades the importance of the underlying O, perhaps indicating that it is only potentially involved in the activity. Thus in Ya1, Djapu, *nhaa-NG* is ‘see’ in a transitive frame and ‘look for’ in a middle one; and *bu-M* is ‘hit’ and ‘hit at’ respectively (Morphy 1983: 38, 62–3). In W1, Kalkatungu, the verbs ‘eat, drink’ and ‘cook’ behave in a similar way (Blake 1979a: 27–8, 44).

Languages of subgroup WJ show a number of variants on this pattern. Besides the transitive construction type (with A marked by ergative and O by absolutive case on nouns) and the intransitive construction (S marked by absolutive) there is a further construction type – applying to just a few verbs – with A still marked by ergative and O by dative. In WJa1, Walmatjarri, only seven verbs are reported in the third construction type, including ‘wait for’ and ‘search for’. Just three of these verbs may also occur in an intransitive frame – ‘cry (for)’, ‘laugh (at)’ and ‘climb (for)’ (Hudson 1978: 20–1, 52). In WJa2, Djaru, a handful of verbs may occur in a normal transitive frame (ergative plus absolutive) or in an ergative–dative frame, with a meaning difference similar to that described for Djapu in the last paragraph, e.g. ‘hear’ (ERGATIVE–ABSOLUTIVE), ‘try to listen to’ (ERGATIVE–DATIVE); and ‘touch’ (ERGATIVE–ABSOLUTIVE), ‘try to touch, feel for’ (ERGATIVE–DATIVE) (Tsunoda 1981: 149). There is a similar alternation in WJb1, Warlpiri; see, among other sources, Simpson (1991).

Finally, we can take a look at those languages where the whole transitivity system is exceptional, when compared to the Australian norm. Languages of WHc, the Ngayarta group, have developed from an ergative(A) / absolutive(SO) to a nominative(AS) / accusative(O) pattern in case marking. The old absolutive (with zero marking) is the new nominative and the old dative (marked by *-ku*) is the new accusative. But *-ku* is also maintained as dative, and a dative NP can optionally be added to many basically intransitive clauses. Whereas in a prototypical Australian language it is an easy matter to distinguish between intransitive and transitive clauses, in the newly accusative Ngayarta languages the two clause types are not clearly distinguishable. That is, it can be hard to tell whether nominative and dative NPs represent A and O in a transitive construction,

or S and an optional peripheral argument in an intransitive. For WHc3, Panyjima, Dench (1981: 92; 1991: 167) identifies about fifteen verbs as being ambitransitive of type S = A (maintaining the same conjugation membership) – these include ‘cry (for)’, ‘dig (for)’, ‘wait (for)’. Panyjima also has half-a-dozen verbs that may occur in different conjugations with a transitivity contrast. All but one of these show an S = O correspondence, e.g. ‘swim’ (intr) and ‘wash’ (tr); ‘be cooking’ (intr) and ‘cook, burn’ (tr); the other appears to be of type S = A: *purranja-ø* ‘smile (at)’ (intr), *purranja/l* ‘like’ (tr). Interestingly, one verb occurs in both sets – we get the S = A pair (in the same conjugation) *tharrpa-ø* ‘enter’ (intr) and ‘enter in’ (tr) and also the S = O pair (in different conjugations) *tharrpa-ø* ‘enter’ (intr) and *tharrpa-l* ‘put in’ (tr).

Some languages of the Tangkic subgroup, NA, have also adopted an accusative profile with a similar result – there are a number of ambitransitive verbs, all apparently of S = A type (Evans 1995a: 339–44). The relative unimportance of transitivity in these languages is shown by the fact that a predicate may combine verbs of different transitivity values (Evans 1995a: 345–6), whereas in most languages they must agree in transitivity.

Perhaps the most extreme variation from the prototypical pattern is found in H2, Warrgamay, where what was a derived antipassive construction has been reinterpreted as the standard intransitive construction type which is now available for (probably) all transitive verbs. We thus find two classes of verbs – intransitive, which may only be used in an intransitive clause frame, and ambitransitive, which can be used in either a transitive or an intransitive frame, with S = A identification. Interestingly, Warrgamay has undergone a further change, whereby conjugation classes now coincide with transitivity classes; all intransitive verbs make up a Y class and all ambitransitives an L class. This is further discussed in §6.5.3 and §11.4 (and see Dixon 1981a, b).

6.2 Manner adverbs

All Australian languages have locationals (e.g. ‘near’, ‘east’, ‘uphill’) and temporals (e.g. ‘tomorrow’, ‘soon’, ‘all the time’), some or all of which may take local case markers (see §5.1.4).

There is always some way of indicating the manner of an action, although the grammatical mechanisms that are used vary. A few languages have a derivational suffix which forms a manner adverb from an adjective or a noun. These include *-wa* in NG2, Ungarinjin (Rumsey 1982a: 126); *-mala* in V, Baagandji (Hercus 1982: 232–3); and *-li* in WAa3, Arabana, e.g. *tjirka-li* ‘happily’ from *tjirka* ‘happy’. The Arabana suffix can be added to a whole phrase, e.g. (Hercus 1994: 213–16):

- (5) [wimpa ŋuyu-li] anari yuka-rnrda
 track one-ADVERBALISER THIS.WAY come-PRES

[he] is coming this way leaving only one track (i.e. he came, but didn’t go back) (lit. he is coming this way one-track-ly)

In most Australian languages manner adverbs are unanalysable particles which take no inflection, and have similar grammatical function to 'not', etc.; this is found in – among other languages – Yc1, Djinang (Waters 1989: 129–30), NBc2, Ngalakan (Merlan 1983: 123), NBI2, Wardaman (Merlan 1994: 591–60, 165), and NL, Tiwi (Lee 1987: 134–8). However, in the Yankuntjatjarra dialect of WD, the Western Desert language, adverbs do agree in inflection with the S or A argument, e.g. '[man-ABSOLUTIVE quickly-ABSOLUTIVE] go-PRESENT', for 'the man is going along quickly' and '[man-ERGATIVE quickly-ERGATIVE] bring-PRESENT' for 'the man is bringing [it] quickly' (Goddard 1985: 57). Here, adverbs function like a kind of nominal modifier.

In other languages adverbs are treated like a kind of verb. In NAb2, Yukulta, an adverbial stem may be derived from an adjective by adding *-la-*, and must then take intransitive suffix *-tja* or transitive *-tha*, to agree in transitivity with the main verb, e.g. from *mirra* 'good' we get *mirra-la-tja* '[dance] well' and *mirra-la-tha* '[throw] well' (Keen 1983: 226).

In NAb1, Kayardild, some main verbs may have a secondary function, modifying another verb, e.g. *kurulu-tha* means 'kill' when used as a main verb but 'do hard, intensely' when used in apposition to a verb describing some impact (Evans 1995a: 307).

Some languages have an extensive set of 'adverbals' which are essentially verb roots with an adverbial-type meaning. They generally occur with a main verb (although they could occur alone when the nature of the activity is understood from context) and agree with the main verb in transitivity and in TAM inflection. H1, Dyirbal, has about forty adverbals of this type. Five of these are S = A ambitransitives, e.g. *ginda-y* (intr), *ginda-l* (tr) '[do] with the aid of a light, at night' and *bulumba-y/l* (intr/tr) '[do] for no reason'; nine are intransitives, e.g. *gurrma-y* 'take a long time over [doing]', and the remainder are transitive, e.g. *dunga-l* '[do] to insufficient degree (e.g. don't say enough, don't eat enough)'. If an intransitive adverbial is used with a transitive main verb (or vice versa) then a derivational process must be applied to one of them, bringing it into the same transitivity value as the other. For instance, (6) involves the transitive adverbial *gudi-l* '[do] too much, [do] more than is appropriate' and intransitive verb *bungi-l* 'lie down, sleep'; *gudi-l* takes the derivational suffix *-yirri-y*, which is basically reflexive but here functions just as an intransitiviser:

- (6) galga bungi-m gudi-yirri-m
 DON'T sleep-NEG.IMP do.too.much-REFL-NEG.IMP
 don't sleep too much! (said to a newly married woman, warning her
 that – in tribal belief – women who sleep too much are most likely to
 get pregnant)

And (7) involves intransitive adverbial *gurrma-y* 'take a long time over [doing]' plus transitive verb *djanga-y* 'eat'. Here the main verb is made intransitive, by the addition

functions the marking of reflexive (as a derived intransitive). Where it has been lost, languages have innovated reflexive pronouns (generally filling O slot in a transitive clause), on a language-particular or subgroup-particular basis; see §7.6.

Each language has further derivational suffixes. Another recurrent form is transitiveiser *-ma-*, which has developed from simple verb *ma-l* 'do, make, tell' or from *ma:-nj/n* 'hold, take, get' (items (34) and (23) in §4.2.7). Additional derivational processes can engender a shift in transitivity, or in predicate arguments (e.g. applicatives), or can mark associated motion (e.g. 'coming', 'going'), or can have some other adverbial-type meaning (e.g. 'do quickly', 'begin to do'). Most derivational affixes differ from language to language both in form and in meaning, suggesting that they developed separately, in individual languages or subgroups (there may have been a little local diffusion). They are discussed in §§6.4.1–2.

Almost every Australian language has an inflectional system that applies to a simple verb after all derivational processes; just one term must be chosen from this system. It covers tense and/or aspect, modalities such as purposive (and sometimes irrealis), and imperative mood. A nominalising suffix and/or suffixes that mark types of subordinate clauses may also feature in the system.

Languages which have developed prefixes still maintain structure (9) and just add prefixes to it. They generally have some derivational suffixes (many retaining a reflex of **-dharri-*) and also a final TAM inflection. Most prefixing languages also include TAM information in the prefixes, so that the overall tense/aspect/modality of a clause is inferred from a combination of information in prefixes and in the final inflectional suffix.

Some languages allow a predicate to include two (or more) simple verbs, agreeing in final inflection and generally also in transitivity, e.g. 'fly' plus 'ascend', giving an overall meaning 'fly up'. This is a quite different matter from complex verbs, as the term is used in this book.

In some languages almost all clauses (on a text count) involve just a simple verb. In other languages a simple verb is used alone in only a minority of clauses. As described in §3.1.3, in the majority of clauses a simple verb is accompanied by one (or more) non-inflecting coverbs. I term this combination a 'complex verb'.

(10) COMPLEX VERB STRUCTURE

one (or more) coverbs + one simple verb

The simple verb is as described above, taking derivational and inflectional suffixes and (in a prefixing language) prefixes. In most languages a coverb can take no affixes at all. In a few it may be followed by an aspectual-type enclitic, and in a very few it can be preceded by a negative or aspectual proclitic.

However many simple verbs there are in a language, normally only a small number of them occur freely in complex verbs. There are generally several hundred coverbs.

A given coverb is likely to cooccur with several different simple verbs; and each simple verb will combine with a fair number of coverbs.

Basically, the simple verb has a broad, generic meaning, and a coverb adds further specification to this. In NE1, Yawuru, for instance, the simple verb *-ga-*, used alone, has the general meaning 'carry'. This meaning is made more specific by adding a coverb, e.g. (Hosokawa 1991: 218):

(11)	ɲanjbi -ga-	'carry, holding under the arm or by the side of the body'
	ɲanjɖja -ga-	'carry in the mouth (as a dog does)'
	muluk -ga-	'shift'
	wirrb -ga-	'oppose (carry grudge against someone)'

Most coverbs only occur in complex verbs, and their meanings have to be inferred from the meanings of the combinations in which they occur. Consider the following examples from NB12, Wardaman (Merlan 1994):

	COMPLEX VERBS		SIMPLE VERBS	
(12)	yirrb(a) -we-	'fall down (from)'	-we-	'fall, be born, die'
	yirrb(a) -me-	'take off, remove'	-me-	'get'
(13)	ɲabɲab -bewe-	'wobble about'	-bewe-	'tread'
	ɲabɲab -bu-	'waver, shoot and miss'	-bu-	'hit'
(14)	wirrinjma -gi-	'turn'	-gi-	'put'
	wirrinjma -ya-	'be/get dizzy'	-ya-	'go'

One can perceive a meaning element common to each pair of complex verbs. In (12), with coverb *yirrb(a)*, there is the idea of something moving from the place to which it was attached or in which it was placed. In (13), with coverb *ɲabɲab*, there is the idea of unsteadiness. And in (14), with coverb *wirrinjma* there is the idea of rotation.

Some investigators have taken the meaning of a simple verb when used alone as basic, and assumed that it brings this meaning to all complex verbs in which it is involved. This is an unwarranted assumption. As suggested in §3.1.3, one should examine the complex verbs involving a given simple verb, and see what meaning (or meanings) recur. (The procedure is followed by Schultze-Berndt 2000 in an important study of NCa1, Djamindjung.)

The complex verbs involving *-ga-* in Yawuru, given at (11), were carefully chosen so that the basic meaning of *-ga-*, 'carry', was clearly a component (although only metaphorically in 'oppose'). However, other complex verbs with *-ga-* are less semantically transparent, e.g. (Hosokawa 1991: 218):

(15)	wirrp -ga-	'smash, hit hard'
	mardalj -ga-	'make noise, be noisy'
	darayim -ga-	'try' (the coverb <i>darayim</i> is a loan from English <i>try him</i>)

These examples have illustrated the semantic variability in complex verbs. Sometimes the simple verb states a generic meaning (although not necessarily exactly the same meaning as when used alone) with the coverb providing further specification of this. Sometimes the coverb appears to provide all the meaning, with the simple verb being, effectively, a dummy to carry verbal suffixes (a bit like a copula verb in a copula clause). Other times, the complex verb has an idiosyncratic meaning, which cannot be related to the meaning of either component in other combinations (or of the simple verb when used alone).

The first type of complex verb can be considered to consist of two lexemes, linked together grammatically in a complex verb construction. In the last type we have to consider the whole construction as constituting a single lexeme, since its meaning cannot be inferred from the meanings of its parts. Each of the complex verbs in (15) should be considered a single lexeme (a single dictionary entry) which consists of two grammatical words (just like phrasal verbs in English, such as *make up* and *take over*).

Languages that have a multiplicity of complex verbs include some of the prefixing and some of the non-prefixing type. In NBI2, Wardaman, in ND2, Miriwung, and in NE2, Njul-Njul, the coverb occasionally follows the simple verb, although generally it precedes it. In NHb and NHd the coverb generally follows the simple verb although it can precede it. In NKa1, Mawung, the coverb always comes last. These are, however, unusual cases. In most languages the coverb must come first; in the discussion below it can be assumed that this is the case, unless another specification is given.

In some languages other words can come between coverb and simple verb. In others nothing can intervene, but coverb and simple verb still maintain the status of separate phonological units. In a further group of languages coverb and simple verb make up one phonological unit, with assimilations, etc. applying at their boundary. There is, of course, a rough correlation between semantic unity and phonological unity – those languages in which coverb and simple verb make up one phonological word are those in which the meanings of the components have become less recognisable. Eventually, the two parts fuse – phonologically and semantically – and form a single unanalysable verb root; see §6.3.2.

When prefixing develops in languages with complex verbs, it can take one of two paths. When coverb and simple verb maintain the status of separate words, the coverb retains its independent nature (with no affixes) and the prefixes are added to the simple verb. That is:

(16)	coverb	simple.verb+suffixes >
	coverb	prefixes+simple.verb+suffixes

But in some languages coverb and simple verb had already combined to become one unit before prefixing developed. The prefixes were added to the beginning of the combined word:

- (17) coverb+simple.verb+suffixes >
 prefixes+coverb+simple.verb+suffixes

A few languages – for instance, NBa, Mangarrayi – combine these two possibilities, with some coverb+simple.verb tight combinations, to which prefixes are added, and a larger number of coverbs that occur as separate words, outside a prefixes+simple.verb+suffixes unit.

These options are further discussed, and illustrated, in §9.1.

A number of labels have been used, in the Australianist literature, for what I call coverb and simple verb. Coverbs have been referred to as preverbs, prestems, main verb (stems), complex verb stems, lexical verbs, (verbal) particles, participles and verbal nouns. Simple verbs have been referred to as finite verbs, inflecting verbs and auxiliaries. This last term is liable to cause confusion since ‘auxiliary’ is also used for a constituent consisting of modal element plus bound pronominal enclitics in languages such as WJb1, Warlpiri (illustrated at (31) in §8.6.3). I employ ‘auxiliary’ in the latter sense in this book.

Languages that show a propensity for complex verbs generally include several hundred coverbs. Some of these occur only as coverbs, while others may also function as nominals or as adverbs. These possibilities can be illustrated for WJa1, Walmatjarri (Hudson 1978: 46–7):

- (18) coverb *para* only occurs with an immediately following simple verb, as with *ya-n* ‘go’ in *para ya-n* ‘climb’
- (19) *pina* ‘ear’ functions as a noun and as a coverb, as with *karri-ø* ‘stand’ in *pina karri-ø* ‘listen to, hear’
- (20) *yap* ‘out of sight’ functions as an adverb and as a coverb, as with *ka-ŋ* ‘carry’ in *yap ka-ŋ* ‘carry out of sight’

(In just a few languages, some forms function either as coverb or as simple verb.)

Most coverbs are language- or subgroup-specific (except when a noun with wide distribution is used as a coverb, as is *pina* in (19)). In contrast, the simple verbs that occur with coverbs show remarkable similarity across the continent. For instance, *ga-/ka-* ‘carry’ occurs in (11) and (15) from Yawuru and in (20) from Walmatjarri (it is item (15) in §4.2.7).

6.3.1 Types of verbal organisation

We can now survey the typology of Australian languages in terms of simple verbs and complex verbs. Note that it is only possible to place a language in this typology if

there is good information on the grammar and on several hundred verbs. This information is lacking for most languages from the south-east and the south-west, and for quite a few in other regions.

Like most parameters in Australian linguistics, this typology is largely on an areal basis. We can first examine the most extreme pattern, which is found in one geographical block, and then look at other patterns which radiate from it. Map 6.1 shows the occurrences of Types (a–e) and (g) in the west and central northern region where complex verb constructions predominate.

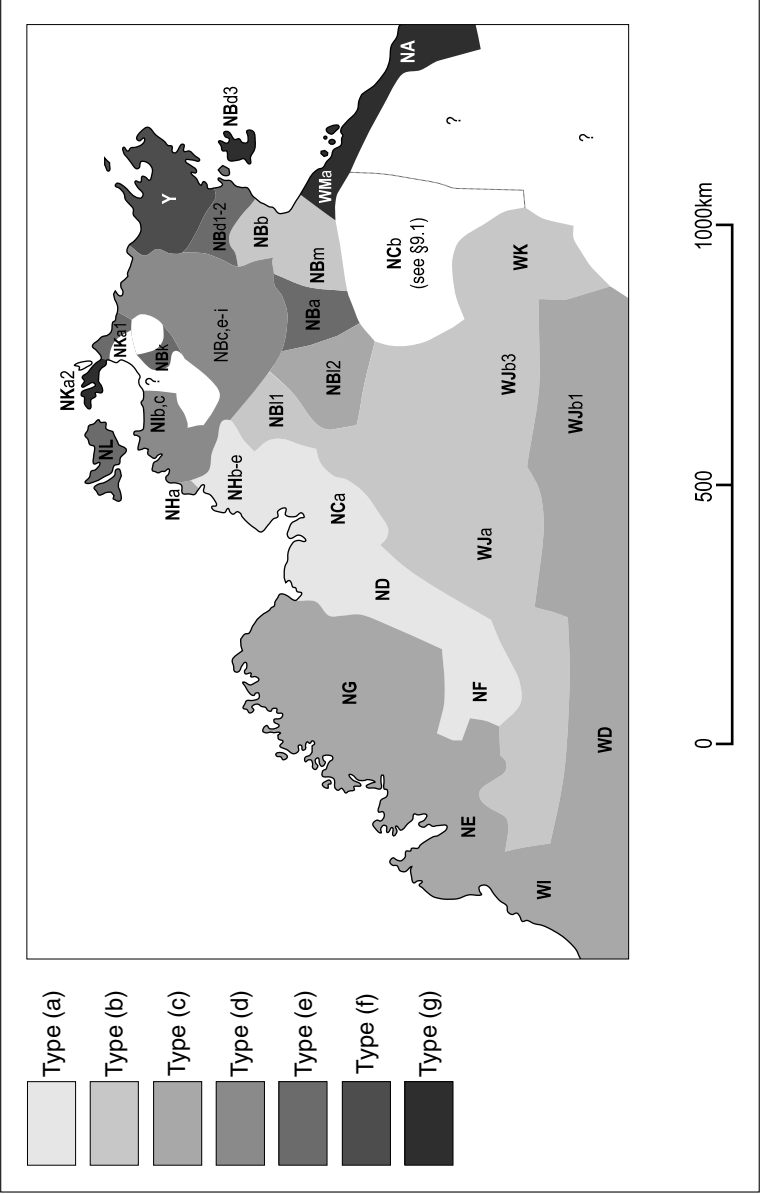
Type (a). Just a few simple verbs (generally from five to about thirty) and many coverbs. All simple verbs occur with coverbs, making up complex verbs, which are much more common than simple verbs in texts. Type (a) is found in the contiguous groups of NF, ND, NCa and NHb–e. These are all prefixing languages, and NF and ND show a high degree of fusion. The groups are discussed one at a time.

(*a-i*) In languages of NF, the South Kimberley subgroup, there are just a dozen simple verbs. Pronominal prefixes and reflexive and TAM suffixes are tightly fused with the simple verb, so that it is now difficult to segment out morphemes. In NF2, Guniyandi, all simple verbs must occur with a coverb but in NF1, Bunuba, four of them may occur alone (particularly *-ma-* ‘do, say’ which is often used to frame direct speech). The coverb may optionally be followed by an aspectual (e.g. ‘accomplished’) or modal (e.g. ‘repetition’) marker, and must then be immediately followed by the simple verb.

(*a-ii*) In the ND subgroup, ND1, Kitja, is adjacent to NF, with ND2, Miriwung, being further away to the north-east. Each language has between eighteen and twenty simple verbs; each simple verb in Miriwung and every verb bar two in Kitja can occur on its own or with a coverb. The coverb generally comes first but just occasionally follows the simple verb, for pragmatic reasons (Frances Kofod, p.c.). In Kitja, as in NF, a coverb can take a suffix marking aspect or modality (e.g. irrealis) or number of S or O (number may be marked by a suffix, or by a suppletive stem, or by full or partial reduplication). It appears that the coverb in Miriwung takes no affixes.

In each language, simple verb and TAM suffix are combined into a portmanteau form, showing a highly developed fusional character – see (39) in §6.5.4. Unlike NF, pronominal prefixes to the simple verb are segmentable. This suggests that prefixing spread to ND after fusional reduction, whereas in NF fusion applied after prefixing was established.

(*a-iii*) In NCa, the West Mindi subgroup, there are between fifteen and twenty-two simple verbs that take (segmentable) pronominal/TAM prefixes and TAM suffixes. All simple verbs occur in complex verb constructions with an immediately preceding coverb, which takes no affixes. In the Djamindjung dialect of NCa1 there



Map 6.1 Types of verbal organisation in the west and central north

are two simple verbs that may only occur with a coverb; all other simple verbs may also occur alone.

In the genetically related NCb subgroup, spoken in a discontinuous territory to the east, an erstwhile coverb is now encliticised by what appears to be the relic of an inflected simple verb; this has no root – it consists of pronominal prefixes (cognate with those in NCa) and a portmanteau suffix combining tense with directional information ('coming'/'going'/neutral). See the discussion in §9.1 below.

(a-iv) The NH small areal group is situated to the north-west of NCa. Languages in subgroups NHb–e have a small set of simple verbs – only five are reported for NHe1, Matgele; six for NHc, Malak-Malak; fifteen for NHe2, Kamu; between twenty and thirty for languages in subgroup NHb; thirty-two for NHd2, Ngan.gi-tjemerri; and between thirty-five and forty for NHd1, Murrinh-patha. All of these combine with a variety of coverbs, to form complex verbs, and in each language just some of the simple verbs may occur alone, without a coverb.

In these languages prefixes to the simple verb carry pronominal information concerning S or A, plus TAM data, while there are pronominal suffixes referring to the object. The coverb may take suffixes for number and/or TAM (in NHc it may also take one of three prefixes, 'elsewhere', 'together' and 'still'). The coverb precedes the simple verb in NHc and NHe but generally follows it in NHb and NHd (there is some variation in one dialect of NHd2). Reid (ms.) describes how in the data on NHd2, Ngan.gi-tjemerri, recorded around 1930 by Laves (ms.), simple verb and coverb appear to have been separate words but today they are treated as a single complex word.

It is normally the case that transitivity is associated with a simple verb, and not with a coverb (although in a few languages a simple verb may have different transitivity in complex verbs from that which it has when used alone – see Hosokawa 1991: 208 on Yawuru). However, for some of the languages in subgroups NHb–e and NCa – and also in NB11, Wagiman, a language of Type (b) – both coverbs and simple verbs have been characterised as 'intransitive' or 'transitive'. Generally, coverb and simple verb in a complex verb will agree in transitivity, but there can be some mixed combinations. In NHb1, Emmi, for example, a transitive coverb with a non-punctual meaning may occur with an intransitive simple verb, which then takes on an aspectual meaning, e.g. intransitive simple verb *-na-* normally means 'walk' but with a transitive coverb it can convey an iterative ('do repeatedly') or progressive ('keep doing') sense. And a transitive simple verb can be used with an intransitive coverb, then having causative-type effect, e.g. intransitive coverb *gurr-gurr* 'sleep' plus transitive simple verb *-din-* 'shove' produces a complex verb meaning 'put to sleep' (Ford 1998: 180–98). See also Reid (1990: 220ff) on NHd2, Ngan.gi-tjemerri; Schultze-Berndt (2000) on NCa1, Djamindjung; and Wilson (1999) on NB11, Wagiman.

Type (b). Between thirty and sixty simple verbs and many coverbs; the simple verbs occur with coverbs, making up complex verbs, which are many times more common in texts than simple verbs used alone.

(*b-i*) Immediately to the south of Type (a) groups NF, ND and NCa, are the non-prefixing languages of subgroup WJa. These are of Type (b), with between thirty and fifty simple verbs; coverbs take no affixes. McConvell (ms.-a) distinguishes 'weak nexus', where the meaning of the complex verb relates to the meaning of its parts, and the coverb may occasionally follow the simple verb, from 'strong nexus', where the combination has an idiomatic meaning and the coverb must come immediately before the simple verb. Just in WJa2, Djaru (contiguous with NF2 and ND1), coverb and simple verb in a strong nexus are on the way towards becoming fused, with assimilation rules applying across the boundary (e.g. a nasal becomes a stop after a stop, as in *bib man*- 'pick get' > *bib ban*, Tsunoda 1981: 177–8).

(*b-ii*) To the south-east of WJa we find WK, Warumungu, with about fifty simple verbs, just thirteen of them feature heavily in compounds; and WJb3, Warlmanpa, with about forty-three simple verbs.

(*b-iii*) For NB11, Wagiman, a prefixing language to the north-east of NCa, around forty simple verbs were recorded, plus many coverbs. A coverb may be followed by an aspectual suffix, the nominal dual suffix, or a negative imperative suffix (cognate with the privative suffix on nominals).

(*b-iv*) In NBm, Alawa – separated from NCa and WJ by NB12 and NBa, discussed under (c) and (e) below – there are thirty simple verbs and many coverbs, which must immediately precede the simple verb.

(*b-v*) Languages of the NBb subgroup, next to NBm, have thirty-three to thirty-eight simple verbs and several hundred coverbs. All the simple verbs occur with coverbs and some of them may also be used alone, with no coverb. Coverbs may take proclitics indicating negation and applicative; in the absence of a coverb these are added to the simple verb, before pronominal prefixes.

Type (c). A hundred or more simple verbs; just a selection of the simple verbs occur with coverbs, making up complex verbs, which are much more common than simple verbs used alone in texts.

This type is found in the next geographical layer: in prefixing languages NE and NG to the north of Type (a) – and in NHa and NB12 – next to Type (b); and in non-prefixing languages such as WI, WD and WJb1, to the south of Type (b).

(*c-i*) Languages of NE, the Fitzroy River subgroup, each have several hundred coverbs and between eighty and a hundred simple verbs, about a dozen of which are commonly used with coverbs to make up the complex verbs that predominate in texts. Here the simple verb has a pronominal subject prefix and an object enclitic. Generally

a coverb immediately precedes an inflected simple verb (although a particle such as ‘thus’ occasionally intervenes). In NE1, Yawuru, coverbs may take a range of nominal affixes (Hosokawa 1991: 210–16).

(*c-ii*) Languages of NG, the North Kimberley areal group, each have several hundred simple verbs that take pronominal prefixes (for subject and object) and TAM suffixes, and may make up a complete predicate. Nevertheless, most of the predicates in texts are complex, involving one of the set of several hundred coverbs plus one of a restricted set of about a dozen simple verbs. The coverb precedes the simple verb; as in NF, the coverb can take an aspectual enclitic.

(*c-iii*) NHa, Patjijamalh – the northernmost language within the NH area – has (on the data available) 134 simple verbs and 115 coverbs; thirty-seven of the simple verbs are attested in complex verbs, with a coverb. The simple verb bears pronominal prefixes (for subject and object) and TAM suffixes; a coverb may take a nominal derivational suffix (e.g. genitive). A coverb must precede a transitive simple verb but may either precede or follow an intransitive simple verb (Ford 1990).

(*c-iv*) NB12, Wardaman, is to the east of NCa, of Type (a), and to the north of WJa, of Type (b). It has about 450 coverbs and about 130 simple verbs, sixteen of which appear with coverbs in complex verbs. The coverb normally precedes the inflected simple verb but may occasionally follow it. A coverb ending in a consonant can take a suffix *-ba* ~ *-ma* with no apparent semantic effect (this may be cognate with an aspectual clitic on coverbs in the related NB11, Wagiman).

(*c-v*) WJb1, Warlpiri, is a non-prefixing language spoken to the south of the Type (b) languages, WJb3 and WJa3. It has around 130 simple verbs; thirty of these each occur in combination with many coverbs while nineteen each combine with some coverbs and the remainder do not occur with any coverbs. In a complex verb, the coverb must immediately precede the simple verb.

(*c-vi*) WD, the Western Desert language – spoken to the south of the Type (b) languages WJa – has about 250 simple verbs, but also many complex verbs where a coverb is followed by one of a number of simple verbs (those with a generic meaning).

(*c-vii*) WIa1, Njangumarta, has about two hundred simple verbs, around fifteen of which are used in complex verb constructions (Sharp 1998).

In most of the languages of Types (a–c) coverbs have a significantly different phonology from other words in the language. Coverbs often show archaic phonotactics, e.g. in WJb1, Warlpiri, coverbs may be monosyllabic and may end in a consonant, whereas all other words are polysyllabic and vowel-final. In NF2, Guniyandi, 79 per cent of coverbs end in a consonant but only 2 per cent of other words do. In NE1, Yawuru, 65 per cent of coverbs end in a consonant but only 37 per cent of other words do. In some of these languages, word-final consonant clusters are found only (or are found predominantly) in coverbs – see (b) in §12.9.3.

Type (d). Similar to Types (a), (b) and (c), but the coverb-plus-simple-verb combination is now fused so that it constitutes one phonological (and one grammatical) word. That this has happened is particularly evident in prefixing languages. For languages of Types (a-c) the prefixes go onto the simple verb and have no effect on the coverb; in a language of Type (d) prefixes go onto the beginning of the coverb-plus-simple-verb combination.

Languages of groups NBc, NBe-i, Nib and NIc are of Type (d). The recurrent simple verb forms (from across the continent) are recognisable as the last syllable of verb roots (old coverb-plus-simple-verb complex verbs) or as the entire root (an original simple verb used alone). It is clear that (i) the linking of coverb and simple verb to form one word; and (ii) the development of prefixing, have applied in varying order in different languages. In prefixing languages of Types (a-c), change (ii) applied first, while in those of Type (d), change (i) applied and then change (ii), as prefixing gradually extended its diffusional extent from language to language. Languages of Type (d) are discussed in more detail in §9.1, on the development of prefixing.

Type (e). This is intermediate between Types (c) and (d). Some coverb-plus-simple-verb combinations are tightly linked, so that pronominal prefixes go onto the front of this combination. Other combinations are more loosely linked, with the coverb and simple verb still constituting separate words; here the pronominal prefixes go on the simple verb and do not affect the coverb. We have change (ii), the development of prefixing (which would have been a fairly sudden change within a language), applying part-way through the slow and steady operation of change (i), the combining of coverb and simple verb into one lexical/phonological unit (this must take a long period to complete).

(*e-i*) NBa, Mangarrayi, is of this type. There are 270 verbal units to which prefixes and suffixes are added; these are made up of thirty-six monomorphemic verbs with the remainder being compounds that include one of these monomorphemic verbs as final component (in fact 95 per cent of the compounds end in *-ma-*, *-bu-* or *-mi-*, which occur as simple verbs meaning 'do, say', 'hit' and 'get' respectively). There are also at least 486 non-inflecting coverbs which must occur with an inflected verb (generally a monomorphemic one, but sometimes one of the compounds). Merlan (1982a: 128) suggests that coverb-plus-inflected-verb combinations are being re-analysed as compound verbs; that is, prefixes are being moved from the second element, to be added to the coverb.

There are other languages in the prefixing area which have many compound verbs (to which prefixes are added) and just a small number of non-inflecting coverbs (many fewer than in Mangarrayi):

(*e-ii*) NBd1, Ngandi, has around a hundred inflecting verbs and a limited set of around thirty complex verbs, consisting of a non-inflecting coverb followed by one of the

inflecting verbs (only seven monomorphemic simple verbs enter into these compound verbs). NBd2, Nunggubuyu, has about 250 inflecting verbs and twenty seven coverbs.

(*e-iii*) NBk, Gaagudju, has around 160 inflecting verb stems and (in the data available) just twenty-two coverbs. These generally follow the inflected verb (although there is some variation in order) and can be encliticised to it, or can constitute a separate word.

(*e-iv*) NKa1, Mawung – spoken to the north of Type (d) languages – has at least 240 inflecting verbs (some monomorphemic, but mostly compounds) plus at least eighty-five non-inflecting coverbs.

(*e-v*) NL, Tiwi, has over five hundred inflecting verbs and about forty coverbs, which occur in complex verb constructions with a simple verb, generally with one of *-mi-*, *-ma-* or *-kirimi-* (their meanings when used alone are ‘be, say, go’, ‘be, become’ and ‘make’ respectively). It appears that the coverb (which can take suffix *-la*, repetitive) precedes the simple verb.

It is easy to distinguish between the various types of verbal organisation for prefixing languages. In Types (a–c) the prefixes go on the simple verb; in Type (d) they go on the coverb (coverb and simple verb here constituting a compound verb); for Type (e), in some complex verbs the prefix goes on the simple verb and in others onto the coverb (just the latter set have developed into compounds).

This criterion is not available for non-prefixing languages. However, it is perfectly feasible that in non-prefixing languages SOME coverb-plus-simple-verb combinations should have become compounds – Type (e) – or that they ALL should have – Type (d). In the discussion of WJa languages, under Type (b) above, McConvell’s distinction between ‘strong nexus’ and ‘weak nexus’ was mentioned. This may well be a Type (e) division. In ‘strong nexus’ combinations the coverb must immediately precede the simple verb, there may be assimilations across the morpheme boundary, and the combination is likely to have an idiomatic meaning. In ‘weak nexus’ the coverb may follow the simple verb, there is no phonological cohesion (even if it does precede) and the meaning of the combination is likely to be the sum of the meanings of coverb and simple verb.

If prefixing diffused into the WJa languages, the pronominal prefixes would be likely to be added to the front of the coverb in a strong nexus combination, but to the simple verb in the case of a weak nexus.

Thus far we have dealt with the languages in an areal block comprising NB–NI (excluding NBd3, on Groote Eylandt), plus NKa1, NL, WI–WK and WD (languages from this area not mentioned above are those for which there is insufficient reliable or clear information to assign them a place in the typology). Languages of Type (a) form a solid block in the west centre of this area, and they are totally surrounded by languages of Types (b–e).

We can now look at languages (for which good data are available) spoken in the remainder of the continent – in the eastern third and on the western fringe (all are of the non-prefixing type, save WMa, Yanyuwa).

Type (c'). Alpher's (1991) extensive dictionary of Eb1, Yir-Yoront (spoken on the west coast of the Cape York Peninsula) includes only 125 monomorphemic verbs. There are also several hundred complex verbs, each of which includes one of the monomorphemic roots as final component. In Type (c) languages of the western area, only a few of the simple verbs occur in complex verbs, and those that do co-occur with many coverbs. However, in Yir-Yoront many simple verbs occur in complex verbs, most of them with only a few different initial elements. Thus, a sample of 176 compound verbs involve no fewer than fifty-eight different simple verbs as the final element.

Other languages of group E (and maybe some from the adjacent subgroup Bc) may also be of this type; this remains to be investigated.

Type (f). There are languages that have a rather small number of monomorphemic verbs (generally one hundred or less) but have many other verbal stems that appear to involve a derivational suffix to a nominal-type root. Examples of this type are scattered around the continent, including:

(f-i) Ya1, Djapu, has about seventy-five monomorphemic verbs, but over five hundred verbal stems ending in *-dhi* or *-dhu*, the element preceding *-dhi* or *-dhu* only occurring in this stem. Note that *-dhi* and *-dhu* are also productive verbalisers, deriving intransitive and transitive verbal stems from nominals (Morphy 1983: 63ff). (Other languages from the Y subgroup have a similar profile.)

(f-ii) F, Kuku-Yalanji, has about 170 monomorphemic verbs. It also has many derived verbal stems, involving the addition of causative *-buŋa-l* or *-kaŋa-l*; action-causative *-mani-l*; or inchoative *-ma-l* or *-manidji-y*, to a nominal root. Note that, unlike the Y subgroup, all the roots in derived verbal stems do have independent function as nominals (Patz 1982: 161ff).

(f-iii) Mg1, Gumbaynggirr, has only about ninety monomorphemic verbs, but there are many derived stems. As in F, these involve a nominal stem plus one of four suffixes, meaning 'be, become', 'make', 'go to' and 'take to'. Thus, from *wadja:rr* 'ground' and *-duma-* 'take to' we get *wadja:rr-duma-* 'take down (to the ground)' (Smythe 1948/9: 56). A similar situation is found in the adjacent language Mf, Bandjalang.

(f-iv) WHc4, Yinjtjiparnrti, has a limited number of monomorphemic verbs (the exact figure is not available, but it is probably no more than about a hundred) plus many derived stems, formed from a nominal plus one of a stock of fifteen verbalising

suffixes. Wordick (1982: 83–91) lists five inchoatives, two causatives and eight other transitivisers, one glossed ‘put at or on’, another ‘stick out, pull off’, another ‘shoot out, expel’ and the remainder just ‘make, do’.

Type (f) of verbal organisation is reminiscent of Type (c), where there are a hundred or more simple verbs but also many complex verbs, whose second element is one of a small set of simple verbs. In languages of Type (c) only a limited number of coverbs may function as nominals. In contrast, all the derived verbal stems in F, Mg1, Mf and WHc4 are based on bona fide nominals. Subgroup Y, however, has about five hundred verbal stems which involve a derivational suffix added to a nominal-type stem that does not occur in the modern language in nominal function.

What are referred to as derivational suffixes in the grammars of Type (f) languages plainly relate to simple verbs (as they are used in complex verbs) in languages of Types (a–c). I shall return to this topic in §6.4, suggesting that many derivational suffixes that form verbal stems, in modern languages, probably go back to original simple verbs used with a coverb-type element.

Type (g). Here we have a large number of monomorphemic verbs and very few complex verbs or derived forms.

(*g-i*) For H1, Dyirbal, I have compiled a sizeable dictionary. It includes 732 verbs (in the everyday language style). Of these, 611 (83 per cent) are monomorphemic; all have two or three syllables. There are also thirty-six archaic derivations, where causative derivational suffix *-ma-l* or inchoative *-bi-l* are added to a nominal-type element that does not occur elsewhere in the modern language. And there are eighty-five compounds of a disyllabic nominal or nominal-type element plus a disyllabic verbal or verbal-type element. (For forty-one of these both nominal and verb occur elsewhere; for seventeen the nominal is a nonce form, only found in this compound; for seventeen the verb is a nonce form; and for ten both elements are nonce.) Most of the nominals in these compounds are body parts, e.g. *gayga+budi-l* (lit. ‘eye’ plus ‘carry in the hand’) ‘lead, show the way’. The nominal is an adjective in *miyay+yambu-l* (lit. ‘smiling’ plus ‘pull’) ‘make (someone) laugh’. Note that the compounds are not only few in number but also semantically specialised. They make up an even smaller proportion of all verbs on a text count than on a dictionary count.

There are a fair number of other languages of Type (g), where the great majority of the verbs are monomorphemic. These include:

(*g-ii*) G2, Yidinj, where the dictionary (smaller than that for Dyirbal since the language was further down the path towards extinction when it was studied) includes about 320 verbs, 86 per cent of them monomorphemic.

(*g-iii*) For Nc3, Ngiyambaa, 370 monomorphemic verbs have been recorded.

(g-iv) For WAa3, Arabana, there are 310 known monomorphemic verbs and sixty compound verbs.

(g-v) WMa, Yanyuwa, has hundreds of monomorphemic verbs (there are fifty-eight pages of them in the Yanyuwa dictionary).

(g-vi) Languages of NA, the Tangkic subgroup, have many monomorphemic verbs; for instance, there appear to be over three hundred in NAb2, Yukulta. For NAb1, Kayardild, Evans (1995a: 290) states that of a sample of 510 verbs, 260 are monomorphemic, 170 are derived by suffixation from nominals, locationals or verbals, and about eighty are noun-verb compounds.

(g-vii) NBd3, Anindhilyagwa (spoken on Groote Eylandt) appears, on the information available, to have well over 250 monomorphemic verbs and little evidence of compounding.

(g-viii) NKa2, Iwaydja, is said to have many monomorphemic verbs and no compounding (Pym and Larrimore 1979: 109).

For most other languages in groups B–Y and WA–WM the data on verbs necessary to place them within this typology are not available. It is likely that the majority of them are of Type (g), but there may well be further instances of Types (c') and (f).

6.3.2 A cyclic pattern of change

From the seven types of verbal organisation described in the last section we can highlight three basic types (with the others being subvarieties of the basic types or intermediate between them). These are:

Type (a). Few simple verbs, each with a generic meaning. Some of the simple verbs may occur alone, but all can be combined with a coverb in a complex verb construction, and it is these that predominate in texts.

Type (c). Many simple verbs, most with specific meanings. Just a few simple verbs, with generic meanings, can be combined with a coverb in a complex verb construction, and it is these that predominate in texts.

Type (g). Very many simple verbs, all tending to have rather specific meanings. There are very few compound verbs, both on a dictionary and on a text count.

Each of these types can change into one of the others. At first blush there is a cycle of change: $c > a$, $a > g$ and $g > c$. These are considered in turn.

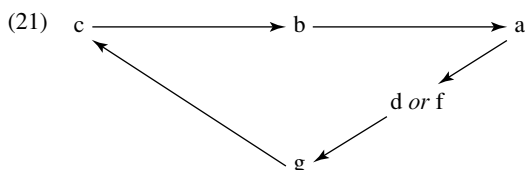
Type (c) becomes Type (a). In Type (c) there are hundreds of simple verbs, and just a dozen or so of them occur with coverbs. These coverb-plus-simple-verb combinations are used much more freely than simple verbs. One possible scenario is that those simple verbs that do not occur in complex verbs could gradually drop out of use, so that one goes from Type (c), with hundreds of simple verbs, to Type (b), with thirty to sixty

simple verbs, to Type (a), where the only simple verbs remaining are the few – usually between about five and about thirty – occurring with coverbs.

Type (a) becomes Type (g). In a Type (a) language, each verb is clearly analysable into two components, coverb and simple verb. These parts will in time become phonologically fused and semantically blended so that it will not then be possible to analyse them into two components. Each verb will consist of a single morpheme, with an irreducible meaning. We would go from Type (a), where coverb and simple verb are distinct words, to Type (d), where they are fused into one word (but the original two components can still be discerned, at least to some extent) to Type (g), which has hundreds of monomorphemic simple verbs and only a handful of compounds. Type (f), where there are many derived verbs, the derivational suffixes probably going back to an earlier simple verb, is another kind of intermediate stage between Types (a) and (g).

Type (g) becomes Type (c). For this change to take place, a language with many monomorphemic verbs (each with a rather specific meaning) and few compounds would have to invest a handful of the verbs with a general meaning, and use them in complex verb constructions with a coverb. There is a suggestion of one way in which this could have happened in the behaviour of adverbals in Nc3, Ngiyambaa, discussed in §3.1.3 and §6.2. An adverbial has as first element a manner adverbial morpheme and as second element one of eight generic verbs, some of which are cognate with simple verbs in the language, e.g. generic *-dha-l* ‘do with mouth’ corresponds to verb *dha-l* ‘eat’; generic *-ma-l* ‘do with the hands’ corresponds to verb *ma-l* ‘do, make’. (And the generic *-ga-l* ‘pierce’ may be related to the verb *baga-l* ‘dig’; note that *baga-l* is ‘pierce’ in many other languages – see (30) in §4.2.7.) This illustrates how simple verbs may have their meanings generalised, and be used in a verbal combination (in this instance, with an adverbial element), which could be the first stage in the development from a Type (g) to a Type (c) system of verbal organisation.

We have now discussed a possible cyclic pattern of change between the types:



There is, however, evidence that change need not be unidirectional around the cycle. We can add further changes.

Type (b) or (c) to Type (g). There is no need for a language with a fair number of simple verbs – and many combinations of coverb with one of a small set of these simple verbs – to reduce its stock of simple verbs before forming new simple verbs out of the old coverb-plus-simple-verb combinations. Some of the languages of Type (d) exhibit an intermediate stage in this change, as do those of Type (e), which combine characteristics of Types (c) and (d).

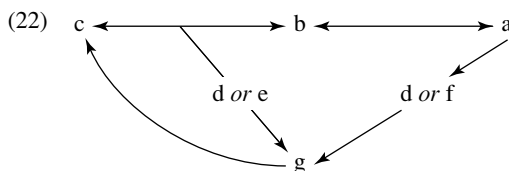
If a language of Type (g) came directly from one of Type (a) we would expect only a small number of possibilities for the final syllable of monomorphemic verb roots (relating to the small number of simple verbs in the earlier Type (a) stage). In fact the 611 monomorphemic verbs in the Type (g) language H1, Dyirbal, have many types of final syllable, suggesting that at an earlier stage this language was Type (b) or Type (c), rather than Type (a). (Merlan 1979 puts forward interesting ideas about this kind of development.)

Type (a) to Type (b), and Type (b) to Type (c). I suggested that if some simple verbs occur with coverbs in complex verbs, and if these predominate in texts, then the non-coverb-taking simple verbs may well drop out of use. This is the change that would be expected, on language-internal grounds.

But, as is demonstrated at many points throughout this book, there are always strong diffusional pressures between Australian languages. The four languages of subgroup WJa – located directly to the south of Type (a) languages – are of Type (b), with thirty to fifty simple verbs and many complex verbs. WJb3, Warlmanpa, and WJb1, Warlpiri, are closely genetically related (detailed information is lacking on WJb2, Ngardi). Warlmanpa is spoken next to the WJa languages and – similar to WJa – has just forty-three simple verbs with many complex verbs. However, Warlpiri has many more simple verbs – about 130. This is because Warlpiri, spoken to the south of the other WJ languages, has come under diffusional pressure from its neighbours – WD, the Western Desert language, to the west (with 250 or so simple verbs) and WL, the Arandic languages, to the south, with several hundred. Following Nash (1982) we can suggest that Warlpiri originally had fewer simple verbs, like modern Warlmanpa, and that it has recently acquired new roots by, in part, (i) reanalysing some coverb-plus-simple-verb combinations as new simple verbs; and (ii) according simple verb status to what were coverbs, so that they now take the suffixes associated with simple verbs.

Similar sorts of change have certainly taken place in other languages, but remain to be fully investigated. For NB11, Wagiman, for instance, Cook (1987: 215) reports that some roots can be used both as simple verbs and as coverbs, which may be an indication of a process of change taking place.

The diagram of kinds of possible change can now be revised as:



There could well also be the possibility of change from Type (g) to Type (a) as a modification of the Ngiyambaa pattern – if every existing verb had to be accompanied by one of a newly developed set of generic verbs, with verbal affixes being retained just on the generic verb.

As with many aspects of Australian languages we have here a parameter, that of verbal organisation, with a number of positions on it (our Types (a–g)). Languages are continuously – but generally very slowly – shifting their profile within this parameter.

An obvious question to ask is: what was the original type of verbal organisation like, at the earliest stage of the Australian language area? This is in fact not a fruitful question to pursue. Types of verbal organisation may well have been oscillating, within the scheme shown in (22), for tens of millennia. There may have been several circuits around the cycle. It is not possible, on comparative linguistic evidence, to perceive what the point of entry might have been.

However, in §3.1, I did draw attention to a pervasive semantic pattern in Australian languages – having first a word indicating a very general meaning and then, when necessary, adding a second word to further specify the meaning. This is evident in the case of nouns – one might use just *mayi* ‘vegetable food’ if everyone knows what sort of vegetable food is being referred to, and only add a noun referring to the flora species if this is deemed necessary within the particular discourse context. In some languages (all but two being in the prefixing area), lexical generic nouns have reduced to grammatical noun class affixes to specific nouns (see chapter 10).

The parallel to what has been posited as the original pattern of noun use, would be for there to be a small number of simple verbs, with very general meanings, and then for a coverb to be added, for further semantic specification, only as required within the discourse context. This would be a variant of Type (a) verbal organisation, where all simple verbs (with generic meanings) can be used alone, and they can also be used with one of a number of specifying coverbs. (Note that some modern Type (a) languages are like this, but in others – e.g. NF2, Guniyandi – every simple verb must be used with a coverb.) The parallel change to that from generic nouns to grammatical noun class affixes would be from Type (a) to Type (d) of verbal organisation.

It is impossible to decide on the original type of verbal organisation from the normal methodology of linguistic comparison and reconstruction. But my *a priori* hypothesis

concerning the original pattern of semantic organisation would suggest a variant of Type (a) as the point of entry.

6.4 Verbal derivations

Between verbal root and the final TAM inflection, Australian languages typically allow one or more derivational suffixes. There are two broad types – those that simply have a semantic effect and those that have syntactic effect, either changing transitivity or permuting predicate arguments. These are discussed in §6.4.1 and §6.4.2 respectively. Then §6.4.3 briefly mentions suffixes that derive verbal stems from adjectives and nouns.

6.4.1 Semantic derivations

Derivational suffixes which do not affect the syntax of the verb tend to vary in both form and meaning between languages, and often between dialects, suggesting that in most cases they developed recently. For instance, the Marrganj dialect of Ja1 has a suffix *:-nma* ‘unexpected action’ (Breen 1981a: 323) that is not found in other dialects of this language.

About 90 per cent of Australian languages have a process of verbal reduplication. This varies from language to language both in form (the first part of the verbal stem can be repeated, or the last part, or the whole thing) and in meaning. The most common semantic effect is ‘continuous action’ or ‘repeated (iterated) action’. Sometimes reduplication can indicate ‘plural subject’, sometimes ‘plural object’, sometimes ‘activity distributed in space’. In just a few languages it indicates ‘lack of intensity’. (There is a full discussion in Fabricius 1998.)

Where verbal reduplication is not used to mark ‘continuous action’, this may be shown by a derivational suffix, e.g. *-yi-* in the Gunja dialect of Ja1, Bidjara (Breen 1981a: 330). And ‘repeated action’ may also be shown by a derivational affix, e.g. *-an-* in WJa1, Walmatjarri (Hudson 1978: 39–40). Similarly, ‘many O’ or ‘distributed action’ may be marked by reduplication in many languages and by a derivational suffix in others, e.g. *-dja-* in H1, Dyirbal (Dixon 1972: 249–50).

Most languages have a few semantic derivational suffixes on verbs. In Ba2, Uradhi, for instance, there is just *:-ta-*, which indicates that the action was done ‘to a great extent’, e.g. *watha-* ‘bite’, *watha:-ta-* ‘bite a lot’ (Crowley 1983: 365–7). In contrast, Nc3, Ngiyambaa, has seventeen non-syntactic derivational suffixes, including ‘do in the morning’, ‘do of necessity’, ‘do in a group’ and ‘do a bit’ (Donaldson 1980: 183–97).

Derivational suffixes marking what is called ‘associated motion’ are found in one small and one large area. The small area comprises subgroup G. In G1, Djabugay, any verb can take a suffix *-gali-y* ‘go and do’ or *-garra-y* ‘come and do’; these are obviously related to verbs *gali-y* ‘go’ and *garra-y* ‘come’, and presumably evolved as suffixes through an intermediate stage of verb compounding (Patz 1991: 285). In the related G2, Yidinj, the suffixes mean ‘go and do’ or ‘do while going’ and ‘come and do’ or

'do while coming'; and they have been phonologically reduced, e.g. *-(*ŋ*)*gali-y* has become *-ŋali-y* in one conjugation and *-li-y* in another (Dixon 1977a: 207, 219–22).

'Associated motion' is also marked in the languages of a largish area in central Australia, including groups W, WA, WB, WD, WJ, WK, WL, WMb and NCb. The forms used, and their specific meanings, vary from language to language; it is plainly just the general category of 'associated motion' that has diffused all over the languages of this continuous area. The greatest specification is made in languages from the centre of the area, e.g. in WL2, Kaytetj, there are about fourteen derivational suffixes each having two components, which basically mark (a) 'going' ('thither'), 'coming' ('hither'), 'approaching', 'returning', etc.; and (b) whether the associated action was before, concurrent with or after the action referred to by the verb. Four of the (a) components are clearly cognate with lexical verbs, including *alp-* 'return' and *ayt-* 'rise, come up' (Koch 1984, p.c.). In languages on the fringe of the area, there are fewer 'associated motion' suffixes, e.g. W1, Kalkatungu, has just *-nhthu-* 'going' and *-u-* 'coming' (see Blake 1979a: 92, who notes that in the data available these have only been recorded in the imperative). Information on 'associated motion' in languages of the central region will be found in Austin (1989), Tunbridge (1988) and Wilkins (1991) in addition to grammars of individual languages.

About sixteen languages in the prefixing area include prefixes or suffixes marking 'direction' – glossed 'hither' and 'thither' – similar to 'associated motion'; these are discussed in §9.2.2. In the non-prefixing language NAb1, Kayardild, a type of serial verb construction includes an inflecting main verb followed by an inflecting motion verb, e.g. 'laugh-ACTUAL go-ACTUAL' is 'go along laughing' (Evans 1995a: 308–10).

Finally, we can note that in some languages a derivational suffix may have a syntactic effect in certain circumstances, and a purely semantic effect in others. This applies to *-*dharri*, discussed in §11.3.1. We also find that WHc3, Panyjima, has a verbal suffix which has the semantic effect 'collective' with intransitive verbs, e.g. 'they are standing together' but a reciprocal effect, deriving an intransitive stem, with transitive verbs (Dench 1991: 191). At the other end of the continent, Ba2, Uradhi, has a verbal suffix which shows a distributive semantic effect with intransitive verbs, e.g. 'run about all over the place' or 'cry all the time' but again a reciprocal detransitivising sense with transitive verbs (Crowley 1983: 366, 375).

6.4.2 Syntactic derivations

There are two basic types of syntactic derivation to a verb – either an argument can be added to the core (valency increasing) or an argument can be removed from the core (valency decreasing). We discuss these in turn.

(i) *Valency-increasing derivations.* There are two ways of making an intransitive verb (with one core argument, in S function) into a transitive stem (with two core arguments,

in A and O functions). The original S argument can become transitive O, with a new argument being brought in as A; this is a causative derivation. Or the original S becomes A with what was a peripheral argument being moved into the core, to be in O function; this is an applicative derivation.

Since applicatives are less familiar than causatives, it will be useful to provide a preliminary example, from WAb2, Diyari (Austin 1981a: 158):

- (23) thalaras kurda-yi ḡali-ḡu
rain fall-PRES 1du.exc-LOC
it is raining on us (lit. rain is falling on us)
- (24) thalara-li_A ḡali-nha_O kurda-lka-yi
rain-ERG 1du.excO fall-APPLIC-PRES
the rain is pouring on us (lit. it is raining-on us)

The sentence in (23) is intransitive with ‘us’ in peripheral function, marked by locative case. (24) is transitive with the S becoming A (marked by ergative case) and ‘us’ now being in O function; the verb bears the applicative suffix, *-lka-*, between root and TAM inflection. The applicative construction (24) would be used to describe a heavy downpour with ‘us’ being soaked, i.e. fully affected by the rain.

In a language with a small number of simple verbs and many complex verbs, an intransitive complex verb is converted into a causative by replacing the intransitive simple verb with an appropriate transitive simple verb (the original intransitive S becoming transitive O argument). In WJa3, Gurindji, for instance, causatives generally involve one of three simple verbs, *ma-n* ‘get’, *yuwa-rr* ‘put’ or *ka-ŋ* ‘take’. Compare the complex verbs (McConvell ms.-a):

- (25) (a) *japurr karri-ø*, intransitive, ‘be (partly) submerged in shallow water’
(b) *japurr yuwa-rr*, transitive, ‘dip, soak’

In (25a) the coverb *japurr* cooccurs with intransitive simple verb *karri-Ø* ‘be’ (cognate with *karri-* ‘stand’ in nearby languages), whereas in the corresponding causative, (25b), *japurr* is used with transitive *yuwa-rr* ‘put’. In NE1, Yawuru, the coverb *rdii* combines with simple verb *-dju-* (with meaning ‘say’ when used alone) to form an intransitive complex verb ‘be broken’, and with simple verb *-ra-* (meaning ‘spear’ when used alone) to form a transitive complex verb ‘break’ (Hosokawa 1991: 222). This kind of causative formation is typical of languages of Types (a) and (b), from §6.3.1, whether having a prefixing profile, like Yawuru, or a non-prefixing profile, like Gurindji.

In the majority of languages from Types (c–g), from §6.3.1, there is a derivational suffix which applies to intransitive verbs and forms transitive stems, with causative meaning. In WAa1, Pitta-Pitta, for instance, the causative suffix is *-la*, thus (Blake 1979b: 204):

- (26) (a) tharrka- ‘stand’ tharrka-la- ‘stand something up’
 (b) yanhthi- ‘burn’ (intransitive) yanhthi-la- ‘burn’ (transitive)

A common causative suffix is *-ma-*; this has developed from one of two monosyllabic simple verbs, either *ma-l* 'do, tell, make', or *ma:-nj/n* 'hold, get, take' – see (34) and (23) in §4.2.7. This is plainly a case of a simple verb, which originally occurred as second element of complex verbs, being grammaticalised as a derivational suffix.

We occasionally encounter a language with several causative suffixes. There are four in Ngiyambaa (Donaldson 1980: 163–5): *-giyama-l* 'make happen by heating', *-dhinma-l* 'make happen by hitting', *-ganma-l* 'make happen by the way one behaves' (e.g. X's behaviour makes Y laugh or be frightened), and the general causative marker *-ma-l*. (Note that the three specific causative suffixes all end in *-ma-l*, and may be grammaticalisations of coverb-plus-*ma-l* 'do, make, tell' from an earlier stage of the language.)

In most Australian languages only intransitive verbs can be made causative. However, in some languages the same suffix can also be added to a few transitives. In Mgl, Gumbayngirr, for instance, the causative suffix *-ygurra-* is added to intransitive roots and to transitives such as *nha:(ga)-* 'see', forming *njagaygurra-* 'show'; and *gambi:-* 'drink', forming *gambigurra-* 'give something to someone to drink' (Eades 1979: 304). For these derived ditransitives (and for other ditransitives, such as 'give') there is one NP in ergative case (the A function) and two NPs in absolutive case (apparently, two O's).

Applicative derivations, as illustrated in (23–4), have a quite different syntactic effect. They basically apply to intransitive verbs and make them transitive, with S becoming A, and what was a peripheral NP now being assigned O function. The original peripheral function could have been locative (e.g. 'lie (on X)' becoming 'lie-on X'), or dative (e.g. 'cry (for X)' becoming 'cry-for X') or aversive (e.g. 'be frightened (of X)' becoming 'be frightened-of X'). (See Blake 1987a: 69–76 for general discussion and Dixon 1977a: 302–19 for specific examples from G2, Yidinj.) Whereas almost every Australian language has a causative mechanism, which applies to many intransitive verbs, only some languages have an applicative derivation, and this generally applies to a restricted set of intransitive verbs. Austin (1997a) has surveyed applicatives in a number of languages (but restricted his sample to languages of the supposed 'Pama-Nyungan' type) and finds that the most common verbs to take an applicative suffix are 'laugh' and 'cry', plus various verbs of motion (e.g. 'go', 'return') and stance ('sit', 'stand', 'lie').

In a number of languages the applicative derivation can also apply to some transitive verbs. The A argument stays as is, a peripheral argument is placed in O function, with the original O argument being moved to the periphery. The new O often has a benefactive or instrumental sense. Compare the simple transitive clause from H1, Dyirbal, in (27), which includes an instrumental NP 'with a leafy bough', and the

derived applicative in (28), where ‘leafy bough’ is in O slot and the original O (*midja* ‘house’) is now marked with dative case:

- (27) *midja*_O *yara-ngu*_A *gulba-n* *nararu*
 house man-ERG repair-NON.FUT leafy.bough+INST
 the man repaired the house with a leafy bough (putting it over a hole in
 the wall)
- (28) *naral*_O *yara-ngu*_A *gulbal-ma-n* *midja-gu*
 leafy.bough man-ERG repair-APPLIC-NON.FUT house-DAT
 the man used a leafy bough to repair the house (lit. the man used-repair
 the leafy bough to the house)

A few of the prefixing languages of group NB have one or more applicative prefixes. For instance, *-bak-* or *-pak-* or *-wa:g-* is used with both intransitive and transitive verbs in four contiguous languages – NBc1, Rembarnga, NBc2, Ngalakan, NBd1, Ngandi, and NBd2, Nunggubuyu. A simple transitive clause in Rembarnga is shown in (29a), taking ‘swag’ as O and the 3aug pronoun ‘they’ as A argument; the 1sg pronoun, ‘me’, is here in dative case. An applicative derivation marked by prefix *-pak-* is shown in (29b); here the underlying peripheral argument (‘me’) is cross-referenced by an O pronominal prefix to the verb. The original O NP, ‘swag’, is retained with zero case marking (appropriate to O function) but is no longer cross-referenced (McKay 1975: 266–7):

- (29) (a) *nul?*_O *par-tjirtmi-ya* *ŋinta-kan*
 swag 3minO+3augA-steal-PAST.PUNCTUAL 1min-DAT
 they stole the swag (bed-roll) from me
- (b) *nul?* *ŋanpa-pak-tjirtmi-ya*
 swag 1minO+3augA-APPLIC-steal-PAST.PUNCTUAL
 they stole the swag from me (lit. they stole-from me the swag)

A number of non-prefixing languages have a distinct derivational suffix for applicative, different from the causative form. Austin (1981a: 70–2, 157–60; 1997) describes how in WAb2, Diyari, some intransitive verbs take applicative *-lka-* but not causative *-ipa-* (e.g. ‘return (with)’); some take just causative *-ipa-* (e.g. ‘burst’); some take both (e.g. ‘stand’); some take just a second causative *-ma-* (e.g. ‘drown’); and others take neither causative nor applicative (e.g. ‘speak’). As mentioned above, the most common causative suffix is *-ma-*. Applicative forms vary, e.g. *-ba-* in Nc3, Ngiyambaa; *-ndi* in Ma4, Waga-Waga; *-ri* in Ja2, Biri.

Languages which have distinct causative and applicative suffixes are in a minority. In a greater number of cases there is a single derivational affix, which has causative sense with certain verbs and applicative sense with others. In some of these languages

(e.g. Ja, K) the causative/applicative has the form *-ma-* (cognate with the causative form in many languages that have two separate suffixes). In others it can be cognate with the applicative in a language with two suffixes, e.g. the causative/applicative is *-nti* in W1, Kalkatungu, and *-rri* in G1, Djabugay (compare with the applicative forms given at the end of the last paragraph).

Generally there is a semantic–syntactic basis to whether a combined suffix has applicative or causative effect with a particular verb. In G2, Yidinj, for instance, the derivational suffix *-ŋa-l* has applicative function with intransitive verbs which typically take a peripheral argument in dative or locative case, e.g. ‘cry (for one’s injured spouse)’, ‘speak (in this language)’. It can have a causative sense with most other verbs. However there will be no causative derivation if there is a corresponding transitive verb in S = O relation. Thus the *-ŋa-l* derivation with *bayi-l* ‘come out’ can only have applicative sense, since there is a transitive verb *danga-n* ‘take out’. However, there is no transitive correspondent (‘put in’) of *bila-n* ‘go in’ and as a consequence *bila-ŋa-l* can have either an applicative meaning ‘go in with’ or a causative one ‘put in’ (Dixon 1977a: 314). This is one of the few examples – in this or any other language – where the applicative/causative derivational affix can have either sense with a particular verb (discourse considerations would normally resolve any ambiguity).

(ii) *Valency-decreasing derivations*. There are four basic possibilities here:

- (a) Passive derivation. The A argument is moved out of the core into a peripheral function, from which it can optionally be omitted; the original O argument becomes S of the derived intransitive.
- (b) Antipassive derivation. The O argument is moved out of the core into a peripheral function, from which it can optionally be omitted; the original A becomes S of the derived intransitive.
- (c) Reflexive derivation. When A and O have the same reference, a reflexive suffix is added to the verb, deriving an intransitive stem whose S argument maps the underlying A = O.
- (d) Reciprocal derivation. Similar to reflexive, but the derivational suffix has reciprocal meaning and the S of the derived intransitive stem refers to the group of people involved in the reciprocal exchange.

There is a recurrent derivational suffix, which probably had original form **-dharri* and has become, by assimilation and reduction, *-dhirri*, *-dhi*, *-dji*, *-yi*, *-rri*, etc., in modern languages. This is found in languages right around the continent – as a derivational suffix – which suggests that it has a long history as a suffix, in contrast to the various causatives and applicatives, which probably evolved (from verbs) as suffixes fairly recently.

Reflexes of **-dharri* have varying functions but generally include reflexive and sometimes also reciprocal. In languages with a markedly ergative profile they may also have an antipassive sense, and in those of accusative profile they may also have a passive sense; in some languages they can function both as passive and as antipassive. A full discussion of this suffix is in §11.3.1, in association with an account of the ergative and accusative profiles of Australian languages.

Many languages that mark reflexives by a verbal derivation employ a reflex of **-dharri-*. Some languages have lost this mechanism and have replaced it by innovated reflexive forms of pronouns – see §7.6. Similarly, almost all passive and antipassive derivations are marked by a reflex of **-dharri-*. The only other antipassive marker is *-ŋa-y ~ -na-y*, found just in H1, Dyrbal. Note that this language also has derivational suffix *-yirri-y/-rri-y* (a reflex of **-dharri-*) which has both reflexive and antipassive senses. (The two suffixes can also have a simple intransitivising function, as illustrated in (6) and (7) above.) The only other passive markers are *-n-* in Eb1, Yir-Yoront, and *-ŋuli-l/-ŋali-* in languages of the WHc group which have recently developed an accusative profile. Dench (1982) suggests that this came from an original inchoative suffix, which forms intransitive verbs from nominals. There is further discussion of passive and antipassive in §11.3.

6.4.3 Deriving verbs from nominals

Almost every Australian language has productive mechanisms for deriving transitive and intransitive verbal stems from non-verbs. (One of the few exceptions is Nc3, Ngiyambaa, but even here there are just a couple of verbs derived from nouns by the addition of *-ma-l* or *-ba-l* – Donaldson 1980: 118.) Some have several transitive verbalisers; there are five in WD, Yankuntjatjarra, including the ‘factitive of harm’, *-nta-n*, e.g. added to noun *liri* ‘throat’ we get transitive verb *liri-nta-n* ‘strangle, seize by the throat’ (Goddard 1985: 228).

In languages with only a few simple verbs and many complex verbs – Types (a) and (b) from §6.3.1 – there may be one intransitive and one transitive simple verb that can be used with a nominal (here functioning as an ad hoc coverb); in NF1, Bunuba, these are *-ni-* ‘become’ and *-y(h)a-* ‘make into, treat as’ (Rumsey 2000).

The transitive verbaliser, with meaning ‘make’, is often called a causative; I will here use the label factitive to distinguish it from the causative suffix onto intransitive verbs. The most common factitive suffix is in fact the same as the most common causative, *-ma-*; they have undoubtedly both developed from one of the simple verbs *ma:-nj/n* ‘hold, get, take’ or *ma-l* ‘do, make, tell’. A factitive *-ma-* (or *-mba-*) is found in at least groups B, D, F–H, J, K, M, V, WA–WE, WG–WJ, WM, NA, NBl and NBm. In some languages a form other than *ma-l* is used, for both causative and factitive, e.g. *-ŋa-l* in G2, Yidinj.

In a couple of languages the original verb, which was grammaticalised as a factitive verbaliser, is still maintained as such: Ddl, Guugu Yimidhirr, has a lexical verb *gurra-l*, 'say, do, make' and also factitive suffix *-gurra-l* 'make'. WAb2, Diyari, has lexical verb *ṅanka-* 'make (e.g. a boomerang), cause' and also factitive suffix *-ṅanka-*.

The intransitive verbaliser, with meaning 'become', is generally labelled inchoative. Its form varies widely across languages. There is, however, one recurrent form: a reflex of **-dharri-* is found in at least groups W, Y, WA, WG, WK, WMb, NBa, NBd and NBh. This is without doubt cognate with the suffix often added to transitive verbs, with reflexive and/or reciprocal and/or passive and/or antipassive meaning (see §6.4.2 and §11.3.1). Note also that in K1, Ngawun, a different suffix, *-mpa-*, functions as both reciprocal on verbs and inchoative on nominals.

Inchoative and factitive can always be added to adjectives, e.g. *kuta-warni* 'shrink (lit. 'become short')' and *kuta-ma-* 'shorten' from *kuta* 'short' in WHc4, Yinjtjiparnrti (Wordick 1982: 86, 83). They can usually – but not invariably – be added to nouns, e.g. in NAb2, Yukulta, the noun *karnrtuwa* 'blood' plus verbalising suffix *-arma-* derives an intransitive verbal stem *karnrtuwarma-* 'to bleed' (Keen 1983: 225). In some languages the verbalising suffixes may also be added to demonstratives and/or interrogatives, to derive verbs such as 'do like this' and 'do what'.

There is a third kind of verbaliser, so far reported for only a few languages. This is a 'delocutive' suffix (see Benveniste 1971) which may be added to any word (X) that could constitute a single word utterance, deriving a verb 'say X'. In H1, Dyirbal, there is a delocutive suffix *-(m)ba-y* which derives intransitive verbs such as *yabu-yabu-ba-y* 'call *yabu*, *yabu*, *yabu* . . . (a call of terror)' and *djigirr-mba-y* 'to call *djigirr-djigirr*, *djigirr-djigirr*' (said of a willy wagtail bird, whose name is *djigirrdjigirr*) (see Dixon 1979). In WD, Yankuntjatjarra, delocutive verbaliser *-(n)ma-* derives intransitive verbs from nouns referring to sounds (a creak, a ring) or animal noises, e.g. *muun-ma-* 'say *muun* ("moo")' (said of a cow). The same suffix forms transitive verbs from interjections, e.g. *wiya-nma-* 'say *wiya*, "no" to someone', and from kin terms, e.g. *mama-nma-* 'address someone as *mama*, "father"' (Goddard 1985: 219–23). Glass and Hackett (1970: 6) quote *-karra-* as an alternative to *-(n)ma-* in the Ngaanjatjarra dialect of WD. In WHc2, Martuthunira, the derivational affix *-karri-* forms a verb stem from a noun referring to bodily activity noise, e.g. from *tjinkuru* 'a sneeze' we get *tjinkuru-karri-* 'to sneeze' (Dench 1995: 160). The same delocutive suffix occurs in WHc4, Yinjtjiparnrti (Wordick 1982: 88).

In Nc3, Ngiyambaa, intransitive delocutives are derived from onomatopoeic words by the addition of *-ba-l*, and transitive delocutives are derived from interrogatives and particles by the addition of *-ba-y*, e.g. *ga:bu-ba-y* 'say *ga:bu* "hush" to someone', and *yama-ba-y* 'express doubt to someone', based on the dubitative particle *yama* (Donaldson 1980: 80, 238–42). In Mf, Bandjalang, there is a delocutive suffix *-ba*, as

in *yug-ba* ‘make a barking noise, *yug*’. A delocutive in Bandjalang has the grammatical properties of a transitive verb, e.g. it takes an A NP, and can be antipassivised. However, it takes no O NP – it is as if *yug* is here the O argument, incorporated into the verb (as its root!) (Crowley 1978: 85–6).

Note the similarity of delocutive suffix forms: *-(m)ba-* in Dyirbal, *-(n)ma-* in Yankun-tjatjarra, *-ba-* in Ngiyambaa and *-ba-* in Bandjalang. This may or may not be significant.

6.5 Verb forms and inflections

Nominal and verbal inflections in Australian languages provide quite different pictures. In almost every language, noun and adjective roots are free forms which can be used without any suffix (generally, for S and O functions; in a few languages, for S and A functions; in some head-marking languages, for S, A and O functions). There have been only limited phonological changes across the morphological boundary between a nominal root and a suffix. Ergative and locative do generally commence with a homorganic stop after a stem-final consonant, and dative *-gu* is sometimes lenited to *-wu* after a vowel, plus a few more minor changes. But an agglutinative structure is still generally maintained; that is, the boundary between root and suffix can clearly be identified. Australian languages are also similar in the functions of their nominal suffixes, and in a number of their forms, as shown in our survey in §5.4.

Verbs differ in many respects. Firstly, verb roots are generally bound; that is, they do not occur alone, only with one or more suffixes (and with prefixes in prefixing languages). Secondly, there has been a good deal of fusion at a verb–suffix boundary (and sometimes, as in subgroup NF, at a prefix–verb boundary) so that it is in many cases difficult to pinpoint morphological boundaries.

These two properties are undoubtedly related. For a nominal N, we get N used alone as a free form and also used with a suffix, as N+a, N+b, etc. However a verb, V, will only be used with suffixes, V+x, V+y, V+z, etc. I suggest that in the first case the phonological changes across a root–suffix boundary are likely to be minor; since N is used alone and is the citation form, changes within N+a, N+b, etc. will be constrained so that it will still be possible to recognise the form N in these suffixed words. For verbs, however, we only get V+x, V+y, etc. The form V is not used alone, and there is thus no restriction on the changes that may take place across a verb–affix boundary. In fact we find extensive fusion across these boundaries so that it is often not possible to segment an inflected verb into root and TAM suffix. (This untidiness at the boundary is dealt with by linguists in terms of allomorphic variants, and often through recognising a ‘conjugation marker’, discussed below.) I am suggesting that the form of a free noun root has ‘psychological reality’ for speakers, so that they view an inflected noun as consisting of a root plus a suffix. And that no such psychological reality is accorded to a verb root, since it does not occur alone. That

is, N+a is felt to consist of two formal components, whereas V+x is considered as a whole, a single form expressing two elements of meaning. This does not only lead to the fusion of verb plus suffix, sometimes to such an extent that what appear to be suppletive forms are produced. It also leads to the recurrent reanalysis of verbs, e.g. taking an old monosyllabic-root plus suffix as a new disyllabic root, to which suffixes are added all over again.

It is relevant to note that loans from English are almost always (or always?) taken into Australian languages as free forms. This means that English verbs are borrowed in the form of nouns or adjectives, which must then be verbalised in order to function as verbs. For example, in H1, Dyirbal, there is a loan adjective *wagi* 'working', which takes the productive verbalising suffix *-bi-l*, giving the intransitive verb stem *wagi-bi-l* 'to work'. This mechanism of borrowing is followed because an inflected verb is considered as a whole, without there being any feeling that it includes an underlying root.

The third difference from nominals is that there is great variation in the meanings expressed in the systems of verbal inflection in individual languages, as compared to the relative uniformity of systems of nominal inflection. It is true that in one language instrumental will coincide with ergative and in another with locative; that sometimes allative is the same as dative and sometimes the same as locative; and so on. But there always are syntactic functions identifiable as instrumental and allative, marked through nominal inflection.

This variation – which is also noted outside Australia – is a consequence of the different roles of nominal and verbal inflection. Nominal inflection describes the syntactic role of a predicate argument (or a syntactic role within an NP), and there are only a limited number of possible roles; hence the similarity between languages in case systems. Verbal inflections refer essentially to the non-spatial setting of an event (or state), and here there are many types of parameters, with many values, as exemplified in the next few paragraphs.

Almost every Australian language has an inflectional system on its simple verbs, which makes some specifications concerning tense and/or aspect (perfective/imperfective, continuous, etc.) and/or modality (realis/irrealis, purpose, apprehensional or 'lest') and/or mood (imperative, negative imperative, continuative imperative); this will be called the TAM (tense–aspect–modality–mood) system. Note that there is no term which is common to TAM systems, across all Australian languages.

Sometimes the system includes past, present and future tense specification (e.g. G1, Djabugay) and sometimes just past and non-past (e.g. Dd1, Guugu Yimidhirr). In NG2, Ungarinjin, there is past, present and future specification in indicative mode but only past and non-past in irrealis mode. There may just be two tense specifications, future and non-future, as in O1, Dharuk. In H1, Dyirbal, there are two tense inflections, one

which always refers to future and one which always refers to past time. In southern dialects the past form also covers present time, giving a future/non-future contrast (note that the non-future is used as citation form). In northern dialects the future form also covers present time, so that we have here a past/non-past contrast (in these dialects the non-past form is used in citing a verb). Austin (1998) is an account of the semantics of temporal reference based on a sample of twenty-three languages.

A most unusual tense system is found in languages of NBf, the Maningrida subgroup. It has three terms: future (which is straightforward), contemporary and precontemporary. Present time is referred to by contemporary, time earlier today by precontemporary, yesterday (or recently) by contemporary and time further away in the past by precontemporary. That is, the contemporary/precontemporary distinction is made firstly within the time frame of today, and then repeated for time before today. In addition, contemporary is used for general statements 'nowadays' ('we do such-and-such') and precontemporary for general statements 'in days gone by' ('we used to do such-and-such'). This system of time reference (but not the forms for expressing it) has diffused into two neighbouring languages of Y, the Yolngu subgroup – Yc1, Djinang, and Yc2, Djinba.

Many languages have TAM inflections that combine aspect and tense information, e.g. languages from group NB typically have distinct suffixes for past perfective and past imperfective (sometimes also specifying realis/irrealis). There may be a TAM suffix indicating 'continuous' or 'customary' activity (as in WJa1, Walmatjarri).

As mentioned in §3.3.5, most TAM systems include a purposive inflection. This is typically used in the second clause of a sentence, i.e. 'clause X, clause Y-PURPOSIVE' indicates that X was done in order to then achieve Y (e.g. 'he went out in order to (purposive) hunt wallabies') or that X was done and as a natural result Y happened (e.g. 'he stepped on a twig and as a result (purposive) she heard him'). It may be used on the first clause of a sentence with the meaning 'need to do', 'should do' or 'want to do'. The great majority of languages have a purposive inflection, but it is missing from a few (no purposive is reported for Ba2, Uradhi, WAb2, Diyari, NG2, Ungarinjin, or the NF subgroup, among others). In WJa1, Walmatjarri, one inflection covers both future and purposive. Quite a number of languages have an apprehensional, or 'lest' inflection (e.g. 'don't go near the fire lest you get burnt'); this is sometimes cognate with the aversive nominal inflection, and sometimes different.

The TAM system generally includes an imperative term; there may also be a negative imperative ('don't do it!') and/or a continuative imperative ('keep on doing it!'). However, in some languages the same inflection covers both imperative and future (e.g. WE1, Mirning, and NBc1, Rembarrnga). In Ya1, Djapu, one inflection marks both imperative and potential (something which is about to happen). See the discussion in §3.3.9.

Some languages include no specific tense terms in their system of verbal inflections. H2, Warrgamay, has a seven-term TAM system consisting of (quoting the allomorphs on intransitive verbs): *-nju*, marking the verb in a subordinate clause; *-ga* for positive imperative and *-dja* for negative imperative; *-gi* for perfect (indicating that an action is irretrievably finished); *-lagu* for purposive; *-ma* for irrealis (which covers future reference, and also apprehensional); and *-y*, described as unmarked aspect. This last ending is used when none of the others would be appropriate (e.g. for reference to present time, or something that happened in the past but is not irretrievably finished) or it can be used in a non-imperative, non-subordinate clause as an alternative to perfect, purposive or irrealis, if the speaker does not wish to provide an aspect/modality specification (Dixon 1981a: 45–57).

Many prefixing languages include TAM information among the prefixes but almost all also preserve a TAM final suffixal inflection – see §9.4. The TAM inflection appears to have been lost from NKb, Amurdag. NL, Tiwi, has no separate TAM inflection but it does have an optional aspectual suffix *-ani* ‘past habitual, past repetitive’; and it marks tense and aspect within the prefixal system. In the non-prefixing language Bc1, Wik-Ngathan, there are just two TAM inflections: irrealis *-k*, for something which might happen or is intended to happen, including imperative; and realis *-nh ~ -nj ~ -n*, for something that has happened, is happening or will happen. In this language, time and sequence are shown by aspectual particles (e.g. perfective *kan*, past continuous *öyam*) or temporal qualifiers (e.g. *yimanjk* ‘yesterday’, *onjtjan* ‘post-wet-season’) (Sutton 1978).

At the opposite end of the scale, some languages have a dozen or more terms in their TAM inflectional system. For instance WHc3, Panyjima, has fourteen – present, future/purposive, realis future, past, perfect, passive perfect, habitual, imperative, hortative, active ‘might’, passive ‘might’, contrafactual and consequential, plus a relative ending used in clausal complements (Dench 1991: 169ff). Systems of this size are not found in prefixing languages (since some of the semantic load is covered by prefixes) but we do here commonly encounter up to about six terms in the suffixal system, e.g. NBa, Mangarrayi, has past punctual, past continuous, past negative, non-past and imperative (Merlan 1982a: 131, 155–7).

The fourth difference between verbal and nominal inflections is that even when two languages – even two nearby and/or closely related languages – have a TAM term with the same meaning it may have quite different forms. In §6.5.1, I am able to make a few remarks about recurrent TAM suffixes, but these are sparse by comparison with the fullish survey of forms for nominal suffixes that was presented in §5.4. There are several possible reasons for this. One is that at an earlier period there may have only been two or three verbal inflections and more have developed largely by adding nominal inflections to nominalised forms of verbs, with later reanalysis as verbal inflections;

this would have taken place independently in different subgroups and different languages. §6.6 discusses this question. Another reason is that TAM suffixes tend to change their meanings much more than do nominal suffixes; this will be briefly illustrated in §6.5.1. And then there is the difficulty in recognising the form of a suffix, in the first place, due to the fusion that has applied across a root-suffix boundary; what were originally two cognate suffixes may have changed so much, in their individual languages, that their genetic connection may be no longer recognisable (especially if there has also been some semantic shift in one or both languages).

The net result is that, when we can show that a number of languages are related in a low-level subgroup, their pronominal systems, nominal inflections and nominal and verbal derivations are likely to be rather similar, but verbal inflections often differ, both in meaning and in form. Examples include Marra and Warndarrang in the NBB subgroup. We can even get significant differences between the dialects of a single language, e.g. Ja1, Bidjara.

6.5.1 *Forms of inflections*

As already indicated, only a little can be said about the forms of TAM inflections, and that rather tentatively.

(a) *Imperative -ga*. Since – as mentioned in §3.3.9 – an imperative term occurs in the great majority of Australian TAM systems (in just a few languages it falls together with future, etc.) it is not surprising that a recurrent imperative form can be recognised. We find *-ga* (sometimes reduced to *-g*) in some languages from, at least, groups Bc, Ee, F, H, Jb, L, Ma, Nc, WB, WC, WE, WG, WH, WJ and NA; the suffix *-a* in D, WE, WI and WM may also be related.

In many languages of the world, the imperative is the shortest form of the verb, often involving a zero suffix. Australian languages are unusual in generally having a monosyllabic imperative (either *-ga* or some other form). However, a fair number of languages have developed in the direction of a zero imperative (losing the original *-ga*, etc.) or an imperative that deletes the final consonant from a verb root. (These may in fact be alternative analyses of the same data, as discussed in the following sections.) A zero imperative is found in some languages from groups Dc, Eb, G, H, Ja, K, Ma, Na, O, U, W, X, WA, WF, WG, WL, NB and NI.

It is noteworthy that in languages in which the imperative inflection has reduced to zero, the imperative will not be the citation form of a verb, even though it is, essentially, just the verb root. In H1, Dyrbal, for instance, the imperative form of ‘drink’ is *gunjdja*, with zero suffix. But when this verb is cited it is the non-future form, *gunjdjan*, that is used for southern dialects, and the non-past form, *gunjdja:nj*, for northern dialects.

(b) *Past* -*nhu* (or -*nju*). The evidence for this is a little weaker than that for imperative -*ga*. However, -*nhu* or -*nju* or a form that could be a development from these (-*nh* or -*nj* or -*nha* or -*Nu*, where *N* is a conjugationally determined nasal) is found in languages from, at least, groups B, E-H, J, L, W, Y, WA, WG-WI, WL, NC and NE. (There are other languages which mark past by -*nhi* or -*ni* or -*n* or -*N*.)

(c) *Purposive* -*gu*. This also has a wide distribution, in languages from groups E-H, J, L, M, O, WA, WC, WE, WG, WH, WJ; it has shifted to a future meaning in Nd, WD, WGb and WI. As noted earlier, this is cognate with the purposive nominal case suffix -*gu* (often extended to dative and sometimes also to genitive and/or allative).

In many languages purposive -*gu* is added directly to the verb root, but in some it appears to be added to a nominalised form or after another suffix. In WJb1, Warlpiri, for instance, -*gu* is added after the infinitive suffix -*njija*. A number of possible diachronic scenarios are explored in §6.6.

As mentioned before, some TAM suffixes have undergone considerable shifts of meaning and of form. For example, Dench (1995: 139-40) suggests that the imperative suffix in WHc2, Martuthunira, which has the form -*yu* ~ $\emptyset$, developed from a present tense inflection -*gu* (which is attested for other WHc languages) which in turn comes originally from purposive-future *-*gu*.

Consider the verbal inflection -*ma*, which is found in a number of western languages, but with rather different meanings. In WD, the Western Desert language, -*ma* or -*nma* marks the continuative imperative, in contrast to plain imperative -*a* (<*-*ga*). In WGa1, Watjari, -(*n*)*ma* is again the continuative imperative (here the plain imperative is $\emptyset$ ~ -*n* on regular verbs), and present tense involves the addition of -*nha* to the continuative imperative form. A number of languages from group WH have -*ma* as the only imperative suffix. But note that in WHc3, Panyjima, -*ma* can only be used in a positive imperative; negative imperatives involve particle *mirta* 'don't', with the verb taking future/purposive suffix -*rta* (Dench 1991). In WHb1, Payungu, -(*n*)*ma*(*yi*) is the past tense inflection. In W1b, Mangala, past irrealis is -*ma*, added after an archaic form of the imperative inflection.

It is likely (although by no means certain) that all or most of these -*ma* verbal suffixes (across groups WD, WG-WI) are related. The meanings vary – continuative imperative, plain imperative, positive imperative, past, past irrealis. And the morphological status also varies – added directly to the stem, added after an archaic imperative, acting as a base to which present tense is added. The form is generally -*ma* but sometimes -*nma* or -*nmayi*. Intensive work is needed to formulate a hypothesis concerning the original meaning and status of the -*ma* suffix, and its paths of development.

The western verbal suffix -*ma* may also conceivably be related to the present tense suffix -*ma* in WAa2, Wangka-yutjuru, and/or to realis -*ma* in H2, Warrgamay, and/or

to future *-ma* in O2, Darkinjung. Or else these formal similarities may be coincidental. (Note also an *-m* present tense in Da, Db, Eb, WM and NCa.)

This exemplifies some of the difficulties that would be attached to a full investigation into the origin, meaning and development of verbal suffixes in Australian languages.

6.5.2 *Forms of verbs and development of conjugations*

I will here put forward a hypothesis (repeated and improved from Dixon 1980: 378–430) concerning the form of verbs at an earlier stage in the history of the Australian language area. This is based on two initial assumptions. First, we have noted that, all over the continent, there is a tendency for languages to become more synthetic and to develop fusion. This is a particularly striking tendency in parts of the prefixing area but it is also evident among non-prefixing languages, particularly with respect to verbs. It seems reasonable to extrapolate back to an earlier stage that was basically agglutinative; that is, all types of morpheme boundaries were readily segmentable.

The second assumption concerns the final segment of verb roots. Most modern languages allow words to end in a vowel or a consonant (a few are entirely vowel-final and a few exclusively consonant-final, but these can be shown to be recent developments) – see §12.9. In a fully agglutinative language the underlying roots would be expected to exhibit the same formal possibilities as inflected words. For nominals (§§4.2.1–6) and for pronouns (chapter 7) we recognise early forms that end in a vowel or in a consonant. It is reasonable to do the same for verbs.

My hypothesis is that, at an early agglutinative stage, verbs ended in a vowel, or in a nasal (*n*, *m*, *ŋ*, *ŋj*), a liquid (*l*, *rr*) or the semi-vowel *y*. (Stops and the semi-vowel *w* are not generally found in word-final position; they do occur in this position in certain areas, due to particular phonological developments.)

A tentative list of the verbs with wide attestation – for which an original root can be reconstructed – was given (with group attestation) in §4.2.7 (see also Dixon 1980: 402–6). For some of these verbs a final consonant segment (or *ø*, indicating a vowel-final root) has been reconstructed, and is here set off by a hyphen. These verbs are summarised below. Further comparative work will undoubtedly permit the reconstruction of final consonants for additional verbs from the list in §4.2.7. For ease of reference, the numbering from §4.2.7 is repeated here. (Note that this is put forward as a tentative list, which may serve as the basis for further work towards assembling a more definitive list.)

Final <i>n</i>	(1) <i>ya-n</i> ‘go’	(53) <i>dha-/-da-n</i> ‘swive, copulate with’
	(11) <i>ba-n</i> ‘fall’	(61) <i>dhu-n</i> ‘swear at, be angry, scold’
	(24) <i>dhu-n</i> ‘put, tell, say’	

and also:

(16) *nji:-/ni-n* 'sit' (19) *ŋu:-n* (> *wu-n*) 'lie down'

(17) *dha:-/da-n* 'stand'

Final *m* (26) *bu-m* 'hit'

(66) *ŋa:-m* 'hear, understand'

(31) *la-/ra-/da-/ya-m* 'spear, throw' (6) *wal-m* 'get up, rise'

Final *ŋ* (64) *nha:-/na-ŋ* 'see, look at'

(25) *nju-/yu-/ŋu-/wu-ŋ* 'give'

(41) *ŋu-ŋ* 'eat'

(15) *ga:-ŋ* 'take, hold, carry'

(51) *ŋhu:-/nu-ŋ* 'smell'

(54) *lu-/ru-/du-/yu-ŋ* 'cry, sob, weep'

(6) *wa:-ŋ* 'follow'

Final *nj* (23) *ma:-nj* 'hold, get, take'

The final *-nj* on this root is posited on the basis of Alpher, Evans and Harvey's (ms.) work on languages from the NB group (see below); in most languages the root appears to have been reassigned to the N conjugation.

Final *l* (34) *ma-l* 'do, make, tell, say'

(40) *ŋa-l* 'eat'

(39) *dha-l* 'eat, consume'

(28) *gunba-l* 'cut'

(30) *baga-l* 'pierce, dig, spear, etc.' (22) *njima-l* 'hold, pinch, squeeze'

(48) *dhu:ba-l* 'spit'

(59) *ya:-l* 'speak'

(46) *nhu:nhdha-l* 'kiss'

(44) *madha-l* 'chew, bite, suck, eat'

Note that the last two of these end in *dha-l*, and may originally have been compounds whose final element was *dha-l*. It could be that *nhu:-ŋ* 'smell' plus *dha-l* 'eat' gave *nhu:nhdha-l* 'kiss', bearing in mind that in some Aboriginal societies 'kiss' refers to a greeting consisting of placing one's nose against another person's cheek and sniffing (something totally different from European-style mouth kissing).

Final *rr* (42) *badha-rr* 'bite, eat, drink, smoke'

Final *y* (7) *dharrba-y* 'enter, dive'

(10) *wanda-y* 'fall'

(35) *gamba-y* 'burn, cook'

Final *V* (13) *yu:ŋ(g)a-ø* 'swim'

(67) *wula-ø* 'die, disappear'

(27) *luwa-ø* 'hit with a missile'

In every modern language there has been some fusion at the verb root/inflectional suffix boundary. We shall look later at those which show the most extreme fusion. The general picture can be seen most clearly if we begin with languages having mild fusion. We shall commence with WJa1, Walmatjarri, WJb1, Warlpiri, and WD, the Western Desert language, all from the central west, and then consider H3, Nyawaygi, from

the eastern seaboard and NBg1, Gunwinjgu, a prefixing language from central Arnhem Land.

In Walmatjarri there are five patterns of verbal inflection which can be exemplified for four of the inflections:

(30) Walmatjarri

	N	NG	L	RR	Ø
	'go'	'give'	'eat'	'bite, chop'	'cook'
imperative	ya-n-ta	yu-ŋ-ka	ŋa-njtja	patja-rr-a	kampa
future	ya-n-ku	yu-ŋ-ku	ŋa-l-ku	patja-rr-ku	kampa-wu
continuous	ya-n-anj	yu-ŋ-anj	ŋa-l-anj	patja-rr-alanj	kampa-lanj
past	ya-n-i	yi- nja	ŋa- -rni	patja- -ni	kampa-rni

Now I take the roots to have been, originally, *yan-*, *yuy-*, *ŋal-*, *patjarr-* and *kampa-*. Future inflection will be taken as originally *-ku* (as mentioned above, purposive *-ku* has shifted to future meaning in subgroup WJ). The suffix *-ku* is simply added to the first four roots, giving *yan-ku*, *yuy-ku*, *ŋal-ku* and *patjarr-ku*. In the final column we have *kampa-ku* > *kampa-wu*, i.e. *k* is lenited to *w* between two vowels in this verbal form (note that this is a phonological change restricted to this class of verbs and does not apply to every intervocalic *k* in the language).

Imperative can be taken as originally *-ka*. This is retained after *yuy-*. We get assimilation *yan-ka* > *yan-ta*; elision of *k* in *patjarr-ka* > *patjarr-a*; and loss of the entire suffix in *kampa-ka* > *kampa*. The form *ŋanjtja* occurs where *ŋalga* would be expected; we return to this below.

From its shape with the vowel-final root, *kampa-*, continuous, can be taken to be basically *-lanj*. We then get changes *yan-lanj* > *yan-anj*, *yuy-lanj* > *yuy-anj*, *ŋal-lanj* > *ŋal-anj*, in each case eliminating the *l* (note that, like most Australian languages, Walmatjarri does not allow consonant clusters ending in *l*). And *patjarr-lanj* > *patjarr-alanj*, here inserting an *a* between two liquids.

Past tense has been included here as an example of an inflection whose forms cannot be so readily explained. We appear to get *-i* on *yan-* but the other verbs show *-nja*, *-rni* or *-ni*, with loss of the stem-final consonant. In the second column we find *yi-nja* instead of the expected *yu-nja*; the change *u* > *i/-nj* applies just for verb roots ending in *u* in this conjugation (we also get *pi-nja* from *pu-* 'hit' and *li-nja* from *lu-* 'cry').

It will be seen that, because of the various changes that have taken place, it is no longer possible to segment all verbal forms into root plus affix where root and affix have the same forms in all combinations. A convention has arisen (commencing with Dixon 1977a) of segmenting verb forms in modern languages into three

elements – a root, which is generally taken to end in a vowel; a consonant that is called the ‘conjugation marker’ (it is actually the final segment of the original verbal root); and an inflectional allomorph. It will be seen that the conjugation marker slot is sometimes filled and sometimes empty. It is filled for all four forms in the ‘go’ column, for three in the ‘give’ and ‘bite, chop’ columns, and for just two in the ‘eat’ column.

It has become fashionable in Australianist studies to refer to these patterns of verbal inflection as conjugations and to label them by their conjugation markers, as was done in (30). Walmatjarri is a language with about fifty simple verbs and many complex verbs (Type (b) from §6.3.1). There are eight verbs that inflect like *ya-n*, in the N conjugation; four of them are monosyllabic, the others being *-ma-n* ‘do’ (a bound form), *la-n* ‘pierce’ and *tja-n* ‘swive, copulate with’. The NG class has five other monosyllabic verbs (*ka-ŋ* ‘carry’, *pu-ŋ* ‘hit’, *lu-ŋ* ‘cry’, *nja-ŋ* ‘see, look at’ and *wa:-ŋ* ‘follow’) plus one disyllabic *tarra-ŋ* ‘throw’. The L class has one other monosyllabic root (*ŋa-l* ‘eat’) and seven disyllabics. The RR class has eight members, all disyllabic, with the Ø or zero class having twenty-five members, all disyllabic or trisyllabic.

We can now look at conjugations in WJb1, Warlpiri, spoken to the south-east of Walmatjarri. Note that the verbs of exemplification in (30) and (31) were chosen in order to include, as far as possible, lexemes which are cognate between the two languages. Three sample inflections are:

(31) Warlpiri

	N	NG	L	Y	Ø
	‘go’	‘give’	‘eat’	‘burn’	‘excrete’
imperative	ya-n-ta	yu-ŋ-ka	ŋa-njtja	kampa-y-a	ŋatja-ka
future	ya-n-ku	yu-ŋ-ku	ŋa-l-ku	kampa- -tju	ŋatja-ku
past	ya-n-u	yu-ŋ-u	ŋa- -rnu	kampa- -tja	ŋatja-rnu

The first three columns are similar to those in Walmatjarri, with original roots *yan-*, *yug-* and *ŋal-*. Past tense *-u* is added to *yan-* and also to *yug-* (rather different from Walmatjarri). In the third column we get *ŋa-rnu*, again with loss of the original root-final *l*. Forms in the fourth column suggest an original root *kampay-* with elision in the imperative *kampay-ka* > *kampaya* and blending of *y* and *g* to *tj* in the future, *kampay-ku* > *kamatju*. The past inflection for ‘burn’ is *-tja*, again beginning with a laminal stop, but this is quite different from the other past tense allomorphs. For the final column we take the original root to be *ŋatja-* with predicted imperative form *ŋatja-ka* and future *ŋatja-ku*; past tense *-rnu* is the same as the third column.

Each of these languages has five conjugations. The first three correspond but the final two differ; they were identified as RR and Ø in Walmatjarri and as Y and Ø in

Warlpiri. When we compare verbs from these classes between the languages, there are three kinds of correspondence:

	Walmatjarri	Warlpiri	Walmatjarri	Warlpiri
(a)	RR class	Ø class	<i>ŋatja-rr</i> 'excrete' <i>patja-rr</i> 'bite, chop'	<i>ŋatja-ø</i> 'excrete' <i>patja-ø</i> 'taste'
(b)	Ø class	Y class	<i>kampa-ø</i> 'cook' <i>yinpa-ø</i> 'sing'	<i>kampa-y</i> 'burn' <i>yunpa-y</i> 'sing'
(c)	Ø class	Ø class	<i>luwa-ø</i> 'hit with missile'	<i>luwa-ø</i> 'hit with missile'

This suggests that there were originally six classes (each corresponding to an original root-final segment):

N, NG, L, RR, Y, Ø

The Y and Ø classes have fallen together in Walmatjarri, as the Ø class, while the RR and Ø classes have fallen together in Warlpiri, as the Ø class. Thus, of the verb correspondences above, (a) were in the RR class, (b) in the Y class and (c) in the Ø class. In Walmatjarri (b) and (c) have merged to become one class, while in Warlpiri (a) and (c) have become one class.

It will be instructive to now look at WD, the Western Desert language, which borders on the south of Walmatjarri and the south-west of Warlpiri. Walmatjarri has about 50 simple verbs, Warlpiri about 130 and Western Desert about 250. Nevertheless, similar conjugational patterns recur. There are just four classes in Western Desert, which can be exemplified for three sample inflections:

(32) Western Desert

	N	NG	L	Ø
	'go'	'give'	'eat'	'burn'
imperative	ya- -rra	yu-wa	ŋa-l-a	kampa
future	ya-n-ku	yu-ŋ-ku	ŋa-l-ku	kampa-ku
past	ya-n-u	yu-ŋ-u	ŋa- -rnu	kampa-ŋu

The conjugations can here be labelled the N, NG, L and Ø classes. That is, the Y and RR classes have been lost. Future is exactly what would be expected, just adding *-ku* to *yan-*, *yun-*, *ŋal-* and *kampa-*.

It will have been noted, for Walmatjarri and Warlpiri, that imperative **-ka* always undergoes more changes than purposive-future **-ku*. We had *yan-ka* > *yan-ta*, *patjarr-ka* > *patjarr-a* and *kampa-ka* > *kampa* in Walmatjarri, and in Warlpiri *kampay-ka* > *kampay-a*. In the Western Desert language we get *yun-ga* > *yu-wa* (presumably the *ŋ* was lost, and then the *g* was lenited to *w* between vowels), *ŋal-ka* > *ŋal-a* and again *kampa-ka* > *kampa*. It is surely reasonable to assume that imperative tends to undergo more reduction than other inflections, such as purposive-future, simply because of its

pragmatic role – imperatives tend to be shouted, or used in peremptory fashion. As mentioned before, many languages of the world have imperative as the shortest verb form, often using just the root, with zero suffix. In §6.5.1 I remarked that some languages from at least seventeen of the fifty groups have moved towards this profile, omitting both **-ka* and the preceding root-final consonant. In H1, Dyirbal, for instance, the imperative of ‘bite’ (which relates to an original **batjarr*, as is evident from the Walmatjarri paradigm) is simply *badja*. The changes that have applied in the three paradigms examined so far exemplify the simplifications and shortenings that apply to imperative endings, on the way to their eventual loss.

One odd feature of the Western Desert paradigm is the imperative form *ya-rra* for *ya-n* (recall that Walmatjarri and Warlpiri both have *yan-ta*). There are several possible lines of explanation here. One is that we could have first had assimilation, **yan-ka* > *yan-ta*, then loss of *n*, giving *ya-ta*, and lenition of the intervocalic *t* to *rr*, giving *yarra*. This would parallel the changes for imperative in the NG class, *yuy-ka* > *yu-ka* > *yu-wa*.

An imperative *-rra* for the N class is found in a few more languages. All of the languages with imperative *-rra* for the N class are found to lack an RR class. Note that Walmatjarri has *-rra* for the imperative in its RR class. One possibility is that in certain languages the N class and the RR class merged, giving a class most of whose inflections are on the N pattern (so that the combined class is called the N conjugation) but just using imperative *-rra* from the erstwhile RR class. This is an alternative possible explanation for the form *ya-rra* in the paradigm in (32). However, if there was a suitable merger of conjugations and transfer of imperative inflections in the Western Desert language it must have been fairly far in the past; those roots from the RR class in Walmatjarri which are also found in the Western Desert language belong to the L class there (e.g. *patja*- ‘bite’).

A similar explanation could be provided for the anomalous *-njtja* imperative inflection on verbs from the L class in Walmatjarri and Warlpiri (note that the Western Desert language has a non-anomalous imperative, *-la*, in this class). I have suggested that verb roots ended in *n*, *ŋ*, *l*, *rr*, *y* or a vowel. Evidence for an M class, in languages from other regions, will shortly be presented. We might also expect an NJ class (to complete the roster of recurrent morpheme-final consonants) which should have imperative *-nj-ka*; this would be expected to assimilate to *-njtja*. It might be that the L and NJ classes merged in Warlpiri and Walmatjarri, with future retaining the L class form *-l-ku* but imperative continuing the NJ class ending *-njtja*.

Let us now look at H3, Nyawaygi, spoken 1,500 miles to the east, again giving three representative inflections on one verb from each conjugation class (there are in fact two subclasses within the NG conjugations, showing minor differences of form in further inflections).

(33) Nyawaygi

	N	M	NG	L	Y	Ø
	'go'	'hit'	'give'	'cut'	'return'	'stand'
imperative	ya-n-a	bu-m-a	wu-ga	gunba	bana-y-ga	dju:ba-ga
irrealis	ya-n-djima	bu-n-djima	wu-djima	gunba-l-ma	bana-y-ma	dju:ba-ma
perfect	ya-n-i	bu-m-ayi	wu-gi	gunba- -yi	bana-y-gi	dju:ba-gi

The 'conjugation markers' (the original root-final consonants) are clear for the N and Y classes; the *-l-* for the fourth class occurs before one inflection and the *-m-* for the second class before two. The NG class is named largely on the basis of its members being cognate with verbs in an NG class in other languages. (The original form for 'give' is posited as **nju-*, with developments *nju-* > *yu-* in some western languages and *nju-* > *ɲu-* > *wu-* in some eastern ones.) In fact the retention of initial *-g-* in imperative and perfect inflections probably relates to the original *-ŋ-* in *wu-ŋ*, which has since been dropped.

Now the NG class for Walmatjarri, Warlpiri and the Western Desert language includes *yu-ŋ* 'give', *nja-ŋ* 'see, look at' and *pu-ŋ* 'hit'. In Nyawaygi *wu-ŋ* 'give' and *nja:-ŋ* 'see, look at' belong to the NG class but *bu-m* 'hit' makes up a distinct M class. There is further support for a distinction between verbs with an original final *ŋ* and those with a final *m* in languages from the south-east such as Mf, Bandjalang, and Mg1, Gumbaynggirr, and from Y, the Yolngu subgroup, in eastern Arnhem Land. In Walmatjarri, Warlpiri and the Western Desert language, the NG and M classes have merged, and are marked by *-ŋ-*.

Some prefixing languages have undergone such extensive fusion that the final consonant of a verb root (and sometimes the preceding vowel as well) has become lost or altered beyond recognition – see §6.5.4 (and Heath 1990). But in others there is still a trace of the original root-final consonant at the beginning of TAM allomorphs (and these generally do distinguish the M class from the NG class). NBg1, Gunwinjgu, has no fewer than thirteen classes of verbs, each with its own combination of TAM allomorphs (see Carroll 1976). Four of these classes, three of them involving verbs cognate with those given in (30–3), can be illustrated:

(34) Gunwinjgu

	'hit'	'give'	'bite'	'get'
imperative	-bu	-wo	-baye-men	-ma
past completed	-bo-m	-wo-ŋ	-baye-ŋ	-mey
past continuous	-bu-ni	-wo-ni	-baye-yi	-ma-ŋi
non-past	-bu-n	-wo-n	-baye	-ma-ŋ

There is here no advantage in dividing forms into three parts, root (ending in a vowel), conjugation marker (a relic of the original root-final consonant) and inflectional allomorph. But the root-final *-m* is retained as the past completed inflection for *bu-* 'hit',

alongside the original root-final *-ŋ* for past completed of *wo-* (and also for *ka-* 'take' and *na-* 'see' which are cognate with verbs in the NG class for the languages discussed above). Note, however, that *baye-* 'bite' (which is probably cognate with *patja-rr* 'bite, chop' in Walmatjarri) does not retain any trace of the final *rr*. The form in the last column, *ma-* 'get', is cognate with *ma-n* 'get' in Warlpiri and the Western Desert language; with *ma:-n* 'hold in the hand' in Nyawaygi; and with *-ma-n*, glossed as 'do', which only occurs with coverbs in Walmatjarri. Alpher, Evans and Harvey (ms.), in a study of conjugational systems across a group of NB languages, suggest an original form *ma-nj* (e.g. the past perfective is *ma-nja* in NBh1, Jawoyn) which would help to explain *mey* in Gunwinjgu (a change *ma-nj* > *mey* is rather plausible).

We have, on a cross-linguistic basis, established eight conjugational classes, going back to roots that ended in *n*, *m*, *ng*, *nj*, *l*, *rr*, *y* or a vowel:

N, M, NG, NJ, L, RR, Y, Ø

There is firm evidence for all of these save NJ, which requires further investigation.

No modern language distinguishes all eight conjugations. Nyawaygi has six, having lost just the NJ and RR classes. Walmatjarri has lost M, NJ and Y; Warlpiri has lost M, NJ and RR; while the Western Desert language has lost four classes and retains just N, NG, L and Ø. In some instances the ways in which classes merged is clear – RR and Ø fell together as Ø in Warlpiri and Y and Ø fell together as Ø in Walmatjarri. M and NG fell together as NG in the three western languages but as M in Dd1, Guugu Yimidhirr (Dixon 1980: 393–401). In other cases further study is needed.

In fact, most languages have reduced the set of conjugation classes to three, or to just two, or to one; this last reduction means that all verbs take the same inflectional forms and there is no conjugational distinction at all. These will be discussed in §6.5.3.

The generalisations given above are extensions of those in Dixon (1980: 378–430). These have been criticised in two ways. Alpher (1990) – who appears to operate from a strict neogrammarian stance, that all sound change must be completely regular (an attitude shared by few other modern-day comparative linguists) – objects to postulated developments **yan-ka* > *yan-ta* in Warlpiri and **yan-ka* > *yan-a* in Nyawaygi because there are examples of *-nka-* in Warlpiri that have not become *-nta-* and of *-nka-* in Nyawaygi that have not become *-na* (all his examples have *nka* within a root, whereas in the changes suggested it is across a morpheme boundary). He would presumably also object to grammatically conditioned changes such as **kampa-ku* > *kampa-wu* and **yu-nja* > *yi-nja* in Walmatjarri since it is certainly the case that *k* does not lenite to *w* in all intervocalic positions, nor does *u* become *i* before *nj* in all instances, in this language (although he gives no indication of how he would handle such alternations).

Alpher also objects to **yanka* > *yanta* > *yata* > *yarra* as an explanation for the imperative of *ya-n* 'go' in the Western Desert language. On the basis of the imperative form of *ya-n* 'go' being *yarra* in five languages, he suggests *yarra* as the original (irregular) imperative of this verb. However, Alpher is selective in the languages he quotes. Those languages which retain a monosyllabic verb *ya-n* 'go' show a range of imperative forms, including:

- *yana* in H3, L1, Ma2/3, Mc, Mf, Mg1, Nd;
- *yanta* in WJa/b; *yantaka* in WGd; *yanma* in O1;
- *yarra* in Ea1, Eb1, WD, WGa1/2, WI;
- *ya* in Ma4; *yal* in C; *yawul* in S1.

That is, Alpher bases his reconstruction on the imperative form in five of the thirty or so languages in which a monosyllabic verb *ya-n* is found. He pays no attention to explaining forms such as *yana*, *yanta* and the others just listed. Or to explaining the new disyllabic roots that have been assigned to 'go' in about fifty further languages including such forms as *yan ga-* in Ta1, Wemba-Wemba (this is likely to be based on an original imperative **yan-ka* through assimilation).

In keeping with his neogrammarian principles, Alpher also objects to the idea that imperative might change in a different way to other inflections, because of its pragmatic role in language use (but he offers no explanation for why an imperative suffix is often lost, whereas purposive-future never is).

A different type of alternative view has been advanced by Alpher, Evans and Harvey (ms.). This appears to be that all verb roots originally ended in a vowel and that conjugation markers were an innovation in 'Pama-Nyungan'. In fact, the term 'conjugation marker' was simply intended as a useful shorthand in synchronic analysis for the consonant that comes between root-final vowel and inflectional allomorph at some positions in some modern languages. It can be seen, from (30–3), that its appearance is sporadic. I have here explained it as the relic of an old root-final consonant, which has been lost from many root-plus-inflection boundaries due to phonological change; this loss is particularly marked in some of the prefixing languages which have undergone considerable phonological change and fusion.

Alpher, Evans and Harvey apparently assume that, although noun and pronoun roots could end in a vowel or consonant, all verb roots ended in a vowel. They suggest that verbal paradigms with 'conjugation markers' (as described above for Walmatjarri, Warlpiri, the Western Desert Language and Nyawaygi, but missing from many 'Pama-Nyungan' languages) developed out of a system similar to that in Gunwinjgu, given at (34), by analogical extension of some consonants (e.g. *-m-* in *-bo-m* 'hit-PAST.COMPLETED', *-ŋ-* in

-*wo-ŋ* ‘give-PAST.COMPLETED’) to occur between root and inflections for all TAM choices. This would involve analogical changes of unusual power. Some explanation is then needed for why ‘conjugation markers’ are found just in some ‘Pama-Nyungan’ languages but not in others, and why – in those languages in which they do occur – they occur only at certain root–affix boundaries and not at others (as exemplified in (30–3)).

6.5.3 *Loss of conjugations*

I am suggesting an original verb system something like, in part (to give a hypothetical example, but one which closely reflects what does happen in Australian languages):

(35)	imperative	yanga	bumga	njanga	gambayga	luwaga
	purposive	yangu	bumgu	njangu	gambaygu	luwagu
	irrealis	yanma	buma	njaŋma	gambayma	luwama

These forms are neatly segmentable into roots (*yan-*, *bum-*, *njaŋ-*, *gambay-*, *luwa-*) and affixes (*-ga*, *-gu*, *-ma*), an entirely agglutinative system. I assume that all words had stress on the initial syllable (the most common strategy in Australian languages). Note that root *bum-* plus suffix *-ma* gives just *buma*, since a sequence of *m* plus *m* is not permissible by the phonotactics.

Now suppose that, at a later date, this paradigm has developed into:

(36)	imperative	yana	buma	njaga	gambaya	luwa
	purposive	yangu	bumgu	njagu	gambadju	luwawu
	irrealis	yama	bumama	njaŋa	gambama	luwama

The changes that have applied between a stage like (35) and a stage like (36) can be of various types.

(a) General phonological changes, that apply systematically across the language. For example, a nasal-plus-stop cluster following a stressed vowel loses its nasal when a nasal precedes the stressed vowel: **njanga* > *njaga* and **njangu* > *njagu*. In Walmatjarri, for instance, *nja-* ‘see’ belongs to the NG conjugation like *yu-* in (30), with continuous *nja-ŋanj* and past *nja-nja*, but imperative is *nja-ka* and future *nja-ku* (through application of this dissimilation rule) in contrast to *yu-ŋka* and *yu-ŋku*.

(b) Changes engendered by a shift in the phonotactic pattern of the language. For instance, all Australian languages allow *y* in syllable-initial position but only in the east do we find syllable-final *y*. This can be reconstructed to an earlier stage, and it appears that languages in the west have simply eliminated syllable-final *y*. Supposing that (36) is from a western language, there are seen to be three ways of achieving this. A syllable-final *y* can simply be dropped, as in *gambayma* > *gambama* (a change similar to

yanma > *yama*). Or the following consonant can be dropped, so that the *y* now becomes syllable-initial, as in *gambayga* > *gambaya* (a change parallel to *yanga* > *yana* and *bumga* > *buma*). Or the laminal semi-vowel can blend with a following dorso-velar stop to give a laminal stop, as in *gambaygu* > *gambadju*. All of these possibilities were illustrated in the actual paradigms, (30–3). (In some languages we also get changes such as *-ayC-* > *-iC-*, see §6.5.4.)

(c) Changes particular to verbs, or to a given verb class. For instance, *g* > *w* /V–V as in *luwagu* > *luwawu*; the loss of *g* from imperative *ga* when following a consonant, in *yanga* > *yana*, *bumga* > *buma* and *gambayga* > *gambaya*; the complete loss of imperative suffix in *luwaga* > *luwa*; and the loss of the first of a cluster of two nasals in *yanma* > *yama*.

(d) Analogical changes. Imperative *buma* (< **bumga*) took on the same form as the original irrealis *buma*. An additional *-ma* was added to the latter, by analogy with *gamba-ma* and *luwa-ma*.

(e) Contact changes. Suppose that another language, spoken next to the language represented by (36), has undergone different changes in the irrealis: *yanma* > *yana*, and *njanma* > *njaŋa*. The irrealis form *njaŋa* could be borrowed into our hypothetical language, producing an apparent irregularity in the paradigm.

We can now look at the morphological make-up of (35) and (36). That of (35) is simple – root (ending in *n*, *m*, *ŋ*, *y* or just a vowel) plus suffix (beginning with a single consonant). That of (36) is more complex. The normal convention – for both professional linguists and native speakers trained as linguists – is to require that, if possible, a verb root should have constant form; but inflections can have a number of different allomorphs. Thus (leaving aside for the moment the column headed *buma*) that which recurs in each column would be taken as the verb root, i.e. *ya-*, *nja-*, *gamba-* and *luwa-*. Each TAM suffix has several alternative forms: *-na*, *-ga*, *-ya* or $\emptyset$ for imperative; *-ngu*, *-gu*, *-dju* or *-wu* for purposive; and *-ma* or *-ŋa* for irrealis. In the *buma* column we do get *bum-* as the recurrent part and could take this as the root. But this would be the only consonant-final root, and it would necessitate recognising vowel-initial allomorphs: *-a* of imperative and *-ama* of irrealis. An alternative analysis would be to take the root as *bu-* with inflectional endings *-ma*, *-mgu* and *-mama*. (Only three endings were given for each verb in (36). When more are considered, it is likely that *bum-* would not recur in all of them, only *bu-*, as in (33).)

In (35) each inflection had a single form; in (36) each has three to five allomorphs. But there is an order to the allomorphs – any verb which takes purposive *-dju* will take imperative *-ya* and irrealis *-ma*, for instance. Verbs pattern into five classes, according

to the allomorphs they take, as exemplified by a sample verb from each class in (36). Each class can be called a conjugation.

Note that in (35) verb roots end in a consonant or in a vowel. In (36) – if we follow the *bu-* alternative – each ends in a vowel. The original root-final consonant is sometimes retained, as the first element in some of the allomorphs for that conjugation, and sometimes lost (or merged, as in *-ygu* > *-dju*). It can be illuminating to segment out the erstwhile root-final consonant (where it occurs) as a ‘conjugation marker’, as we did in (30–3) (although not in (34)). This is a sort of historical relic; synchronically it is just the first segment of some allomorphs. It accounts for having some suffixal allomorphs beginning with two consonants, in a language where words can begin with only one consonant. (One of the explanations given in §5.4.3 for ergative *-ngu* and locative *-nga* on nominals follows a similar argument.) It is useful to label the conjugations by their former final segment – N, M, NG, Y, Ø (plus L, RR and probably also NJ, which were omitted from the example just given simply to control the complication); but they could equally well be called I, II, III, etc.

It is easy to learn a system such as (35), where each root and suffix has a single form. The paradigm in (36) can be analysed so that each verb has a constant root form, but one has to learn the conjugation it belongs to, in order to know which allomorphs to use with it.

Having a number of verbal conjugations is of no communicative value to a language if there is no semantic or functional information coded by conjugational membership. There is thus a tendency, in any language with conjugation classes (as with non-meaning-based declensional classes of nouns, etc.), to either (a) assign some meaning or function to a conjugation; or (b) gradually merge classes until there is just one, and we are back at the simple agglutinative profile exemplified in (35). Both types of change apply in Australian languages, and typically both apply at the same time. These inter-relate with two other factors – the simple/complex verb parameter, discussed in §6.3.1, and the phonological parameter relating to whether or not a language permits monosyllabic roots or words (see §12.1.3).

In a given language, each conjugation is likely to have a profile in terms of:

- (a) whether its members are all monosyllabic, or all polysyllabic, or a mix;
- (b) whether its members are mostly intransitive, mostly transitive, or a pretty even mix;
- (c) whether the class is small (and closed) or large (and open);
- (d) what the last vowel of a root is – any of *a*, *i* or *u*, or just two of these, or only one of them; or a predominance of one or two vowels.

In languages with a small number of verbs these are often distributed fairly evenly between the conjugations. For instance WJa3, Gurindji, has just over thirty simple verbs – four in the N class, seven in NG, two in L, seven in RR and about twelve in the Ø class. Where a language has a greater number of simple verbs, there is a tendency

for two of the conjugations to be large and open (loan verbs from other Australian languages may be added to these classes). Most frequently, one of these classes is predominantly transitive and the other predominantly intransitive. (Although not all languages show this pattern – the Western Desert language has about 250 verbs with over 200 of these in the L class; about twenty-five in the Ø class, about twenty in the N class, and just three monosyllabic verbs making up the NG class.)

By comparing the profiles of individual conjugation classes between languages it is possible to put forward general profiles of classes across the continent. It should be noted that this is a rather speculative endeavour. No language retains all eight postulated original classes and in fact rather few have four, five or six, as in (30–3). That is, in every language certain classes have merged – we saw that Y and Ø classes have merged into the Ø class in Walmatjarri, while the RR and Ø classes have merged into the Ø class in Warlpiri, and NG and M classes have merged into the NG class in both languages. Thus, when we compare class X in one language with class X in another, the first X may actually be a merger of V, W and X, while the second could be a merger of X, Y and Z.

With this caveat in mind we can provide tentative profiles (note that some recurrent monosyllabic and other members of each class were listed near the beginning of §6.5.2):

- N class generally includes a few monosyllabic roots, plus disyllabic roots in most languages; mostly transitive (although *ya-n* ‘go’ is intransitive); the last vowel is generally *a*, with odd instances of *u* and *i*.
- M class, where this is retained as a separate class, consists of a very small number of transitive monosyllabic verbs, ending in *a* or *u*.
- NG class generally consists of just a few transitive monosyllabic roots, but in some languages there can also be a few dozen polysyllabics, mostly transitive; the last vowels are almost always just *a* or *u*.
- L class varies from a small class consisting of one monosyllabic verb (in Warlpiri) to an open class with hundreds of members (sometimes including one or two monosyllabics, sometimes none); predominantly transitive; last vowel can be *a*, *i* or *u*.
- RR class is entirely polysyllabic, mostly transitive, generally a smallish class (with between six and fifty members); last vowel is *a* or *u*.
- Y class is entirely polysyllabic; predominantly intransitive; often an open class; last vowel is generally *a* or *i*, very seldom *u*.
- Ø class is also entirely polysyllabic; transitivity varies between languages (entirely intransitive in Nyawaygi and Ya1, Djapu, for instance, but mostly transitive in Warlpiri); often an open class; last vowel is again generally *a* or *i*, seldom *u*.

(Note that we do not have sufficient information about the putative NJ class to provide a profile.)

Quite a few modern languages have just two open classes (there are also languages with two open classes plus a few small classes each involving just two or three monosyllabic roots). The most common pattern is an L class that is predominantly transitive and a Y or Ø class that is predominantly intransitive. But other patterns are also found. In Warlpiri, for instance, the Y class is the large class that is mostly intransitive, but it is the Ø class which is large and predominantly transitive. In Ya1, Djapu, it is the NG conjugation which is the large class that is mostly transitive, and the Ø class which is largish and mostly intransitive. In Dd1, Guugu Yimidhirr, the L class has about 150 members, about 70 per cent transitive; the RR class has about fifty members, about 65 per cent transitive; the Y class has twelve members, 75 per cent intransitive; and the N and M classes each have three members, one intransitive and two transitive. Here the greatest number of intransitive verbs are in the L and RR classes, although in each instance they constitute a minority.

As already mentioned, in languages with a few simple verbs the conjugation classes tend to be fairly equal in size. As the number of verbs grows, one or two large classes tend to develop, with the remaining classes contracting and finally being lost. (H1, Dyirbal, which has the highest recorded number of monomorphemic verbs, has just two classes – an open, predominantly transitive L conjugation, and one which is predominantly intransitive and appears to be the merger of Y and N conjugations.) Different classes expand in size in different languages; surveying the two largest classes across a sample of languages, we find all of L, Y, Ø, RR, NG and N represented (i.e. all save for M).

There are certain recurrent properties of conjugation classes that are not at present understood, and should be the subject of further study:

- (1) Why are there few or no verbs ending in *u* in the Y and Ø classes and few or none ending in *i* in the M, NG and RR classes? That is, why at an earlier stage did few or no verbs end in *-u*, *-uy*, *-im*, *-iŋ* or *-irr*?
- (2) There is a distinct transitivity correlation. First, note that every – or almost every – Australian language has more transitive than intransitive verbs (most often about twice as many, although the proportion does vary). Generally, intransitive roots make up a higher proportion of the Ø and Y classes but a lower proportion of the other classes. Why is this so?
- (3) Monosyllabic verbs all fall into the N, NJ, NG, M and L classes, with none attested for RR, Y and Ø. Except in Warlpiri, where the only L class verb is *ŋa-* ‘eat, drink’, there is always a fair number of polysyllabic verbs in the L class. The N and NG classes often consist entirely or mainly of monosyllabic members, although there are exceptions – in Western Desert, the N class has about twenty members, only three of them monosyllabic, and in Ya1, Djapu, the NG class has twenty-five members, three of them

monosyllabic, and the N class has thirteen members, including no monosyllabics. The lack of monosyllabic roots in the Ø class could be explained by the likelihood of all monosyllabic words and roots, at an earlier stage, being closed syllables. No explanation is apparent for the remaining distribution of monosyllabic and disyllabic roots.

We can now consider the ways in which conjugational contrasts have been reduced and finally lost. One major factor was the elimination of monosyllabic verb roots.

Nominal, pronominal and verbal comparison establishes without doubt that there were originally monosyllabic roots in all word classes, and also monosyllabic words. These are retained in just a few modern languages (e.g. group Ma). In most modern languages every word and also every underlying root must have at least two syllables. In some languages, underlying verbal roots can be monosyllabic but all inflected words are disyllabic. This applies to Walmatjarri, the Western Desert language, and Nyawaygi, for instance. Note that the imperative suffix has been lost from the Ø conjugation in Walmatjarri and the Western Desert language and from the L class in Nyawaygi. These classes consist entirely of polysyllabic verbs. Imperatives could not be lost from any of the classes that include monosyllabic verb roots, in these languages, since each inflected verb must have at least two syllables.

In a seminal paper, Hale (1973a) showed how there would first have been a requirement that all words should have at least two syllables, with this percolating back so that, at the next stage, underlying roots were also required to be of at least two syllables. What happened was that the combination of an old monosyllabic verb plus a suffix was reanalysed as a new disyllabic root, and assigned to an open conjugation according to its transitivity. Consider the root **nha:ŋ* 'see, look at', item (64) in §4.2.7. The initial nasal is *nj* in languages that lack a laminal contrast; in a northern area the initial nasal is *n*; the vowel is short in languages that have lost the original length contrast in initial syllables. A monosyllabic root is found in some languages from groups D, E, H–J, L–O, T, U, Y, WD, WG–WK, NB, NH, NI, NK. In many other languages this verb has been assigned a disyllabic root. These include (the list is not exhaustive):

nhaga- in J, M, T, WA, WC

nhagu- in WA, WB, WH

nha(:)gi- in G, H, N

nhanha- in WG, WH

nhaga- in T, WG

nhadha- in WA

nhaya- in N

nhama- in K

nha:wa- in B

nhawu- in WH

nhana- in WF

nhanji- in W, WA

nhagu- in WB, WE

nhadji- in B, F, WA

nhayi- in WA

nhadjba- in X

It will be seen that the new root can be based on *nha*(:)- plus purposive *-gu*, or imperative *-ga*, or one of about ten other suffixes.

Similar lists were given in §4.2.7 for other originally monosyllabic roots. Thus, relating to (1) **yan*- 'go' we find disyllabic roots such as *yana*-, *yanu*-, *yani*-, *yanda*-, *yanga*-, *yanma*-, *yangu*-, *yandha*-, *yaŋa*-. The original verb (26) **bum*- 'hit' has given rise to new polysyllabic roots such as *buma*-, *bumi*-, *bumga*-, *bumdu*-, *buwa*-, *buŋi*-, *bugu*-, *bugga*-, *buggu*-, *bundja*-, *budha*-, *budhi*-, *burba*-, *burda*-, *bura*-. And so on (see also Dixon 1980: 415–18).

It is possible to observe this reanalysis in progress. In coastal dialects of F, Kuku-Yalanji, all verb roots are disyllabic. However, there are just three verbs that have two root forms, one used for imperative and the other for all other functions. These are:

imperative	other functions	
njaga	njadji-l	'see'
mana	mani-l	'get'
daya	dadji-l	'give'

These are plainly relics of older monosyllabic roots *nja*(ŋ) 'see', *ma*:(n) 'get' and *da*(y) 'give' (the last is only attested for this language). The old imperative form (originally *nja-ga*, *ma-na* and *da-ya*) is still used as imperative, but now as a disyllabic root – note that imperative is *-ø* on a disyllabic root from the L class and *-y* on a root of the Y class, these being the only two conjugations that remain. The non-imperative roots go back to some other former inflection (probably past tense).

Interestingly, inland dialects of this language have completed the process of reanalysis. These dialects just have roots *njadji-l* 'see' and *dadji-l* 'give' (information on 'get' is not available). Imperative inflection on roots from the L class is here *-la*, so that we get imperative forms *njadji-la* and *dadji-la*, corresponding to *njaga* and *daya* in coastal dialects. (There is a similar example of reanalysis in group H – see Dixon 1980: 415–16.)

Dd1, Guugu Yimidhirr (Kuku-Yalanji's northerly neighbour up the coast), retains N and M conjugations (the latter being a merger of original M and NG classes), each consisting entirely of monosyllabic members. Haviland (1979a: 85) reports that speakers of southern dialects – next to Kuku-Yalanji – have reanalysed *nha*:-*m* 'see' and *wu*-*m* 'give' as involving disyllabic roots *nhaadhi-L* and *wudhi-L* respectively. Thus, for 'see':

	northern dialects	southern dialects
root	<i>nha</i> :(-m)	<i>nha</i> :dhi(-l)
imperative	<i>nha</i> :-ma	<i>nha</i> :dhi-la
past	<i>nha</i> :-dhi	<i>nha</i> :dhi-ø
non-past	<i>nha</i> :-ma:	<i>nha</i> :dhi-l

The old inflected past form is taken as the new root (as it probably has been in Kuku-Yalanji). This is a clear case of diffusion – the replacement of root *nja-* by *njadi-l* in Kuku-Yalanji (a language with no vowel length or laminal contrast) has led to the replacement of *nha:-m* by *nha:dhi-l* in adjacent dialects of Guugu Yimidhirr. (Further examples of reanalysis in Guugu Yimidhirr are given in Dixon 1980: 416–17.)

As already mentioned, conjugational contrasts have no communicative function. They do not carry any meaning or functional contrast and are, basically, a useless irregularity. As soon as conjugations developed – due to phonological changes at the root-suffix boundary – the processes of reducing and finally losing them began. We tentatively reconstructed eight original classes; no modern language has more than six of these and most have less.

A rough count of the c. 150 languages for which there is reasonable data shows that about 50 per cent have three or more conjugation classes; a little less than 25 per cent have two classes; and a little more than 25 per cent have no classes at all.

Conjugations may be merged or lost due to one or more of a number of factors:

- (a) Morphological reanalysis. As just described, monosyllabic verbs may be reinterpreted as disyllabic: the conjugations that consisted just of monosyllabic roots then cease to exist.
- (b) Phonological change. When the phonotactics of western languages changed so the *y* was no longer permitted in syllable-final position, one option was simply to drop *y* from this position. This appears to have happened in Walmatjarri, so that the *Y* class, now lacking its *y*, has merged with the $\emptyset$ class. (In contrast, Warlpiri has retained the *Y* class through changes such as *-yka* > *-ya* and *-yku* > *-tju*.)
- (c) If two conjugations have the same allomorphs for most TAM categories, they may merge and have the same allomorphs for all inflections. For instance, Ya1, Dhuwal/Dhuwala, basically has five conjugations, *N*, *M*, *NG*, *L* and $\emptyset$. The *N* and *L* classes show only one major difference, the potential suffix is *-rru* for the *N* class and *-lu* for the *L* class. In the related language Yc1, Djinang, these two classes have merged, with *-rri* for potential (the change *u* > *i* is a regular one).
- (d) If one conjugation consists of just a few members, most or all of them may simply drop out of use; just a few could be retained, and assigned to a major conjugation. For instance, WHc2, Martuthunira, has eighty-three verbs in the *L* class, fifty-one in the $\emptyset$ class, but only four in the *RR* conjugation. Its near neighbour WHc3, Panyjima, has just *L* and $\emptyset$ classes. Only two of the *RR* class verbs from Martuthunira occur in Panyjima, and they have both been transferred to the *L* class (*wanhtha* ‘leave’ and *patha* ‘blow, hit’).

G2, Yidinj, has three conjugations – an L class with 155 members, an N/Ø class, with 123, and an RR class, with just 15 members in the data collected. The related language G1, Djabugay, has just two classes, L and Ø. A fair collection of verbs from the L and N/Ø classes in Yidinj are found in Djabugay, but only two of those from the RR class. It is interesting to compare their forms, *bandja-RR* ‘follow’ and *buybu-RR* ‘blow at, fan’ in Yidinj, compared with *banjdjarri-L* ‘follow’ and *buybirri-L* ‘blow’ in Djabugay. That is, the old root-final segment, *rr*, is retained and an *i* added, to form a new root that is placed in the L class.

Some languages that retain two conjugations have distinct allomorphs for every or almost every TAM inflection, e.g. Panyjima and Djabugay. In other languages the conjugations are distinguished in only one or two suffixes. In K1, Ngawun, all inflections have a single form save for present which is *-lpuŋu* with one class of verbs and *-iŋu* with the remainder. In F, Kuku-Yalanji, the Y class has *-y* for both imperative on a disyllabic stem and future, while the L class has *Ø* and *-l* respectively. All other inflections are the same on all verbs, including *-ka*, imperative on a stem of more than two syllables. Languages of this type are likely soon to completely merge their conjugations.

As already mentioned, the most common development is for a language to develop two open conjugations, one predominantly transitive and the other predominantly intransitive. However, there are a few languages that have just one open class but also retain a few monosyllabic roots (or a few irregular verbs that have developed out of monosyllabics); they make up several minor classes, each with just a few members. This is found in Mf, Mg1, Ta and W.

In a fair number of languages the phenomenon of conjugational classes has been eliminated and there is just one form for each TAM inflection. Languages with no conjugations include some in Bc, Da/b, De, Ja, U, V, X, WA, WBb/c, WL, NA, NE, NL (and probably more besides).

At the beginning of this section I suggested that at an early stage all verb paradigms were agglutinative – there was a root with constant form (ending in a consonant or a vowel) followed by a suffix which also had constant form. Phonological change then applied across the root–suffix boundary and served to obscure this boundary. These changes produced conjugational classes of verbs (one class corresponding to each original root-final segment) with the conjugations having no definitive semantic or grammatical basis. There was then a tendency to lose this conjugational complexity, through the kinds of changes just described.

In a number of languages these changes have run full course until all conjugational distinctions have been eliminated. In languages with no conjugational distinctions all verb roots end in a vowel, and all verbal suffixes have constant form so that the verb paradigms are once more fully agglutinative. In a classic study, Hale (1973a) describes

how a certain phonotactic constraint may first be adopted into surface structure and is then likely to percolate back to apply also to underlying forms. For example, first of all every word must end in a vowel, then this requirement is extended so that every root must end in a vowel (see the discussion at (ii) in §12.8.4). It appears that a phonotactic profile may also percolate in the opposite direction. Languages in groups X, WA and WB lack conjugations, and every verbal root must end in a vowel. In these languages the vowel-final requirement has been generalised so that it now applies to every word (across all word classes) – all roots and also all words end in a vowel. (This has also applied to WMb2 and WMb3, which were spoken between X and WA.)

There is one further type of development. As already stated, there is generally a correlation – but no coincidence – between conjugation class and transitivity; something between 60 per cent and 90 per cent of the members of a given class may have a certain transitivity value. I know of just two languages with two open classes, one of which is exclusively intransitive and the other exclusively transitive. Now the conjugational classes ARE performing a functional role in the grammar.

This applies in the Marrganj and Gunja dialects of Ja1, where in fact the conjugations are only distinguished through the form of the purposive suffix: *-l(g)u* for transitive verbs and *-ngu* for intransitives. (In other dialects of this language there is no conjugational distinction at all.) It also applies in the Warrgamay dialect of H2, where five of the seven final inflections have different forms for the two conjugations. In another dialect of H2, Biyay, conjugations do not exactly coincide with transitivity. For instance, we find *bungi-L* ‘lie down’, an intransitive verb in the predominantly transitive L class. It appears that Warrgamay has simply transferred anomalous verbs between conjugations – it has *bungi-Ø* in its entirely intransitive Ø class (see Dixon 1981a: 51–2).

The marking of transitivity by verbal allomorphy in Warrgamay is syntactically most useful. Intransitive verbs only occur in intransitive clauses but a transitive verb can occur either in a transitive clause (with A and O arguments), marked by transitive TAM allomorphs, or in an intransitive clause (with an S argument, corresponding to transitive A), marked by intransitive allomorphs. There are several functions performed by a transitive verb used in an intransitive clause, one being to show reflexive meaning. Compare (Dixon 1981a: 64):

- (37) *ŋadja* *wagun_O* *ganda-nju*
 1sgA wood-ABS burn-PERF+TRANSITIVE
 I've burnt the wood
- (38) [*ŋayba* *mala*]_S *ganda-gi*
 1sgS hand+ABS burn-PERF+INTRANSITIVE
 I've burnt myself on the hand

That is, the occurrence of the *-nju* allomorph of perfect aspect, on *ganda-* in (37), indicates that this is a transitive clause, while the *-gi* allomorph in (38) marks an intransitive clause. These sentences involve the 1sg pronoun which has different forms for A and S function. But n-sg pronouns have the same form for A and S functions, and if, say, 1du *ɲali* were substituted for *ɲadja* in (37) and for *ɲayba* in (38), the only clue to transitivity would be in the TAM allomorph used. There is further discussion of this system, and its development, under (a) in §11.4.

6.5.4 *Extended fusion*

In languages with a single form for each TAM suffix (i.e. with no conjugational classes), some of these suffixes do reflect the recurrent imperative form *-ga* and the recurrent purposive form *-gu*. For instance, imperative *-ga* is found in NA, the Tangkic subgroup, and in WBb1, Parnkalla, and purposive *-gu* in Ja2, Biri (here imperative is $\emptyset$).

In Mg1, Gumbaynggirr, there is just one open conjugation (plus seven irregular verbs, the relics of old monosyllabics). Here future is *-ygu* and imperative is *-la* or $\emptyset$ (in seeming free variation). It appears that original Y and L classes have merged, to give this single open conjugation. The future of the new class continues the old Y class form, *-ygu*, while the imperative uses what was the L class form, *-la* (< **-l-ga*, as in the Western Desert language).

In other languages with no conjugational contrast, the TAM suffixes include no clearly identifiable reflection of either the original stem-final consonant or any of the recurrent inflections. For instance:

- (1) Da, the Lama subgroup (non-prefixing languages), has undergone initial dropping and also final truncation (for instance **ku:tharra* ‘two’ has become *-f^worr*). The basic inflections on verbs are: imperative *-l*, past *-n*, present *-m* and future *-y*. (It is of course possible that imperative *-l* comes from **-l-ga* and future *-y* from **-y-gu*, but there must be alternative possible avenues of development.)
- (2) NE, the Fitzroy River subgroup, has developed prefixes but still retains some TAM suffixes. A number of original monosyllabic verbs are recognisable, e.g. *-ka-* ‘carry, take’, *-bu-* ‘hit, kill’ and *-ma-* ‘put, make’. All verbs take the same inflectional forms. In NE1, Njigina, the realis TAM suffixes are: recent past *-nj*; general past *-na*; present *-n*; and future (also used for imperative) $\emptyset$; there is also future marking in the prefix complex.

I have referred to phonological changes at a root-suffix boundary (involving the root-final consonant and the suffix-initial consonant) leading to the original root-final consonant becoming part of the suffix, e.g. *kampay-ka* > *kampa-ya* and *kampay-gu*

> *kampa-tju* in Warlpiri. In some languages the process of segment assimilation or amalgamation can extend back to the last vowel of the root. In W1a1, Njangumarta, syllable-final *y* has been eliminated by a number of phonological changes, including *ay* > *i*. Verbs that ended in *a* and were followed by conjugation marker *-y-* now have a root ending in *i*, e.g. *kampa-y-* > *kampi-* 'burn' (further examples are given in Dixon 1980: 413).

We noted in (30) that in Walmatjarri the verb root *yu-* 'give' becomes *yi-* before past tense suffix *-nja* (this change applies to all three *u*-final roots in the NG class). Note also that Walmatjarri has *yinpa-* 'sing' corresponding to *yunpa-* in other languages. That is, there are sporadic assimilations *u* > *il-nj* and *u* > *ily-*.

In those languages with the highest degree of fusion, groups ND and NF, verb and TAM suffix have become fully amalgamated, so that it is extremely difficult (or impossible) to provide morphological segmentation. For NF1, Bunuba, Rumsey (2000) recognises a root *-wu-* 'impact upon' which is said to be cognate with the root *-bini-* 'hit' that McGregor (1990: 195) recognises for the closely related NF2, Guniyandi; these are likely to be cognate with the recurrent root *bu(m)-* 'hit'.

For the ND subgroup, fusion has extended so far that segmentation into verb root and TAM element is impossible. ND1, Kitja, is said to have just fourteen inflecting verbs. Three of these will be illustrated, in their portmanteau forms for three tenses and imperative (McConvell ms.-b):

(39)	'go'	'get'	'hit'
past	-yi(n)	-maŋ ~ -manj ~ -ma	-yit
present	-t	-men	-yin
future	-yan	-m	-yin
imperative	-ya	-m	-yi

It is likely that 'go' and 'get' relate to the recurrent forms *ya(n)* 'go' and *ma:(n)* 'hold, get, take'; indeed, the *n* in the Kitja forms may possibly relate to the original root-final consonant. 'Hit' is plainly not related to the recurrent form *bu(m)*. Note that present and future fall together for 'hit', whereas future and imperative do so for 'get'.

Languages in the NB group have undergone a fair degree of fusion (although less than in ND and NF). NBg1, Gunwinjgu, for instance, has thirteen conjugational classes, some of them undoubtedly based on the original root-final consonants (as was demonstrated in (34) above) with others being the result of phonological changes in the language. Many TAM suffixes consist of a single syllable-closing consonant, and this can sometimes be just the original root-final segment, e.g. past completed *na-ŋ* 'see' and *bu-m* 'hit' (Carroll 1976). One extreme within this group is exemplified by NBa, Mangarrayi, which has a slightly different set of TAM allomorphs for

each of its thirty-six simple verbs. These include, quoting four sample inflections (Merlan 1982a: 158–9):

(40) Mangarayi

	'hit'	'take, carry'	'give'	'do, say'	'cry'	'cut'
imperative	-bu	-ga-w	-wu	-ma	-rdu	-gunda-w
present	-bu-n	-ga-n	-wu-n	-ma	-rdu-n	-gunda-n
past punctual	-bu-b	-ga-ŋinj	-wu-na	-ma-nj	-rdu-ni	-gunda-ni
past continuous	-bu-ni	-ga-ni	-wu-ni	-ma-ri	-rdu-ni	-gunda-ni

The verbs illustrated here relate to the recurrent forms *bu(m)* 'hit', *ga(ŋ)* 'take, carry, hold', *wu(ŋ)* 'give', *ma(l)* 'do, say', *rdu(ŋ)* 'cry' and *gunda(l)* 'cut' (there is, in this paradigm, scarcely any relic of the original root-final consonant).

The other extreme is exemplified by NBI2, Wardaman (Merlan 1994: 198), where there are two conjugations, distinguished primarily by whether they take past tense allomorph *-ndi* (as do *-bu-* 'hit', *-ga-* 'take' and *-me-* 'get') or allomorph *-rri* (as do *-lu-* 'cry' and *-na-* 'see'). All verbs take present *-n*, future *-wa* and potential *-yan-* (the latter two have allomorphs *-we* and *-yen* respectively after a root-final *i* or *e*).

As would be expected, phonological changes have affected the vowels of verb roots in some cases. Many prefixing languages have innovated extra vowels above the original three. We find *-wo-* (< *-wu-*) 'give' in Gunwinjgu, *-me-* 'get' (< *-ma-*) in Wardaman, and *-pø-* 'hit' (< *-pu-*) in NHa, Patjtjamalh (where ø is a high mid front rounded vowel), for instance.

Finally, it should be mentioned that some languages have, as a recent development, innovated a new set of conjugational classes that are in no way related to the old pan-Australian classes discussed above. For instance, Patjtjamalh has four classes, taking allomorphs of the two major inflections as follows:

(41) Patjtjamalh

	class 1	class 2	class 3	class 4
future	-pa	ø	-aŋ	ø
non-future	-mene	-ŋana	-e/-a	ø

Class 1 includes *-pø-* 'hit', *-n-* 'see' and *-tji-* 'eat, drink'; class 2 includes *-ma-* 'pick up' and *-rø-* 'cry'; while class 3 includes *-ka-* 'fetch' (Ford 1990: 110–13). These relate to the recurrent forms *pu(m)* 'hit', *n(h)a:(ŋ)* 'see', *dha(l)* 'eat', *ma:(n)* 'hold, take, get', *ru(ŋ)* 'cry' and *ka:(ŋ)* 'take, carry, hold' respectively. That is, the original *-ŋ*-final roots are distributed over three conjugations while class 1, for instance, includes original *-m*, *-ŋ* and *-l* forms. (This contrasts with languages such as Gunwinjgu, where all the original *-ŋ*-final roots belong to the same conjugation class, and so on.)

In the case of Patjtjamalh, it is likely that the original root-final segments and associated conjugation classes were completely lost. And then, as a further stage of development, a new set of classes developed on a language-internal basis (in a way that is not yet understood). Group NG provides a similar scenario (see, for instance, Rumsey 1982a: 81), as do the languages of NA, the Tangkic subgroup.

6.6 Nominal suffixes onto verbs

While almost all Australian languages have mechanisms for deriving verbal stems from adjectives and nouns, techniques for nominalising verbs are less widely attested and, where they do exist, appear to be less frequently used.

Nevertheless, there are a fair number of languages that have nominalising derivations. These often form an agentive nominal, e.g. NAb2, Yukulta, *kapa-n-ta* 'hunter' from the transitive verb *kapa-* 'find' plus nominalising suffix *-n* (and absolutive *-ta*) (Keen 1983: 233). The object of a verb may be included in the nominalisation, e.g. Ja1, Gunja, *yurdi-muga-:linj* 'butcher' from noun *yurdi* 'meat', verb *muga-* 'get' and nominaliser *-:linj* (Breen 1981a: 314).

There may also be a suffix which derives a nominal referring to the action or state described by the verb, e.g. *-njtja* in WD, the Western Desert language. Thus, *ilu-njtja* 'dying' (as in 'he's talking about dying'). This type of nominalisation may also include an object noun, e.g. *purnu-kartantaku-njtja* 'wood-break.off-NOMINALISER' as in '(a story about) breaking off wood' (Goddard 1985: 150).

All of these nominalisations can, of course, take the full range of nominal affixes. It is then a short step to having the verb of a clause nominalised, and an appropriate nominal suffix added, the whole functioning as a subordinate clause – it could be a purposive clause or an adverbial clause or a relative clause. In the Western Desert language, purposive *-ku* is added to a nominalised verb, as in (Goddard 1985: 162):

- (42) *kun̩ka-ŋku_A tii_O kutja-rnu [tjitji-ŋku tjiki-njtja-ku]*
 woman-ERG tea heat-PAST child-ERG drink-NOMINALISER-PURP
 the woman heated some tea for the child to drink

This purposive suffix *-ku* is identical to nominal purposive suffix *-ku*. We could in fact say that the *-ku* in (42) is the nominal purposive, added to a nominalised clause. (An alternative to (42) would be to keep the first three words and replace the purposive clause by *tjitji-ku* 'child-PURPOSIVE', i.e. 'the woman heated some tea for the child'.)

As already mentioned, in many languages a purposive clause is directly marked by a verbal inflection, without any nominalising suffix intervening. This verb inflection is usually homophonous with a purposive/dative suffix on nouns. The most frequent form for the verbal purposive/nominal purposive and/or dative is *-gu*, but we also find

-nu for both functions in NHd1, Murrinh-patha, *-dji* in NE1, Njigina, and *-ntu* in K1, Ngawun (see the table in Blake 1993: 40). In V, Baagandji, purposive clitic *mandi* – exemplified at (3) in §5.1.2 above – can be added to a noun as a case suffix, or to the verb of a subordinate clause, where it then follows tense and bound pronominal suffixes (Hercus 1982: 78–9, 216).

In some languages *-gu* on verbs has both purposive and future meanings. In others it has shifted to just mark future. The Western Desert language is of this type – future involves *-ku* added directly to the verb, while purposive is nominaliser *-njtja* plus *-ku*.

This suggests a possible scenario for diachronic development:

- (a) Originally *-gu* was just a nominal suffix, for purposive and/or dative.
- (b) It was then added to a nominalised verb stem.
- (c) The nominalising suffix dropped, so the *-gu* became a regular verbal inflection.

Two more stages would then be added in the case of the Western Desert language:

- (d) Verbal purposive suffix *-ku* shifted to future meaning.
- (e) A new verbal purposive evolved, by going through step (b) again.

Note, though, that in the great majority of modern languages, *-gu* (or whatever the nominal purposive/dative form may be) is added directly to the verb. As an alternative to steps (a–c), it is equally likely that at an earlier stage *-gu* was used as both a nominal and a verbal suffix without any intervening nominalisation process being involved or having been involved.

Australian languages vary widely in the types of subordinate clause constructions they have, and in how these are marked. However – as mentioned in §3.3.12 – one recurrent feature is that nominal affixes are generally used to mark types of subordinate clause. The nominal case may be added after a nominalising suffix, but more often it is just added after a tense or aspect suffix (which could have incidental function as a nominaliser in this context; further study is needed on the individual languages involved – see the table in Blake 1993: 44, repeated in Blake 1999: 304). In G2, Yidinj, for instance, a relative clause referring to something that happens at the same time as the main clause is marked by past tense *-nju* plus dative *-nda* onto the verb, while a relative clause which refers to an event prior to that described by the main clause involves past tense *-nju* plus ablative/causal case suffix *-m* (Dixon 1977a: 322–41).

There are recurrent similarities in the meanings that each nominal suffix takes on when used to mark a subordinate clause. Locative may give rise to ‘when’ or ‘habitual’; ablative to ‘after’; allative to ‘until’; and aversive to ‘lest’ (see Blake 1987b, 1993). In NHd1, Murrinh-patha, the ergative/instrumental nominal suffix *-tə/-rə* can also be used to mark a subordinate clause ‘at which time, when’. It then attaches to any word in the subordinate clause, although most frequently it does go on the verb

(Walsh 1976a: 163, 263–4). There are useful discussions of nominal suffixes applying to verbs for WJb1, Warlpiri, by Simpson (1988) and for Ya1, Djambarrpuynngu, by Wilkinson (1991).

Switch-reference marking – specifying whether the subject of a purposive clause or relative clause is or is not the same as the subject of the main clause – is found in a continuous area, including languages of groups X, WA, WC, WD, WG, WH, WJb, WK, WMb, WL and NCb – see map 11.1. It is an areal phenomenon with just the category of switch-reference marking having diffused, and each language evolving switch-reference marking forms from its own internal resources. Interestingly, languages in the southern part of the switch-reference area have based different-subject marking (a suffix to the verb) on the nominal locative case, while languages in the northern part of the area base same-subject marking on locative and different-subject marking on allative. The actual locative and allative suffixal forms differ from language to language. See Austin (1981b) and Blake (1993: 48–9).

In some parts of Australia, types of subordinate clause have been reanalysed as main clauses, so that what were verbal suffixes marking subordination now take on TAM values. Evans (1995a: 269ff) has provided a detailed account of the diachronic changes in languages of NA, the Tangkic subgroup. For proto-Tangkic he reconstructs just three verbal suffixes – imperative **-ka*, irrealis imperative ('let do') **-ki* and desiderative **-da*. Other verbal inflections in modern languages appear diachronically to involve nominaliser *-th-* (reminiscent of *-njtja-* in the Western Desert language) plus a nominal inflection. Locative suffix has given rise to contemporaneous tense, proprietive (a type of comitative) to potential, and allative to purposive, among others.

In §4.3.3, I suggested that A1, the West Torres Strait language, is best classified as a Papuan language with some Australian substratum. Interestingly, it has the same suffixal forms for both nominal and verbal inflections: *-gu* is ablative and yesterday past, *-nu* is locative and immediate past, *-pu* is comitative and habitual. And *-n*, which is a completive suffix on verbs, has the same form as ergative/instrumental *-n* on nouns (and also shows similarity to accusative/genitive *-n ~ -un ~ -mun* on pronouns). Kennedy (1984) suggests that speakers of this language have a single set of abstract categories which can be expounded in both verbal and nominal domains.

6.7 Copula and verbless clauses

In addition to transitive clauses (with core arguments A and O) and intransitive clauses (with core argument S), many Australian languages also have a copula clause. A copula clause has two core arguments: copula subject (CS) and copula complement (CC). For example, in a dreamtime story about encountering the first wind, told in the Duungidjawa dialect of Ma4, one man says to another (Kite 2000: 105, 131):

- (43) [nje: mana]_{CS} yi-ye [buran]_{CC}
 name THAT be-PRES wind
 that one's name is 'wind'

Every Australian language also has verbless clauses, involving just two NPs. For instance, in NAb2, Yukulta (Keen 1983: 229):

- (44) [rtathinma rtan̩kara] [ɲitjinta kartuwa]
 THAT man 1sgPOSS son
 that man's my son

And in NL, Tiwi, illustrating the negation of a verbless clause (Lee 1987: 285):

- (45) wuta karluwu mitayuwu
 3pl NOT thieves
 they are not thieves

Now in every Australian language with a copula construction, the copula verb may be omitted in many circumstances. In view of this, it is appropriate to recognise copula clauses and verbless clauses as varieties of one clause type. This has the structure:

+Copula subject (CS) +Copula complement (CC) +/–Copula verb

In the grammars of some languages there is clear information concerning the consequences of omitting or including a copula verb. In Nc1, Yuwaalaraay (Williams 1980: 69), a verbless clause can carry the meaning 'be', as in (46a), while a copula clause signifies 'become', as in (46b).

- (46) (a) burul_{CC} [nhama dhayn]_{CS}
 big THAT man
 that man is big
 (b) burul_{CC} [nhama dhayn]_{CS} gi-nji
 big THAT man be-NON.FUTURE
 that man is getting big

Nordlinger (1998: 179) states that in NCb3, Wambaya, the copula verb tends to be used 'when the statement is emphatic, or one of exclamation or contrast'.

A copula verb has no referential meaning (that is, it does not refer to any action or state) but it does indicate a relationship between CS and CC. The most common kinds of relationship are:

- (a) identity (e.g. 'he is a doctor'), involving an NP as CC;
- (b) attribution (e.g. 'I am tired', 'that river is deep'), involving an adjective or a derived adjectival expression as CC;
- (c) location (e.g. 'I am here', 'he is from the coast') involving a locative expression as CC.

The criterial feature for a copula verb is that it should occur with two arguments (CS and CC), which are different from the core arguments of transitive and intransitive clauses (A, O and S). For example, in languages where an A NP takes ergative case, we do not find that one of the arguments of a copula clause is always marked with ergative; and in languages where O may be marked with accusative case, we do not find accusative on an argument in a copula clause.

If a copula-like verb only occurred with a single argument, then it should be treated as an intransitive verb. If a copula-like verb only occurred in locational function, then it should again be considered an intransitive verb, with an additional NP in a locative-type function. To be a bona fide copula, a given verb must occur in an identity and/or attributional relation. It may, in addition, be used to mark a locative relation. And in some languages a copula verb may also be used just with a CS, indicating its existence. For example, in Ja2, Biri (Beale 1974):

- (47) gamu_{CS} wara-ŋa
 water be-PRESENT
 there is water (lit. water is)

Across the languages of the world, CS is generally – but not invariably – marked in the same way as S. (In Ainu, for example, it is marked like A – see Tamura 2000: 50–1.) I know of one exception in Australia to CS being marked in the same way as S. As mentioned in §3.3.2, for verbless clauses in NCb1, Djingulu – a language with no copula verb – CS is marked by absolutive case (like S) if the CC is an adjective, and by ergative case (like A) if the CC is a noun (Pensalfini 1997: 185–7).

In some languages outside Australia a special case-marker is used for a CC in a relation of identity and/or attribution. In every Australian language bar one, these kinds of CC are like CS in being marked in the same way as S. The exception concerns WAb2, Diyari. Austin (1981: 104–5) states that if the CC is one of a set of nominals referring to ‘more or less temporary mental or physiological states’, then it takes ergative case marking, as in:

- (48) ŋanhi_{CS} mawa-li_{CC} ŋana-yi
 Isg hungry-ERGATIVE be-PRESENT
 I am hungry

The other forms selecting ergative include ‘sleep’, ‘fear’, ‘danger’, ‘sadness’, ‘jealousy’, ‘strength’ and ‘cold’.

It is often the case, in Australian languages, that verbs such as ‘sit’, ‘stand’ and ‘lie’ have an existential sense, but they are still being used as intransitive verbs, with a single core argument (in S function). However, in some languages just one of the stance verbs

has a second function, as a copula verb. It then (a) lacks any reference to a particular stance; and (b) has two core arguments. In WL1, Arrernte, it is the verb *nə-* ‘sit’ which takes on a copula sense, as in (Wilkins 1989: 438):

- (49) [arrpənhə]_{CS} kənhə [tjəpə-tjəpə]_{CC} nə-tjərtə
 other(s) BUT lively be-REMOTE.PAST.HABITUAL
 but the other one used to be energetic

The stance verb which has taken on an additional copula sense is ‘sit’ in languages from groups E, M, WA, WF, WH, WJ, WL, NB and NC. It is ‘lie’ in languages from groups D, M, NB and NF, and ‘stand’ in languages from M and WD. We also find a copula sense accorded to the verb ‘go’ in languages from groups M, WH, NB and NH. Some other languages have a verbal form which just functions as a copula, but is cognate with a stance verb in another language.

Dixon (forthcoming) provides a fuller discussion – with exemplification – of copula and verbless clauses in Australian languages, including such topics as the irregular morphology of some copula verbs, and the relationship between a copula verb ‘become’ and an inchoative derivational suffix ‘become’. This paper also includes a map of the distribution of copulas across the continent; this indicates a strong areal basis, as with so many other features across the Australian linguistic area. The property of ‘having a copula verb’ is likely to diffuse between languages, although each language will create a copula verb from its own internal resources (a different stance or motion verb may be accorded a secondary copula sense in two closely related languages).

Pronouns

This chapter begins with an examination of the organisation of pronominal systems in Australia. These always include first and second persons and sometimes also third person; where there are no third person pronouns per se, these functions are (at least partly) covered by demonstratives. Languages roughly divide into two sets according to the form of their pronouns – those in which most forms are number-segmentable (e.g. dual and plural forms involve a segmentable suffix), and those where most forms are not number-segmentable. These are discussed in §7.2 and §7.3 respectively. §7.4 presents a hypothesis concerning the evolution of pronoun systems. Case forms are then discussed in §7.5. In many languages, reflexives and reciprocals are marked by an intransitivising derivational suffix to the verb. Where this has been lost, there are various types of reflexive and reciprocal pronouns; these are described in §7.6. The range of interrogatives/indefinites is surveyed in §7.7; and demonstratives are briefly discussed in §7.8.

7.1 Pronoun systems

A short introduction to pronominal systems in Australian languages was provided in §3.3.3. We can now look at these more systematically, recognising three basic types. For each of them a row for third person is included; this is present for some languages but missing from others.

Type 1. Singular (sg), dual (du) and plural (pl) with no inclusive/exclusive distinction:

1sg	1du	1pl
2sg	2du	2pl
3sg	3du	3pl

A couple of languages lack a du/pl distinction and we just have sg/non-singular (n-sg) (where n-sg refers to two or more), i.e. 1sg, 2sg, 3sg, 1n-sg, 2n-sg, 3n-sg.

Type 2. As Type 1, with an inclusive (inc)/exclusive (exc) distinction for 1du and 1pl (including and excluding reference to the addressee):

1sg	1du.inc	1pl.inc
	1du.exc	1pl.exc
2sg	2du	2pl
3sg	3du	3pl

Type 3. A minimal (min)/unit-augmented (ua)/augmented (aug) system. In the first column we have 1min, 2min and 3min, which are identical to 1sg, 2sg and 3sg. And also 1+2min (referring to 'I and you(sg)'), which has the same reference as 1du.inc in a Type 2 system but here patterns with the sg's. Corresponding to each of these is a unit-augmented form (one participant added to the minimal specification) and an augmented form (more than one participant added). That is:

1min	1ua	1aug
1+2min	1+2ua	1+2aug
2min	2ua	2aug
3min	3ua	3aug

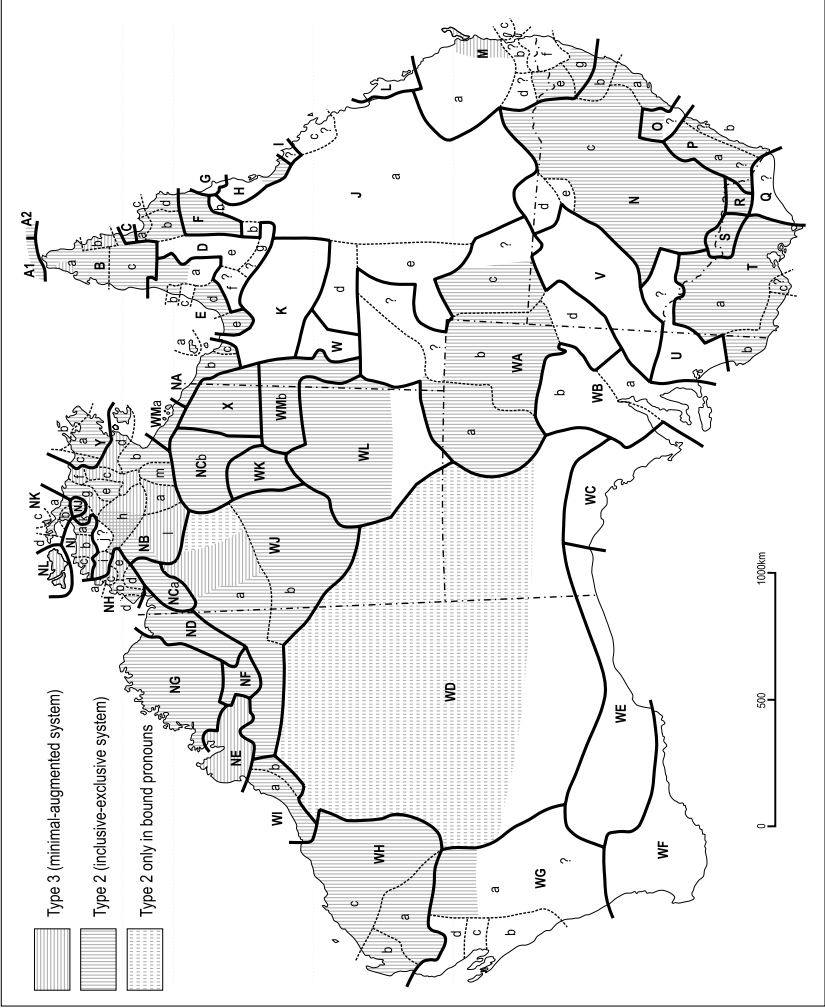
As shown at (6) and (6') in §3.3.3, this could be stated as an aberrant Type 2 system:

1sg(1min)	1du.exc(1ua)	1pl.exc(1aug)
	1du.inc(1+2min)	1trial.inc(1+2ua) 1pl.inc(1+2aug)
2sg(2min)	2du(2ua)	2pl(2aug)
3sg(3min)	3du(3ua)	3pl(3aug)

Note that in this interpretation, pl would refer to three or more for 1exc, 2 and 3, but to four or more for 1inc.

The justification for preferring to treat this as a min/ua/aug system is that this is a neater pattern, and that generally all the ua and all the aug have a similar morphological breakdown.

Map 7.1 shows the geographical distribution of the Types 2 and 3 across the continent (broken lines indicate that WD, the Western Desert language, and WJa4, Mudbura, show an inc/exc distinction only in bound pronouns, not in free pronouns). The unshaded areas cover Type 1 systems (plus those languages in groups Df/g, I, Jc, Mb-d, O, Q, U, WA, WG and NBj for which there are insufficient data to assign them to a type; these are indicated by '?' on the map). Of the *c.* 195 languages for which we have data, about 20 per cent are of Type 1, about 66 per cent of Type 2, and about 14 per cent of Type 3. Note that a few languages conform exactly to one of the prototypes but many show a degree of variation from them. These will be discussed below.



Map 7.1 Types of pronominal system

By and large I shall, in this chapter, look at systems of free pronouns, leaving the discussion of bound pronouns to chapters 8 and 9. In most languages bound pronouns follow essentially the same system as free pronouns, often with various kinds of neutralisation. But sometimes bound pronouns manifest a different type of system from free pronouns; where this occurs it will be mentioned.

In almost every Australian language there are different roots for sg and n-sg, or for min and non-minimal (n-min) pronouns. Beyond this, the languages broadly divide into two sets. In the first set there is generally just one n-sg or n-min root for each person with du and pl – or ua and aug – involving suffixes added to this root (one of the suffixes may be zero). In the second set each person and number combination has a distinct form and is not segmentable. (However, if there is an inc/exc distinction in a Type 2 system, this generally involves the addition of suffixes, sometimes nonce suffixes.) We shall discuss the sets in turn.

The first set consists of almost all the languages in groups NA–NL. As mentioned in the Appendix to chapter 2, O'Grady, Voegelin and Voegelin (1966) recognised twenty-nine 'phylic families' (one of which was 'Pama-Nyungan') in Australia on lexicostatistic grounds, although they did not publish the figures or give the sources on which these were based. Evans (1988a) and Blake (1988) then reinterpreted the Pama-Nyungan/non-Pama-Nyungan division in other terms, a main criterion being number-segmentable pronouns. This idea will be commented on in §7.3 and §7.4.

7.2 Number-segmentable pronoun systems

Languages with number-segmentable n-sg or n-min pronouns are almost all of Type 2 or Type 3. We can begin with a typical paradigm of Type 2, sg/du/pl (plus trial in this language) with inc/exc:

(1) NG3, Wunambal (Capell 1941: 298)

	sg		du		trial		pl (four or more)
1	naya	inc	naŋa:-rra-miya		naŋa:-rra-na		naŋa:-rra
		exc	nja:-rra-miya		nja:-rra-na		nja:-rra
2	naa		nu-rra-miya		nu-rra-na		nu-rra
3	bini		bi-rre-ni-miya		bi-rre-ni-na		bi-rre-ni

The 1 and 2 n-sg forms make up a regular paradigm, with roots 1inc *naŋa:*, 1exc *nja:* and 2 *nu*. The roots do not occur unsuffixed. For pl *-rra* is added to each root and then du and trial involve the addition of *-miya* and *-na* respectively to the pl. Note that the n-sg 1 and 2 roots are quite distinct from the sg forms.

Third person patterns rather differently, as it does in many languages. Here the pl form appears to involve *-rre-* infixed into the 3sg form *bini*, giving *bi-rre-ni*. Du and trial are then based on this in the normal way.

A pronoun system of this type is found in languages from the east, west and north within the N area. The 1 and 2 forms in some of these languages can be summarised:

(2)	1n-sg	1n-sg						
	1sg	2sg	inc	exc	2n-sg	+pl	+du	+trial/paucal
NA, proto-Tangkic	ɲata	ɲiŋka	ɲaku-	ɲja-	ki-	-l(u)	-rr(a)	
NG1, Worrorra	ɲayu	ɲunjdju	ɲa-	a-	ɲji-	-rri	PL+endu	PL+ɲgurri
NG2, Ungarinjin	ɲiin/ geen	ɲiŋan/ njanan	ɲa-	ɲja-	nu-	-rrun	PL+ɲjirri	PL+ɲjina
NG3, Wunambal	ɲaya	naa	naɲaa-	ɲjaa-	nii-/ nuu-	-rra	PL+miya	PL+na
NJ, Giimbiyu	ɲayg/ ɲab	nu	ɲarrga-	ɲani-	ini-	-minu/ -mun	PL+wumun	

The du and pl (and sometimes also trial or paucal) suffixes are added to the n-sg roots.

We can next consider a variant on this type of system, with the difference that 1du.inc is quite distinct from 1pl.inc:

(3) NCa1, Djamindjung (Cleverly 1968: 81)

	sg	du	pl
1	ɲayug	inc exc	mind yi-rrri-ɲji
2	nami		gu-rrri-ɲji
3	dji		bu-rrri-ɲji

The sg and n-sg roots are once again distinct. The basic n-sg roots are 1inc *yu-*, 1exc *yi-*, 2 *gu-* and 3 *bu-*. Again, these do not occur by themselves. For pl *-rrri* is added to them and for du *-ɲji* is added to the pl. Except that 1du.inc is *mind* instead of the expected *yu-rrri-ɲji*.

Languages with this type of system are found nearer to the centre of the N area than those with a straightforward Type 2 system. The paradigms below show just the n-sg 1 and 2 free forms (and also the n-sg 3 forms, if they fit into the same system):

(4) ND1, Kitja

	du	pl
1inc	yayin	yuwu-rru-n
1exc	ya-rre-pen	ya-rre-n
2	neŋke-rre-pen	neŋke-rre-n
3	pu-rru-pen	pu-rru-n

- (5) NBm, Alawa (Sharpe 1972: 57)

	du	pl
1inc	njanu	nja-lu
1exc	ŋa-rru	ŋa-lu
2	wu-rru	wu-lu

- (6) NBb1, Marra (Heath 1981a: 131–3)

	du	pl
1inc	rnagarra	rna-rrwu-nja
1exc	rni-rri-nja	rni-rrwi-nja
2	rnu-rru-nja	rnu-rrwu-nja

- (7) NBd3, Aninhdhilyagwa (Leeding 1989)

	masc.du	fem.du	pl
1inc	yagwi		ŋagwi-rri
1exc	yi-ni	yi-rri-ŋi	yi-rri
2	ningwi-rni	ningwi-rri-ŋi	ningwi-rri
3	abwi-(r)ni	abwi-rri-ŋi	abwi-rri

Note that here the masc.du suffix alternates between *-ni* and *-rni*.

In (3–7), du and pl forms are segmentable on a regular pattern except that 1du.inc is irregular (in contrast to 1pl.inc, which takes the regular pl suffix). There is a further variant on the Type 2 system in which 1exc and 2 (and sometimes also 3) segment on a regular pattern but both 1du.inc and 1pl.inc are irregular:

- (8) NHb2, Marrithiyel (Green 1989: 390; note that other NHb languages behave similarly)

	du	pl
1inc	ŋaŋgi	ŋaŋgi-nim
1exc	ga-di-fini	ga-di
2	na-di-fini	na-di
3	we-di-fini	we-di

Here du involves the addition of *-fini* to pl for 1exc, 2 and 3 but pl involves the addition of *-nim* to du for 1inc.

- (9) NBb2, Warndarrang (Heath 1980b: 34)

	du	pl
1inc	njanja	ŋala
1exc	nji-rrayi	nji-dburr
2	ŋu-rrayi	ŋu-dburr

(10) NBe, Dalabon

	du	pl
1inc	nje?	ɲorr
1exc	nje-rr	nje-l
2	no-rr	no-l

We find another variant in NBg2, Gunbarlang. Here the cardinal pronouns (used in core functions) lack any 1inc forms (and effectively make up a Type 1 system):

(11) NBg2, Gunbarlang, cardinal pronouns

	du	pl
1(exc)	ɲa-naŋga	ɲa-dbe
2	nuŋu-nuŋga	nuŋu-dbe

However, the oblique and bound pronominal paradigms include an extra term *ɲarrgu* (as oblique) and *ɲarrgi-* (as bound) which refers to 1inc, covering both du and pl numbers.

In summary, Gunbarlang oblique and bound pronouns show a simple sg/du/pl paradigm with a 1inc term (lacking a du/pl distinction) added to it. In (8–10) we have sg/du/pl with inc/exc but 1du.inc and 1pl.inc have irregular forms, outside the root-plus-number-suffix structure of the rest of the paradigm. In (3–7) only du.inc is irregular, 1pl.inc showing the normal pl suffix. And in (1), which is representative of the systems found in seven or eight languages, 1inc is fully regular, behaving just like 1exc and 2.

We can now look at Type 3 systems where 1+2 patterns with 1 and 2 (and, in some languages, also with 3) as a minimal term, and there are corresponding n-min roots that take suffixes for aug and generally also for ua. The paradigm in (12) is representative of systems found in a dozen or more languages.

(12) NBa, Mangarrayi, free pronouns, S and A function (Merlan 1982a: 102, 160)

	min	ua	aug
1	ɲaya	ɲi-rr	ɲi-rla
1+2	ɲi	ɲa-rr	ɲa-rla
2	njaŋgi	rnu-rr	rnu-rla
[3	ø	wu-rr-	wu-rla-]

There are no free form third person pronouns. S pronominal prefixes have almost the same form as free pronouns and here there are third person forms, included in (12) within square brackets.

This paradigm is similar to the Type 2 system illustrated in (1), replacing sg by min and n-sg by n-min. Min and n-min roots are quite different; ua and aug involve regular suffixes to the n-min roots (which do not occur alone).

The min and n-min roots, plus affixes for ua (where this exists) and for aug, in a selection of languages of this type, are summarised in (13). Note that the ua and aug suffixes are added to each of the non-minimal roots.

(13)	min			n-min			ua aug	
	1	1+2	2	1	1+2	2		
NBa, Mangarrayi	ɲaya	ɲi	njaŋgi	ɲi-	ɲa-	nu-	-rr	-rla
NBc2, Ngalakan	ɲay-ka?	yi-ka?	ɲinj-dja?	yi-	ɲu-	rnu-	—	-rrka?
NBd2, Nunggubuyu	ɲaya	nagawa:	nagaŋ	ni-	ɲagu-	nugu-	-rni	-rru
NBh1, Jawoyn	ɲarrk	njiyarrk	ɲinj	nji-	nja-	rnu-	—	-rraŋ
NBl2, Wardaman	ɲayugu	yawunguya	yinjaŋ	yi-	ɲa-	nu-	—	-rrug
NHc, Malak-Malak	ɲa	yaŋki	waŋari	yawö-	yerki-	nuku-	—	-t

In Ngalakan, Jawoyn and Wardaman, a ‘dual’ pronoun can be formed by adding a suffix to the 1aug or 2aug (but not to the 1+2aug) form. The dual suffix is *-birra?* in Ngalakan, *-djarrk/-yarrk* in Jawoyn, and *-guya/-wuya* in Wardaman. (The 1+2min form in Wardaman appears to include this suffix, indicating a system that is hybrid between Types 2 and 3.)

Almost all of the Type 3 systems are found in a block in the middle of the prefixing area. There are also systems of this type in a few non-prefixing languages – WJa3, Gurindji, Bb, Umpila, and some in subgroup Ba – see (39) and (40) in §7.3. And there is the NE subgroup, at the western end of the prefixing region. In the Yawuru dialect of NE1 we have a Type 3 system with regular segmentation of n-min’s, except for 1+2, which has irregular form.

(14) NE1, Yawuru dialect (Hosokawa 1991: 291)

	min	ua	aug
1	ɲayu	ya-rr-garda	ya-rr-yirr
1+2	yayu	yadiri(gurdiri)	yadiri
2	djuyu	gu-rr-garda	gu-rr-yirr

This can be compared with the more regular paradigm in the related dialect Njigina:

(15) NE1, Njigina dialect (Stokes 1982: 154)

	min	ua	aug
1	ɲayu	ya-rr-ga-mirri	ya-rr-ga
1+2	yayu	ya-rr-dju-mirri	ya-rr-dju
2	djuwa	gu-rr-ga-mirri	gu-rr-ga
3	ginja	yi-rr-ga-mirri	yi-rr-ga

The only irregularity in (15) is that 1+2aug ends in *-dju* instead of the regular *-ga* (indeed it is only distinguished from 1aug by this final syllable). In (14), 1+2aug is *yadiri* (note that it again begins with *ya-*, like 1+2min). Here *yadiri* is also used for 1+2ua, with the optional addition of *-gurdiri* (probably related to the number word *gurdirdi* 'three').

Most languages have basically the same system in free and bound pronouns (although there is often number neutralisation in bound paradigms, see §8.5.2 and §9.2.3). However, some show a different organisation. Compare the forms in NBh2, Warray:

(16) NBh2, Warray (Harvey 1986: 89, 140)

FREE PRONOUNS			BOUND PRONOUNS IN S FUNCTION				BOUND PRONOUNS IN O FUNCTION			
	min	n-min		sg		n-sg		sg		n-sg
1	njek	yik-kirriŋ	1	at-	exc	i-	1	pan-	}	in-
1+2	njama	yepe			inc	ma-				
2	ŋunj	nji-kirriŋ	2	an-		a-	2	ana-		
3f	al-kala	} pi-kirriŋ	3	ø		pa-	3	ø		pun-, put-
3n-f	a-kala									

The free pronouns have a Type 3 system, with an irregular 1+2 n-min form, while bound pronouns in S function have a Type 2 system. (Note that the 1n-sg.inc form *ma-* may be cognate with the 1+2min free form *njama*.) Bound pronouns in O function do not distinguish 1inc from 1exc, and also neutralise first and second persons in the n-sg. NBh1, Emmi, also has different systems but in the opposite direction – basically a Type 2 system for free and a Type 3 system for bound forms (see Ford 1998).

The most divergent language in the Australian linguistic area (leaving aside A1, West Torres) is undoubtedly NL, Tiwi. Here we have a min/aug system for both free and bound pronouns but each paradigm has a number of different neutralisations:

(17) NL, Tiwi (Lee 1987: 105, 173, 180)

		FREE FORMS		O PREFIXES		A PREFIXES (NON-PAST, 3SG.MASC O)	
		min	n-min	min	n-min	min	n-min
1	ŋiya	ŋa-wa	mi-ni-	muwu-ni-	ŋi-	ŋi-	
1+2	muwa	ŋa-wa	ma-ni-	ma-ni-	mu-	ŋa-	
2	ŋinjŋa	nu-wa	minji-	ma-ni	ŋji-	ŋji-	
3m	ŋarra	} wuta	ø	wu-ni-	a-	wu-/ø	
3f	ŋjirra						

There is no distinction between 1 and 1+2 for n-min in free forms, no distinction between min and n-min for 1 and for 2 in the non-past A prefix, while in the O prefix 1+2min, 1+2n-min and 2n-min all fall together. It is by comparing and combining these paradigms that the underlying minimal/augmented system is discerned.

There is one other system that is typologically most unusual. In the two languages of subgroup NF there are four n-sg pronominal forms:

- (18) NF, South Kimberley subgroup, reconstructed proto-forms

biyi- <i>rri</i>	3n-sg
yingi- <i>rri</i>	2n-sg
yaa- <i>rri</i>	1pl.inc
ɲiyi- <i>rri</i>	1pl.exc, 1du.inc, 1du.exc

That is, 2 and 3 do not distinguish between du and pl. For 1, we have one form for 1pl.inc and another that covers 1pl.exc and also 1du, whether inc or exc.

Other languages show minor variants on the basic patterns. The survey above covers all the major types of pronominal system in those languages that have number-segmentable n-sg or n-min pronouns.

The paradigms in (1–17) were given to illustrate the types of pronominal systems and the types of number segmentation. They were selected as illustrations partly because they have fairly consistent forms of roots and suffixes. Other languages show more formal variation. For instance, the Type 3 system in Ngandi:

- (19) NBd1, Ngandi (Heath 1978b: 54)

	min	ua	aug
1	ɲaya	njo-worni	nje-rr
1+2	njaka	ɲorrko-rni	ɲorrko-rr
2	rnugan	rnuka-rni	rnuka-rr
3		bo-worni	bawan

Note that here the 1n-min root is *njo-* in ua but *nje-* in aug. The ua suffix is *-worni* after *njo-* and *bo-* (monosyllabic roots) but *-rni* after *ɲorrko-* and *rnuka-* (disyllabic forms). And 3aug is irregular. (There are a number of 3sg forms, involving noun class prefixes added to *-wan*.)

Languages with number-segmentable pronouns are almost all in the prefixing area, and show varying degrees of fusion. This is more evident in verb structures (involving bound pronominal prefixes) than in free form pronouns but we do still encounter a fair number of assimilations, contractions, lenitions and other phonological alterations making it difficult to tell what the original vowel was in a given free form pronoun.

For instance, consider the vowel alternations in the suffixes *-rr(V)-* in the paradigms in (4), (6) and (1):

(4) Kitja	(6) Marra	(1) Wunambal
-rre /a-, e-	-rru, -rrwu /u-, a-	-rra /a-, u-
-rru /u-	-rri, -rrwi /i-	-rre /i-

On these data we should take *-rre* as the basic form for Kitja, with the *e* assimilating to a preceding *u*; *-rru* and *-rrwu* as the basic forms in Marra, with the *u* assimilating to a preceding *i*; and *-rra* as the basic form in Wunambal, with the *a* partly assimilating to a preceding *i*. These incompatible conclusions (if the *-rrV* suffix in the three languages is taken to be related) point to the need for a thorough study of root and suffix forms and functions across all languages with number-segmentable pronouns. An attempt will be made at this in §7.2.1.

7.2.1 Forms

We will first deal with the number suffix *-rrV*, and then discuss 2n-sg, 1n-sg, 3n-sg, 1sg and 2sg root forms.

(a) *Number suffix -rrV*. We can generally recognise roots for n-sg and n-min pronouns but these only occur followed by a suffix. The most common suffix is *-rr(V)*. I take suffixes *-d(V)* and *-t(V)* as related, through the change *rr > d/t*.

This suffix always marks some n-sg or n-min number, but there is wide variation in both meaning and form between languages. The possibilities include:

- (i) *-rrV* as pl (and du involves a further increment after *-rrV*):
 - rri in NBd3, NCa1, NCb2, NG1;
 - rra in NC, NKb;
 - rra/-rre in NG3;
 - rru in NCa2;
 - rru/-rra in ND2;
 - rrun in NG2;
 - rri/-rru in NCb1, NCb3.
- (ii) *-rrV* as general n-sg suffix:
 - rri in NF, NKa1;
 - rre/-rru in ND1;
 - di in NHb2.
- (iii) *-rrV* as du suffix:
 - rr(a) in NA;
 - rrayi in NBb2;

- rra*/*-rri*/*-rru* in NBb1;
- rru*/*-rri* in NBb1 (and *-rrwu*/*-rrwi* as pl suffix);
- rru* in NBm;
- rr* in NBe.
- (iv) *-rrV* as aug (with *ua* involving a further increment after *-rrV*):
 - rru* in NBd2;
 - rr* in NBd1;
 - rrga*/*-rdju* in NE1.
- (v) *-rrV* as general n-min suffix:
 - rra* in NHa;
 - rraŋ* in NBh1;
 - rrug* in NBI2;
 - rr-ka* in NBc2;
 - t* in NHc.
- (vi) *-rrV* as *ua* suffix:
 - rr* in NBa.

It will be seen that a form *-rrV*, as some sort of number marker, has a wide variety of functions and of shapes. The *V* varies, and there can sometimes be segment(s) following the *V*.

It is hard to decide what the original value of the *V* was. In some languages *V* varies within the pronoun paradigm, apparently due to assimilation to a preceding root vowel. We saw just above that, assuming assimilations, we could infer that the underlying form is *-rre* for the n-sg suffix in Kitja, *-rru* for the du and *-rrwu* for the pl suffix in Marra, and *-rra* for the n-sg suffix in Wunambal. However, in other languages assimilation appears to operate in the opposite direction, from number suffix into root, as in:

- (20) NCb3, Wambaya, free subject pronoun (Nordlinger 1998: 126)

	sg		du		pl
1	ŋawu(rmidji)	inc	mirnrđi-yani		ŋurru-wani
		exc	ŋu-rlu-wani		ŋi-rrī-yani
2	njami(rmidji)		gu-rlu-wani		gi-rrī-yani
3	—		wu-rlu-wani		i-rrī-yani

Here the 1exc, 2 and 3 forms appear to involve the suffixes *-rlu* for du and *-rri* for pl. The roots are *ŋV-*, *-gV-* and *wV-*, where *V* is *u* before *-rlu* and *i* before *-rri* (in 3pl we get *wi-* > *yi-* > *i-*).

There are other examples of root-to-suffix assimilation in part of a paradigm. The paradigm in (26) shows that in NBd2, Nunggubuyu, the 1n-min root is *nV-*, becoming *ni-* before masc *ua* *-rni* and fem *ua* *-rrŋi*, and *nu-* before aug *-rru*. (The other n-min

roots end in *-gu-* which is retained before *-rni*, *-rrji* and *-rru*.) Consider also the bound form pronouns in:

- (21) NBf4, Ndjebbana, prefixes for S function (McKay 2000: 209)

	ua.masc	aug
1	nji-rri-	nja-rra-
2	ni-rri-	na-rra-

We appear to have affix *-rri-* for ua.masc and *-rra* for aug, and roots *njV-* for 1 and *nV-* for 2, with the V assimilating to the affix vowel.

The paradigm in (21) suggests that there may originally have been two *-rrV* suffixes, *-rri* for (masc and) ua and *-rra* for aug. There is little support for this from other languages, and the Ndjebbana affixes probably result from the fusion of an original *-rrV* with following increments.

There are other suggestive patterns, in just a few languages. For instance, we find a rhotic in the du/ua suffix and a lateral in the pl/aug suffix in:

(22)	NA, Tangkic subgroup	du	*-rr(a)	pl	*-l(u)	see (2)
	NBe, Dalabon	du	-rr	pl	-l	see (10)
	NBm, Alawa	du	-rru	pl	-lu	see (5)
	NBa, Mangarrayi	ua	-rr-	aug	-rla	see (12)

However, the opposite pattern is also attested, with lateral in du and rhotic in pl, in two closely related languages:

(23)	NCb2, Ngarga	du	-rli	pl	-rri	
	NCb3, Wambaya	du	-rlu	pl	-rri	see (20)

At the present time no firm conclusions can be offered concerning the original form of the *-rrV* suffix. All vowels are attested for the V slot. In some modern languages the V of *-rrV* assimilates to a preceding stem vowel and in other languages assimilation goes in the opposite direction.

There are many other suffixes, besides *-rrV*, for du, pl, ua or aug. For instance, in the paradigms given above, du is *-miya* in Wunambal, *-endu* in Worrorra, *-njirri* in Ungarinjin, *-wumun* in Giimbiyu, *-nji* in Djamindjung, *-pen* in Kitja, *-fini* in Marrihiyel, *-nVgga* in Gunbarlang; while ua is *-garda* and *-mirri* in two dialects of NE1. There is no form that recurs in more than a couple of languages. This suggests that most or all of these number suffixes are recent innovations, and have developed separately in individual languages (or even dialects).

The conclusions we can draw from this are:

- (a) It is likely that, at an earlier stage, the pronoun system had fewer number distinctions, probably just sg and n-sg, and that *-rrV* was the n-sg marker. (The development of minimal/augmented systems is discussed in §7.4.)

- (b) A du/pl distinction (in some languages also extended to trial or paucal) developed later and spread by areal diffusion, each language developing distinctive marking for du and pl from its own internal resources.

In some languages the original *-rrV* form took on the specialised meaning of pl and an increment was added to it for du. In some languages, increments were added to the *-rrV* form for both du and pl. In other languages the *-rrV* form took on dual meaning.

With the fusional changes that have taken place, new shapes of suffixes have developed and, in some cases, new types of paradigms. Some of the kinds of change that have occurred can be illustrated by forms from three closely related languages of NC, the Mindi subgroup, and a tentative reconstruction of the original forms:

(24)	1du.exc	2du	1pl.exc	2pl
NCa1, Djamindjung	yi- <i>rri-nji</i>	gu- <i>rri-nji</i>	yi- <i>rri</i>	gu- <i>rri</i>
NCa2, Nungali	yi-n- <i>girram</i>	wu-n- <i>girram</i>	yi- <i>rri-mulu</i>	wu- <i>rru-mulu</i>
NCb1, Djingulu	<i>ŋi-nji</i>	gu- <i>nji</i>	<i>ŋi-rri</i>	gu- <i>rru</i>
*NC reconstruction	* <i>ŋi-rri-nji</i>	*gu- <i>rri-nji</i>	* <i>ŋi-rri</i>	*gu- <i>rri</i>

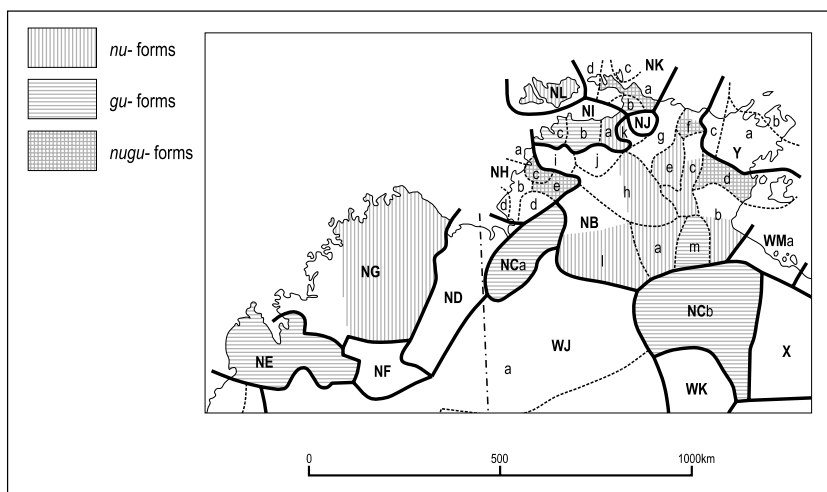
I reconstruct the original root forms as 1exc *ŋi-* and 2 *gu-* with n-sg suffix *-rri*. This was retained for pl, with *-nji* being added to it for the du. We then get the following changes:

- (1) In NCa1 and NCa2, the 1n-sg.exc root **ŋi-* became *nji-* by assimilation and then *yi-* by lenition (both are common changes in the Australian linguistic area).
- (2) In NCa2, 2n-sg root *gu-* became *wu-* by lenition.
- (3) In NCa2 and NCb1, 2pl *g/wu-rri-* became *g/wu-rru-* by vowel assimilation.
- (4) In NCb1, the dual forms *ŋirrinji* and *gurrinji* reduced to *ŋinji* and *gunji*, i.e. the *-rri* was omitted.
- (5) In NCa2, the duals reduced still further to *yin-* and *wun-*, with new du and pl suffixes *-girram* and *-mulu* being innovated (these are cognate with the dual and plural suffixes on nouns, adjectives and demonstratives).

Note that originally du involved an increment to pl. This is maintained in NCa1 but in the other two languages du now has its own suffix quite different from that for pl.

This putative historical scenario provides a typical picture of the kinds of change that have taken place. However, in other languages we do not have available comparative data and are not able to reconstitute the original agglutinative form from which the modern fused form developed.

(b) *2n-sg root*. In more than half of the languages with number-segmentable pronouns, the 2n-sg or 2n-min root is *nu-*, *nugu-* or *gu-*, or a variant of one of these, through *g > w* or *u > o*. (Some grammars have initial *rn* in place of *n*. In most languages there is no phonological contrast between *n* and *rn* in initial position and, in view of this, an *rn* has not been specially noted here.) The distribution of these forms is shown in map 7.2.



Map 7.2 2n-sg and 2n-min forms relating to *nu-*, *gu-* and *nugu-*

nu- forms:

2n-sg *nu-* in NBb1, NG2/3; *no-* in NBc;

2n-min *nu-* or *rnu-* in NBa, NBc2, NBf3–4, NBh1, NB12, NIa, NL.

nugu- forms:

2n-min *nugu-* in NBd2, NHc; *nugo-* in NBf2; *nuwu-* in NKa;

(and *nugku-* in NHe, *nuka-* in NBd1).

gu- forms:

2n-sg *gu-* in NC (> *wu-* in NCa2, > *gi-* /-*rri* in NCb2–3); *gu-* in NIc;
wu- in NBm;

2n-min *gu-* in NE; *wu-* in NIb, NKb.

These three recurrent forms, *nu-*, *nugu-* and *gu-*, suggest a single original form *nugu-*, with this being retained in some languages, reduced to its first syllable in a fair number of languages, and reduced to its second syllable in just a few languages.

In some languages there is a significant difference in form between free and bound pronouns and in a few cases this yields more evidence for an original 2n-sg form **nugu-*. Consider:

(25)	free form	bound form
NKa2, Iwaydja	nuwu-	gu-
NG2, Ungarinjin	nu-	gu-
NG3, Wunambal		
western dialects	nu-	gu-
eastern dialects	ni-	gu-

In NKa2 we get the change **nugu-* > *nuwu-* in free forms and > *gu-* in bound forms. In the other languages the first syllable of **nugu-* is retained in free and the second syllable in bound forms (there are no examples the other way round).

I tentatively suggest **nugu-* for an earlier form of 2n-sg. More work is needed to fully justify this. In particular, study of the stress rules in individual languages may help explain why we get **nugu-* > *nu-* in some instances but **nugu-* > *gu-* in others.

For all the examples of *nugu-* mentioned above, a second syllable *-gu* is only found in 2n-sg or 2n-min. However, there are other languages in which several n-sg or n-min pronouns end in *-gu*. Consider:

(26) NBd2, Nunggubuyu (Heath 1984: 243)

	ua	aug
1	ni-	nu-rru
1+2	ŋa-gu-	ŋa-gu-rru
2	nu-gu-	nu-gu-rru
3	wu-gu-	wu-gu-rru

Note that each ua pronoun must take an obligatory gender suffix, *-rni* for masc or *-rrŋi* for fem. In Nunggubuyu it appears that *-gu* is a regular n-min augment for all persons except 1; the 2n-min root must be taken to be just *nu-*.

There are further examples of *-gu* as an increment in several pronouns:

(27)	NBi, Gungarakanj	2aug	no-ko-	1+2aug	ŋo-ko-
	NBc1, Rembarrnga	2n-min	na-gu-	1+2n-min	ŋa-gu-
	NB11, Wagiman	2pl	ŋo-go-	1pl	ŋe-go

There is thus evidence for both a 2n-sg form **nugu-*, in some languages, and for a n-sg/n-min augment *-gu-* in other languages. The 2n-sg roots are *nu-* in Nunggubuyu and *no-* in Gungarakanj, which may be reductions from an original **nugu-*, with a new increment *-gu* being added at a later stage. (There are doubtless other possible scenarios that should also be investigated.)

There are a number of other points that need to be made in connection with 2n-sg:

- (i) There are a number of forms *gi-* (or *ki-*) which may have different origins in the various languages in which they occur. NA has *ki-* for 2n-sg and also *pi-* for 3n-sg; these may relate to **(nu)gu-* and **bu-* respectively, with a recurrent change *u* > *i* (maybe a type of dissimilation after a peripheral stop, but this needs to be thoroughly studied). Note that NF2, Guniyandi, has *bidi* for 3n-sg and *gidi* for 2n-sg; however, these have evolved from **biyi-rrri* and **yiggi-rrri* respectively in proto-NF – shown in (18) – and thus do not provide a parallel to the NA development. As

already mentioned, the *i* in 2pl *gi-rri-yani* in NCb3, Wambaya – given in (20) – is conditioned by the *i* of the following *-rri* (a *u/i* vowel alternation is also exhibited by 1pl.exc and 3pl).

- (ii) There are some 2n-sg pronouns that begin with *ŋ*-. As shown in (27), NB11, Wagiman has 2n-sg *ŋogo*. This may have developed from *nogo* by analogical change, since all other 1 and 2 pronouns begin with *ŋ*-. We find 2n-sg *ŋu*- in NBb2, Warndarrang, but, as shown in (9), analogical change could scarcely be invoked here since 2sg is *ŋjinju* and 1n-sg.exc is *ŋji*-, etc.
- (iii) Besides *na*- in NBc1 – in (27) – we also find 2n-sg *nadi* (> *nedi*, *nida*) in NHb, *na*- in NHd, and *nawa*- in NHa. These may relate to **nu(gu)*-, or they could have some other origin.
- (iv) There is a further set of 2n-sg/2n-min forms that show some similarities:

NBd3, Anindhilyagwa	ningwi-	see (7)
ND1, Kitja	nenke-	see (4)
proto-NF	yingi-	see (18)

Note also *nji*- in NBh2, Warray – see (16) – and in NG1, Worrorra – see (2) – which may possibly relate to each other, and possibly to the other forms.

There are only a few other 2n-sg forms in groups NA–NL that have not been mentioned. We can say little about *ini* in NJ, Giimbiyu – in (2) – or *manáa* in NBk, Gaagudju, or a few other nonce forms.

(c) *1n-sg roots*. For 2n-sg, the form *nugu*- – and its reductions *nu*- and *gu*- – appears in over thirty languages (with other, less certain, reflexes in further languages). No such consensus arises when 1n-sg forms are studied. I have surveyed the forms for (i) 1n-sg.exc/1n-min, (ii) 1n-sg.inc/1+2n-min and also (iii) 1du.inc/1+2min where this differs from the root for (ii). As will be seen in the paradigms in (1–27), most of the roots are monosyllabic although some are longer. The diversity of forms involved can be seen from a rough count of the initial syllables involved in these roots, across the subgroups and languages in NA–NL, given in table 7.1.

We can note that *ŋa*- is the most commonly occurring initial syllable for all three columns, but even in (ii) it makes up less than half the total. The variety of forms across these languages makes it inappropriate to suggest what one or more common earlier forms may have been. (It is possible that after reconstruction of the proto-languages for each of the particular lower-level subgroups has been completed, a clearer picture will emerge.)

Blake (1988) assumes that all the languages in NA–NL are genetically related and then suggests ‘characteristic’ pronoun forms: **nji*- for our

Table 7.1 *Initial suffixes for 1n-sg roots in subgroups and languages with number-segmentable pronouns*

initial syllable	(i) 1n-sg.exc/ 1n-min	(ii) 1n-sg.inc/ 1+2n-min	(iii) 1du.inc/ 1+2min
ŋa-	8	15	6
ŋi-/			
ŋe-	4	1	3
ŋu-/ŋo-	2	5	0
nja-	4	2	4
nji-/nje-	5	1	1
nju-/njo-	1	1	0
na-	0	3	2
ni-/ne-	2	0	0
nu-/no-	1	0	0
ya-	5	4	5
yi-/ye-	3	1	2
yu-/yo-	0	1	0

column (i), **ŋa-* for (ii), and **nja-* for (iii). An examination of the forms summarised in his table 17 shows that, for example, only twelve of the twenty-five languages listed have 1n-sg.exc beginning with *nji-* or the lenited form *yi-* (or *ye-*); Blake gives no indication of how forms beginning with *ŋa-*, *ŋi-*, *nja-*, *ya-*, *yu-* and *ni-* could be developed from **nji-*. These particular reconstructions of Blake's are unconvincing, and cannot serve as defining features for 'non-Pama-Nyungan'.

I shall suggest below that the earliest pronominal systems probably just involved 1sg, 2sg, 1n-sg and 2n-sg, with the 1+2 terms – and the du/ua markers – having been innovated at a later stage. But while we are able to identify a likely early 2n-sg form **nugu-* there is no clear indication of a common form for 1n-sg.

The 1+2 and du/ua categories have undoubtedly diffused across most of the NA–NL area. In some instances the forms may also have diffused. It is worth noting the recurrent *mV* syllable in 1+2 forms from the region around Darwin. These include: *ŋama* in NBi, Gungarakanj; *njama* in NBh2, Warray; *njime* in NBj, Uwinjmil; *maneerra* in NBk, Gaagudju; and *mu-/ma-* in NL, Tiwi. At some geographical distance we find *mindi* in NC, Mindi subgroup. (See Harvey, ms.-b.)

(d) *3n-sg roots*. In some of the paradigms presented above, 3n-sg/3n-min forms were included, since they pattern in a similar way to first and second persons. In other languages there are either no third person forms per se, or there are and these behave quite differently and so were not included in the paradigm.

Where there is a regular 3n-sg/3n-min pronoun we do get a recurring form: *bu-*, often lenited to *wu-*:

3n-sg/3n-min begins with *bu-* or *bo-* in NBc, NBd1, NBd3, NBe, NBg2, NBh1, NB11, NC, ND, NHa, NIa
and with *wu-* in NBa, NBb, NBd2, NB12, NBm, NHc, NHd2, NL.
We also find *bi-* or *be-* in NA, NBg1, NBh2, NBi, NF, NG3, NHd1, NIb1, NIc.

Some of the examples of *bi-* are undoubtedly due to assimilation to a following high front vowel but this cannot account for them all. There may well be unrelated roots *bu-* and *bi-*.

Forms *bu-*, *wu-* and *bi-* occur in over 90 per cent of languages in groups NA–NL. Of the other forms, *ba-* in NG2, and *wida-*, *wedi-* and *winji-* in NHb show some formal similarity, while *nowo:-* in NBk, *dji-* in NE, *ku-* in NHe1, *muni-* in NJ, *irrgamba-* in NKb and *na-* in NKa are rather different.

It should be borne in mind that virtually all of the n-sg/n-min forms discussed under (b–d) are bound, and must be followed by one or more number suffixes, typically by *-rrV*, discussed under (a). (In quite a few languages 3n-sg **bu-* takes different suffixes from first and second persons.) The fact that the n-sg pronoun roots are different from the corresponding sg forms, and yet cannot appear without a suffix, is one of the most unusual features of pronouns in languages with number-segmentable forms.

(e) *1sg roots*. There is one plainly recurrent form for 1sg across languages with number-segmentable n-sg pronouns. The form is, or begins with, *ɲay* or *ɲayi* or *ɲayu* in just on half the languages (twenty-eight out of fifty-six). A further fourteen have 1sg beginning with *ɲa-*, e.g. *ɲata*, *ɲatja*, *ɲara*, *ɲagun*, *ɲanj*. The remainder have forms commencing with *ɲi-* or *ɲu-* or *nje-* or *yi-*, etc.

(f) *2sg roots*. Blake (1988) suggests a ‘characteristic’ 2sg root **ɲinj*. The following forms appear to reflect this, either directly or through assimilation:

<i>ɲinj</i> in NBc1, NBh1, NIa	<i>ɲunj</i> in NBh2
<i>ɲinji</i> in NBf1, NHd, NIb1	<i>ɲunjdju</i> in NG1
<i>ɲi(:)nja</i> in NBi, NBk	<i>ɲinjdja(?)</i> in NBc2, NBf4, NL
<i>ɲjinjdji</i> in NF	<i>ɲjin</i> in NBe
<i>ɲjinji</i> in NHd	<i>ɲjeɲ</i> in ND
<i>ɲjinju</i> in NBb2	<i>ɲjinɲka</i> in NA
<i>ɲinɲaɲ</i> in NB12	

However, these account for no more than twenty-five languages, less than half of those considered. There are a variety of other forms: beginning with *nja-* in six languages, with *na-* in six, with *ni-* in four, and with *nu-*, *ŋa-*, *ŋi-*, *ŋu-*, *ka-*, *wa-* and *dju-* in others.

In Australia, as in many other parts of the world, a 2n-sg pronoun may, for reasons of politeness, be used to refer to a single addressee, and may thereby replace the 2sg pronoun (as *you* replaced *thou* in English). Recalling the recurrent 2n-sg forms *nugu*, *nu* and *gu*, this type of change may explain 2sg *nugan* in NBd1, Ngandi; *nu* in NL, Tiwi; and perhaps also *nuyi* in NKa2, Iwaydja.

In a way, the discussion of pronouns in this section has been like trying to tell a story beginning at the end. The hypothesis underlying all of the discussion in this book is that Australian languages were originally dependent marking, with nouns and pronouns inflecting to show their function in a clause. The case forms of pronouns in groups A–Y and WA–WM (and those few case markers on pronouns in NA–NL) will be considered in §7.5.

All of the languages in groups NA–NL (excepting NA) have a head-marking, prefixing profile. In most of these languages, free form pronouns – which are basically what we have been looking at here – are used sparingly, mostly for emphasis in transitive and intransitive clauses (they may be used more freely in copula clauses). The great majority of the languages have a single set of ‘cardinal’ free pronouns, used without modification for A, S and O (and sometimes other) functions. (Most languages have a separate set of possessive pronouns.) It can be inferred that at an earlier stage, before head marking developed, there would have been case-marked free pronouns. The present free forms are, in a sense, a relic, and may reflect a variety of original forms. For instance, 2sg forms such as *ŋinjɖju*, *ŋinjɖja* and *njinɖji* may reflect earlier forms consisting of root *ŋinj-* plus ergative *-dju* or locative *-dja*, with some later vowel and consonant assimilations.

The 3sg forms have not been discussed here. In those languages with noun classes there tend to be a number of 3sg forms, one for each class. Some other languages have distinct fem and masc forms. A few have no free form 3sg pronoun at all. The 3sg forms, or lack of them, will be discussed in §7.5 and in chapter 10.

7.3 Non-number-segmentable pronoun systems

We will now look at the pronoun systems across the rest of the continent, in groups A–Y, WA–WM, where (with rare exceptions) n-sg pronouns are not segmentable into roots and number suffixes.

As in §7.2, we will first survey the types of systems, and the relationship between pronominal forms, before discussing the recurrent forms and their distribution. Each pronoun is given in the form used for S function. For the great majority of languages,

an n-sg S pronoun is also used in A function (for a few, the S form is also used in O function). Sg pronouns sometimes pattern in the same way as n-sg's. However, in a fair number of languages, sg pronouns have different forms for all of S, A and O functions; these are discussed in §7.5.

As in §7.2, 3rd person pronouns are included in the paradigms where they exist (and the data on them are reliable) and where they pattern like first and second person forms.

The simplest pronoun paradigm is also the rarest, a Type 1 system with just sg and n-sg forms. This is found in G1, Djabugay – see (46) – and in Mf, Bandjalang.

(28) Mf, Biriin dialect of Bandjalang (Crowley 1978: 78)

	sg	n-sg
1	ɲay	ɲali
2	wudja	bulagan
3m	njula	} njulamanj (or njulajam)
3f	nja:n-gan	

About one-third of the languages in groups A–Y, WA–WM have a typical Type 1 system, with sg, du and pl for each person. The pronominal forms are generally not analysable. Three typical paradigms are given in (29–31).

(29) H1, Girramay dialect of Dyirbal (Dixon 1972: 50)

	sg	du	pl
1	ɲayba	ɲali(dji)	ɲana(dji)
2	ɲinba	njubila(dji)	njurra(dji)
3	—	bula	djana

Note that the final syllable, *dji*, is optionally included on 1 and 2 n-sg pronouns in Dyirbal. In the Jirrbal dialect it is most often included but can be omitted, while in the Girramay dialect it is most often omitted but can be included. (There are 3du and 3pl pronouns, but no 3sg form, nominal determiners being used in this function.)

(30) Nd, Muruwarri (Oates 1988: 90; Mathews 1902b)

	sg	du	pl
1	ɲathu	ɲali	ɲana
2	ɲintu	nhula	nhura

(31) V, Baagandji (Hercus 1982: 109–10)

	sg	du	pl
1	ɲaba	ɲali	ɲina
2	ɲimba	ɲubu, ɲuba	ɲurda

Nearly two-thirds of the languages in groups A–Y, WA–WM have a Type 2 system, with an inc/exc distinction in 1du and 1pl. We can first consider (32):

(32) Dc1, The Flinders Island language (Sutton, ms.)

	sg		du		pl
1	ɲayu	inc	ɲaluntu		ɲalapal
		exc	ɲalulu		ɲalada
2	yuntu		yupala		yarra
3	ɲulu		wula		yada

Examination of (32) shows a diachronic origin for the 1n-sg pronouns:

ɲal(V)	plus	2sg yuntu	>	1du.inc ɲaluntu
	plus	3sg ɲulu	>	1du.exc ɲalulu
	plus	2du yupala	>	1pl.inc ɲalapal
	plus	3pl yada	>	1pl.exc ɲalada

In terms of meanings, this is not quite regular, since 2du and 3pl (rather than 2du and 3du, or 2pl and 3pl) are used in creating the pl forms. Three of the 1n-sg forms can be analysed as *ɲal-* plus the appropriate 2 or 3 form with the initial consonant omitted. The 1pl.inc form, *ɲalapal*, suggests a first element *ɲala-*, with omission of the initial *yu-* (and the final *-a*) from 2du, *yupala*. An alternative origin could have been from *ɲali* (cognate with 1du.inc in other languages – see (f) in §7.3.1) with an assimilatory change *ɲalipal* > *ɲalapal*. The clear inference we can draw is that the inc and exc forms for 1du and 1pl in the Flinders Island language must have been created rather recently.

In some Type 2 systems, the exc forms involve an increment to the inc forms, as in (33) and (34). (Other examples of this are H3 – shown at (41) – and Nc1, Gamilaraay.)

(33) Mg1, Gumbaynggirr (Eades 1979: 291)

	sg		du		pl
1	ɲaya	inc	ɲali:		ɲiya:
		exc	ɲali-gay		ɲiya-gay
2	ɲi:nda		bula:		ɲudjawinj

(34) R2, Dhudhuroa (Mathews 1909)

	sg		du		pl
1	ɲadha	inc	ɲala		ɲana
		exc	ɲala-ndha		ɲana-ndha
2	ɲinda		bula		ɲuda

In the great majority of Type 2 languages, *ŋali* is 1du.inc. Other forms may be based on this. We can have 1du.exc involving a nonce increment to 1du.inc – but, unlike in (33–4), 1pl.inc and 1pl.exc not being related – as in:

(35) WHc10, Ngarla (Dench 1994: 168)

	sg		du	pl
1	ŋaya	inc	ŋali	ŋanjtjarra
		exc	ŋali-ya	ŋanarna
2	njinpa		njumpalu	njurra
3	palura		piyalu	panalu

Or 1pl.inc can involve a nonce suffix to 1du.inc, as in:

(36) WJa2, Djaru (Tsunoda 1981: 64–5)

	sg		du	pl
1	ŋatju	inc	ŋali	ŋali-pa
		exc	ŋatjarra	ŋanampa
2	njuntu		njunpula	njurra:
3	njantu		njanpula	(njantu)

Or both 1du.exc and 1pl.inc can involve nonce additions to 1du.inc, as in:

(37) Yb1, Nhangu

	sg		du	pl
1	ŋarra	inc	ŋali	ŋali-ma
		exc	ŋali-nju	ŋanapu
2	nhu:nu		nhuma	nhuruli
3	ŋayi		palay	ya:na

The next paradigm – in a language from the same area as WHc10, Ngarla, in (35) – shows all 1n-sg forms based on 1du.inc *ŋali*:

(38) WHc3, Panyjima (Dench 1991: 157)

	sg		du	pl
1	ŋatha	inc	ŋali	ŋali-kuru
		exc	ŋali-ya	ŋali-ya-kuru
2	njinta		nhupalu	nhupalu-kuru
3	thana		thana-kutha	thana-nmara & thana-njuŋu

Dench suggests that the first and second person portion of (38) has arisen from a system similar to that in (35), by reanalysis. The original 1inc, 1exc and 2 pl's have simply been replaced by forms involving the addition of *-kuru* to the du's. By this reanalysis, the language has innovated number-segmentable n-sg pronominal forms for first and second persons.

There are just a few examples of Type 3, minimal/augmented, systems in groups A–Y, WA–WM. WJa3, Gurindji, is closely related to WJa2, Djaru, shown in (36). McConvell (ms.-a) reports that some older speakers have added to the pronominal system a form *ɲali-wula* ‘you and me and one other’. It can now most appropriately be set out in a min/aug pattern:

(39) WJa3, Gurindji (McConvell ms.-a)

	min	ua	aug
1	ɲayu	ɲayirra	ɲantipa
1+2	ɲali	ɲali-wula	ɲaliwa
2	njun-tu	njun-pula	njurrulu
3	njan-tu	njan-pula	njarrulu

The pronominal du suffix *-pula*, found in 2du and 3du in (36), has been extended to apply also to *ɲali* (with the initial *p* being lenited to *w* after a vowel).

There are also instances of Type 3 systems in subgroups Ba and Bb, from the north of the Cape York Peninsula. For example:

(40) Bb, Kuuku Ya’u (Thompson 1988: 25)

	min	n-min
1	ɲayu	ɲana
1+2	ɲali	ɲampula
2	ɲunu	ɲuʔula
3	ɲulu	pula

It appears that numbers *paʔamu* ‘two’ and *kulntu* ‘three’ can be added to *ɲana*, *ɲuʔula* and *pula* to form du’s and trials; it is not known whether they can also be added to *ɲampula*. (See Crowley 1983 and Hale 1976c for details of a similar system in Ba2, Uradhi.)

7.3.1 Forms

We can now look at the recurrent pronominal forms across groups A–Y, WA–WM, dealing first with 3pl, then 3du, 2pl, 2du, 1pl, 1du and finally the sg’s.

(a) *3pl*. Almost half of these languages have a 3pl form which is *dhana*, or a form derived from it by assimilation, lenition and other changes, e.g. *djina*, *yana*, *yina*, *ina*, *na*. These forms are found in most of the languages in groups A–F, H–L, Q, W, Yb–c, WA, WB, WD, WG–WI and WL. They are absent from subgroup G, around Cairns, and from almost all the languages in groups M–V, in the south-east. They are found in Ma3, Nd and Ne, on the northern fringe of the M–V area and also – significantly – in Q, in the far south. This pronominal form is also missing from WC, WE and WF, along the south-west coast, from WJ–WK in the centre, and from Ya in Arnhem Land.

Of the languages lacking *djana*, about half have quite different 3pl pronouns, with a different form for each language or subgroup. The remainder either have a 3du form also used for 3pl, or 3pl involving an increment to 3sg, or no third person pronouns at all (instead using demonstratives, which may lack number marking, as in subgroup G).

(b) *3du*. Over half the languages in groups A–Y, WA–WM have a 3du pronoun *bula*, or a form derived from this, e.g. *bala*, *wula*, *pulu*, *ula*, *pul*, *ul*. This is found in most of the languages from groups B–F, H–J, L, W, X, Yc, WA, WB, WD, WK–WM and a few from WG–WI. (In NBd1, Ngandi, there is a dual suffix *-pula*, which can be added to demonstratives and to verbs – Heath 1978b: 107.) As with *djana*, it is missing from subgroup G and from almost all the languages of the south-east (this time including Q) and those along the south-west coast.

There are just a few other 3du forms in individual languages. Most languages lacking *bula* either have no third person pronouns at all, or else base the n-sg's on 3sg.

In some languages from the south-east (within groups M–O, R–S) *bula* is used not for 3du but for 2du, e.g. Mg1, Gumbayngirr and R2, Dhudhuroa, in (33–4). Note also 2n-sg *bulagan* in Mf, Bandjalang, in (28), and 2du *bala* in S1, Yota-Yota. There are three languages for which a single form is reported to be used for 2du and 3du, all involving *bula*; we find *bula* in L1, Darambal; *bula(ŋ)* in Na2, Gadjang; and *pulanha* in Je1, Kungkari (gathered from the last speaker, see Breen 1990:32).

As pointed out in §4.2.6, there are two recurrent forms across the continent for the number 'two' and the du suffix on nouns and adjectives (sometimes also on pronouns); these are *bula* and *gudharra*. In some languages 'two' is *bula* (or a form based on *bula*) and the du suffix is *gudharra* (or a form based on it); in other languages this is reversed – see table 4.1 in §4.2.6.

In §7.2 we noted a recurrent 3n-sg root *bu-* in the languages that have number-segmentable pronouns. It is relevant to ask whether a case can be put forward for this to be related to 3du *bula* which is found across a good deal of the remainder of the continent. To do so would involve identifying *-la* as a du suffix (in more than this one form, *bula*). There is no evidence available on which to base such an analysis. There may be some connection, but it cannot be satisfactorily proved at the present time. Indeed, the similarity between *bu-* for 3n-sg in number-segmentable pronoun systems, and *bula* for 3du or 2du or 'two' elsewhere may simply be coincidental.

(c) *2pl*. There is a recurrent 2pl form found in about 60 per cent of the languages in groups A–Y, WA–WM. This is *nhurra*; the initial *nh* automatically becomes *ny* in a single-laminal language and initial *nh/ny* is lenited to *y* in some languages (generally, all *nh/ny*-initial

pronouns undergo this lenition in such languages). With initial and/or final dropping we get such forms as *urra* in C, *rro* in De, *urr* in Ea2, *irr* in Ea3. And in W1 we get *nhurra* > *nhutu*. The rhotic is reported to be retroflex in *nhura* from Nd, Muruwarri, in (30). Note also *gurda* in the adjacent V, Baagandji, in (31); here the initial *nj* may have become *ŋ* by analogy – all forms in the paradigm now commence with *ŋ*.

Forms related to *nhurra* are found right across groups A–Y, WA–WM; it is missing from A, L, P–R, T–V, X, WC, WE and WK. In group M it is only found in Ma2, and it is in Na, Nd and Ne but not in Nb and Nc. The distribution of *nhurra* (and forms based on it) is shown in map 7.3.

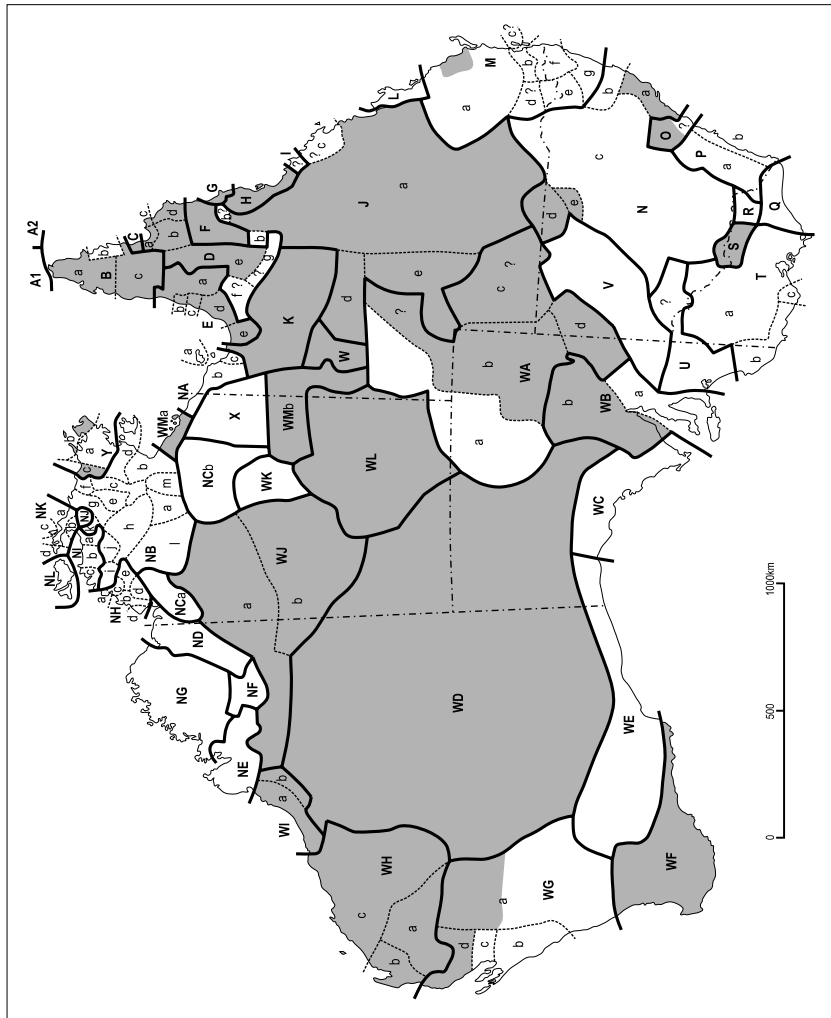
Some of the languages lacking *nhurra* have a 2pl form based on 2sg or 2du, or else have a single term (cognate with 2du in other languages) covering both 2du and 2pl, e.g. Mf, Bandjalang, in (28). Other languages have a variety of different forms for 2pl, e.g. Mg1, Gumbaynggirr, *gudjawinj*, in (33); and R2, Dhudhuroa, *guda*, in (34).

In §7.2 we recognised *nu-* (< *nugu-*) as a recurrent 2n-sg root and *-rrV* as a n-sg number marker in the number-segmentable pronoun area. Now – as pointed out under (2) in §4.3.1 – initial *n-* in groups NA–NL often corresponds to initial *nh-* elsewhere (although there are generally some exceptions). That is, 2pl *nhurra* in groups A–Y, WA–WM might be taken to correspond with *nu-rrV* in NA–NL. Note, however, that whereas in languages with number-segmentable pronouns, *-rrV* is used with all or most persons (2, 1exc, generally also 1inc, often also 3), in the remainder of the continent *-rra* occurs only in 2pl *nhurra*.

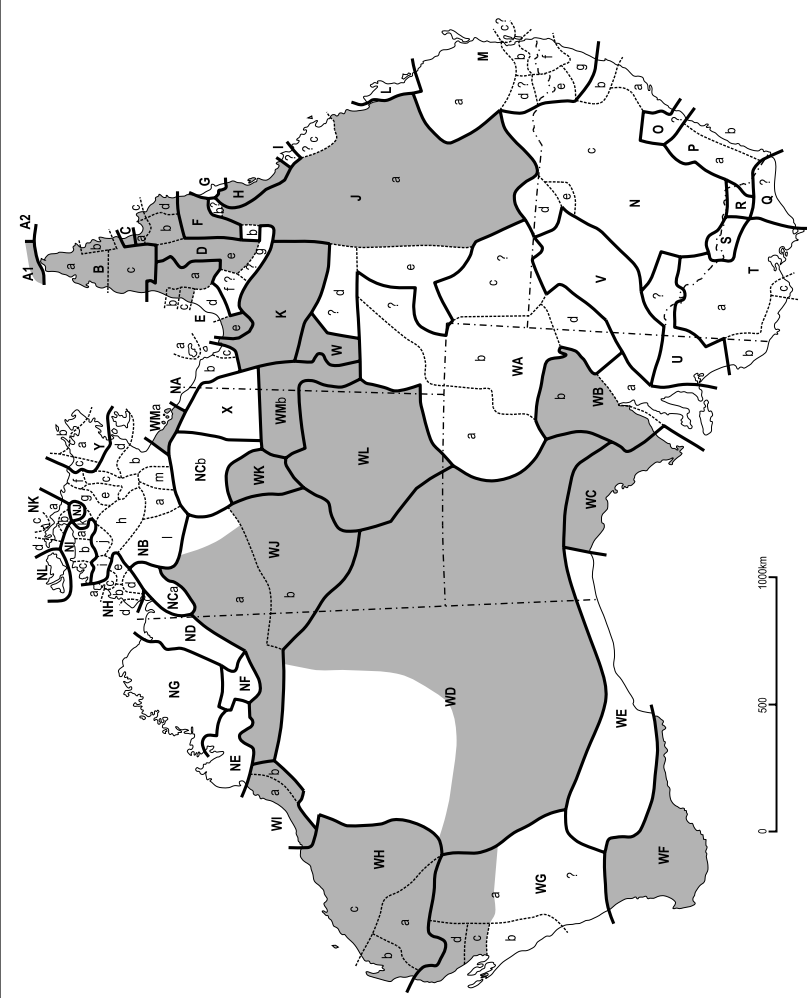
(d) 2du. 2du forms related to *nhu(m)bV₁IV₂* are found in over half the languages from groups A–Y, WA–WM. They are missing from groups L–V, WA and WBa in the south-east, from WE along the Bight, and also from Ed, G, Je, X and Y. Map 7.4 shows the distribution of this form.

Like *nhurra*, *nhu(m)bV₁IV₂* naturally begins with *nj* in a single-laminal language. It becomes *yu(m)bV₁IV₂* when *nh/nj* lenites to *y* across the pronoun paradigm, as in (32). We also get reduction due to initial and/or final dropping, e.g. *ubal* in Ea2, Oykangand; *yibal* in Eb2, Koko Bera. For Bb, Umpila, in (40), we get 2n-min *ŋuʔula*. This almost certainly relates to *nhupala* through the regular change *p* > ʔ, with initial *nh* being analogically replaced by *ŋ* so that all 1 and 2 pronouns (and 3min) commence with *ŋ-*. (A similar analogical change, plus loss of the final syllable, could account for *ŋubu* and *ŋuba* in V, Baagandji, shown in (31), and for *ŋupul* in U2, Ngayawang.)

The second and third vowels (shown simply as *V₁* and *V₂*) exhibit considerable variation. For instance, we find *njubala* in northern dialects of H1, Dyirbal, *njubila* in the southernmost dialect, Girramay – as in (29) – and *njubula* in H2, Warrgamay, immediately to the south of Girramay.



Map 7.3 Occurrence of 2pl form *nhurra*



Map 7.4 Occurrence of 2du form $nlu(m)bV_1V_2$

In summary:

V_1 is *a* in languages from groups D–F, H, J, K, W, WB–WD, WF–WJ,
WL, WM
u in languages from groups B, C, H, WI, WJ, WK
i just in the Girramay dialect of H1.

There is also variation in the final vowel:

V_2 is *a* in languages from groups B, D, F, H, J, K, W, WB, WI, WJ, WL,
WM
u in languages from groups WG, WH
i in languages from groups WC, WD, WG.

The attested combinations of V_1 – V_2 are *a-u*, *a-i*, *a-a*, *i-a* and *u-a*. That is, at least one of V_1 and V_2 is always *a*.

There is a general tendency for word-final *u* or *i* to change to *a* (see §7.5.2 on forms of sg pronouns) so V_2 could originally have been *u* or *i*; or it could have been *a*. For V_1 we have the largest group of languages showing *a*, but a fair number with *u* (and just one instance of *i*). It is difficult to reach any firm conclusions as to the original identity of V_1 and V_2 .

Medial *-mb-* is found in languages from a continuous block: WHc, WI–WM, and X; other languages just have *-b-*. Note that we get *-nb-* in WJa; in (36) and (39) 2du/2ua is *njun-pula*. An analysis immediately suggests itself – root *njun-* plus du marker *-pula* (see (b) above). Surely this could be the ‘proto-form’? From **nhun-bula* we would get *nhumbula* by nasal assimilation, *nhubula* by nasal elision, *nhubala* by vowel assimilation, and so on.

It is possible, but unlikely, that this is the correct solution to this set of data. All the evidence suggests that subgroup WJa (which is immediately to the south of the number-segmentable pronoun area) is restructuring its pronouns, partly by means of the du suffix *-pula*. Note that (39) includes 3ua *njan-pula* and 1+2ua *gali-wula* in addition to 2ua *njun-pula*. Other languages in the subgroup have restructured the paradigm in different ways. WJa1, Walmatjarri, retains essentially the same 1n-sg forms as WJa2, Djaru, in (36), but has reformed 2du, 2pl, 3du and 3pl by adding du suffix *-tjarra* and pl *-warnti* to erstwhile 2pl form *nhurra* (which does not now occur without a suffix) and to 3sg form *njantu*. WJa4, Mudbura, has retained just 1sg *ɲayi* and 2sg *njuntu*, and forms du and pl by adding suffixes *-kutjarra* and *-tartu* respectively to the sg’s (demonstratives are used in place of any 3n-sg’s).

We can conclude that *njun-pula* in (36) and (39), far from being an archaic form, is most likely to be a recent innovation, unrelated to the recurrent 2du *nhu(m)bV₁V₂*.

However, it is likely to be significant that 2pl *nhurra* and 2du *nhu(m)bV₁IV₂* have the same initial syllable, corresponding to 2n-sg *nu-* across groups NA–NL. The final part of *nhu(m)bV₁IV₂* may relate to an original *-bula*, i.e. *nhu-(m)-bula* (we would then have WJa2/3 repeating this morphological formation all over again, thousands of years later). But, really, there is no reason for choosing *V₁* to be *u* and *V₂* to be *a*. I prefer, in the present state of knowledge, to stick with *nhu(m)bV₁IV₂* and state that the first syllable probably is *nhu-*, as in 2pl *nhu-rra*, but that the final *-(m)bV₁IV₂* cannot at present be firmly identified with any other morphological component.

(It is possible that some of the *-mb-* forms relate to the recasting in WJa, e.g. the nearby WJb1, Warlpiri, has 2du *njumpala*, which could have developed from *njun-pula* by means of two assimilations. And it may be that others relate to **nhubV₁IV₂* through insertion of homorganic *m* in post-stress position – see Explanation 2 for the evolution of ergative allomorph *-ŋgu*, under (3) in §5.4.3.)

Looking now at other 2du pronominal forms, it was mentioned – under (b) – that some of the languages in the south-east (in groups M–O and R–S) have *bula* for 2du (rather than for 3du). In some languages 2du is based on 2sg. The form *nhula* or *yula* is used for 2du in Nd – shown in (30) – and in languages from the adjacent group WA. Other 2du forms, each occurring in just one small area, included *nhuma* in Y – see (37) – *ŋowa:m* in Ma4, Waga-Waga, and *niwa* in WBa, Kaurua.

(e) 1pl. Some languages have a single 1pl pronoun whereas others show distinct inc and exc forms. There are quite a few forms which occur each in several languages:

- (1) *ŋiyara* is 1pl in Mc;
ŋiyani is 1pl.inc in Nc;
ŋiyan is 1pl in Na1;
ŋiyaa is 1pl.inc in Mg1.
- (2) *ŋambula* is 1pl.inc in B, C, Ea, Eb;
ŋambala is 1pl.inc in X and WM.
- (3) *ŋandjin(a)* is 1pl.exc in F; *ŋanjdji* is 1n-sg in G;
anhdha(n)/anjtjan is 1pl.exc in initial-dropping languages C, Ea/b (it is the only 1pl in Ea3);
ŋanjdjarra is 1pl.inc in WHc10;
ŋanjtju is 1pl.exc in WGa1;
ŋanh(th)urru is 1pl.inc in WH, WI; 1pl in WGd;
anjul is 1pl.inc in WK (with initial dropping).
- (4) *ŋana* is 1pl.exc in B, Ed, Dd, Me, WAc1
1pl.inc in F, H3, R2
1pl in Ec, H1–2, J, K, Nd, WAd, WD (and *ŋani* in U1, *ŋanu* in U2, reflecting regular shifts in final vowels in these languages);

ɲarna is 1pl in WAa1/2;
ɲanarna is 1pl.exc in WHb/c, WIa
 1pl in WD;
ɲanani is 1pl.exc in WIb;
ɲanampa and *ɲanimpa* are 1pl.exc in WJa2 (and *ɲantipa* is in WJa3);
ɲanimpa is 1pl in WJb;
ɲanu is 1pl in WM;
ɲanadhurru is 1pl in L1;
ɲanapurru is 1pl.exc in Ya.

Forms (1), beginning with *ɲiya-*, and forms (2), *ɲambula/ɲambala*, are 1pl.inc in languages with an inc/exc distinction, and the sole 1pl in languages without. Similarly, forms (4), beginning with *ɲa(r)na-*, are generally 1pl.exc or the sole 1pl. There are three languages where *ɲana-* is 1pl.inc. For two of these, it is likely that the inc/exc contrast developed recently, and was based on earlier single 1du and 1pl roots. R2, Dhudhuroa, was illustrated in (34). The second language is:

(41) H3, Nyawaygi (Dixon 1983: 464). Forms in S function:

	sg		du	pl
1	ɲayba	inc	ɲali	ɲana
		exc	ɲali-liŋu	ɲana-liŋu
2	ɲinba		ɲjubula	ɲjurra
3	ɲjaŋga		bula	djana

The third language, F, Kuku-Yalanji – is discussed in §7.4; see (56).

The forms under (3) may all be related, or they may fall into two groups – (3a) *ɲanjɖji/a* in the east, is 1pl.exc; and (3b) *ɲanjɖju/a* in the centre and west, is 1pl.inc (except in WGa1 where it is 1pl.exc).

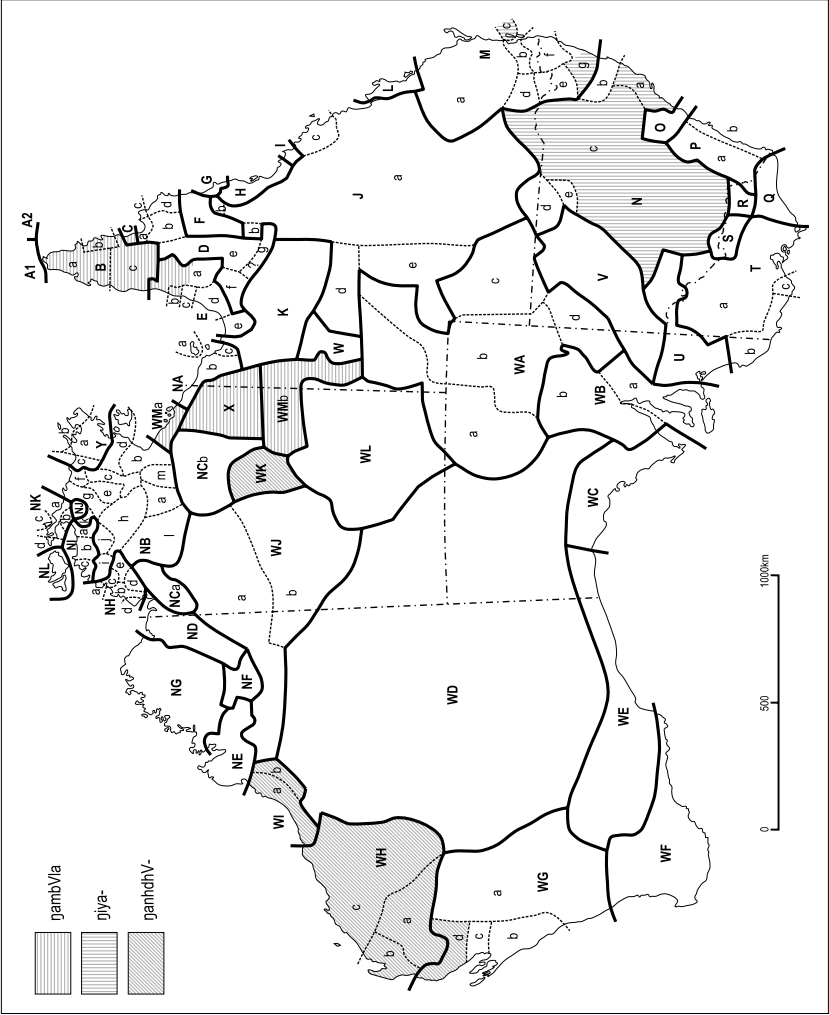
In summary (and see the geographical occurrences, shown in maps 7.5 and 7.6):

1pl.inc:

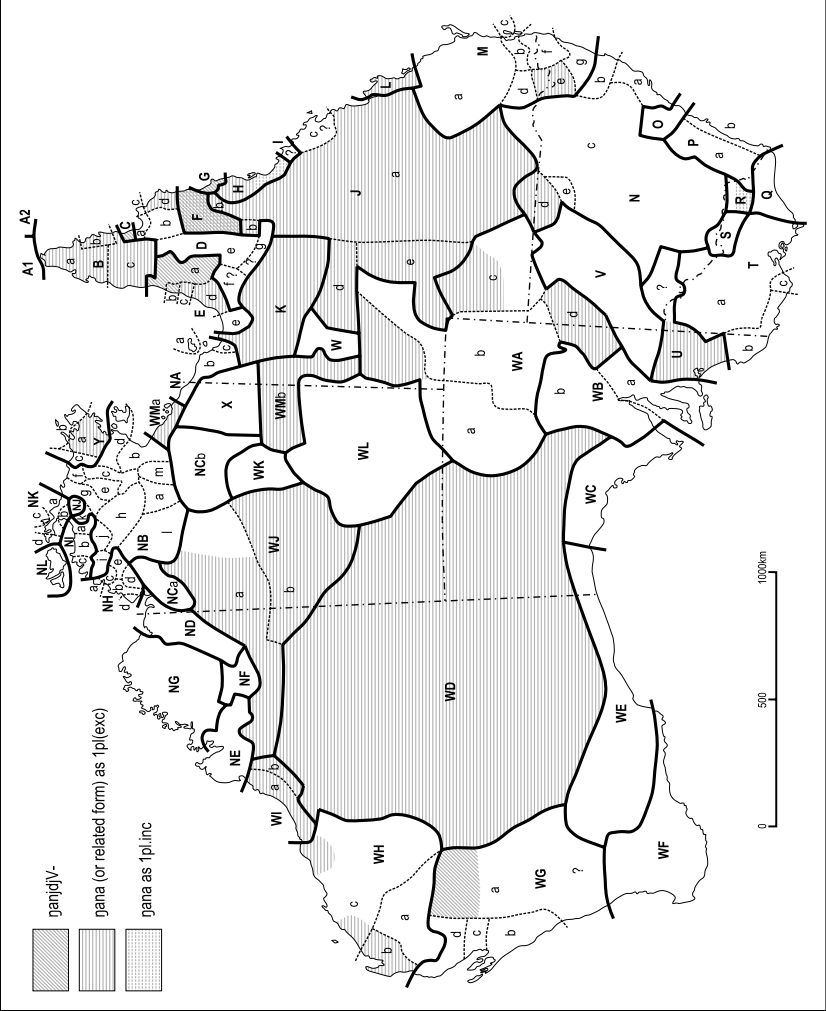
- (1) *ɲiya-* in the south-east (c. 6 languages);
- (2) *ɲambula/ɲambala* in the centre-north-east (c. 25 languages);
- (3b) *ɲanh(dh)u/a* in the west and centre (c. 12 languages).

1pl.exc:

- (3a) *ɲanjɖji/a* in the east (c. 12 languages);
- (3b) *ɲanjɖju/a* in the west (1 language);
- (4) *ɲana-* in languages from eighteen groups, pretty well spread across the continent; notable gaps are in the south-east (only in Me of M group, only in Nd of N group, and not in O–Q, S, T, V or WB), in the south-west (not in WC and WE–WG), and in a north-east central region (not in groups X, W and WK) (c. 60 languages).



Map 7.5 Forms for 1pl(inc)



Map 7.6 Forms for 1pl (exc) and 1pl (inc)

The original forms for (3) were probably *ḡanhthu* in the west and *ḡanjdji* in the east, with each shifting to final *a* in some languages (through vowel assimilation, or just a tendency to replace a word-final vowel by *a*). For (2) the original form is likely to have been *ḡambula*, with assimilation to *ḡambala*. It may be significant that this ends in *-bula*. In (39) we have *ḡali-wula* (relating to dual suffix *-pula*) referring to three people 'me and you and one other'. It is possible the *ḡambula* goes back to an analysable form *ḡnn-bula* at some earlier time.

It was mentioned at (29) that 1 and 2 n-sg pronouns in H1, Dyirbal, can take an optional final *-dji*. It is possible that *ḡana* (typically 1pl.exc) plus *-dji* developed into *ḡanjdji*, which is 1pl.exc in a group of languages just to the north of H1. Or there could be a number of other possible explanations for *ḡanjdji*, involving no direct link to *ḡana*.

What these forms do illustrate is areal diffusion. Pronouns beginning with *ḡiya-* are found in a scattering of languages in the south-east, which are not closely genetically related. Similarly, *ḡambula/ḡambala* is found in the contiguous (but not closely genetically related) groups B, C and Ea, in the Cape York Peninsula, and then a little over to the west in the contiguous (but not closely related) subgroups X and WM. The form *ḡana* has plainly diffused over languages in many parts of the non-number-segmentable pronoun area.

Under (c) in §7.2.1 we surveyed the wide range of initial syllables on the various 1n-sg forms across groups NA–NL – 1n-sg.inc, 1n-sg.exc and 1du.inc. In each case, *ḡa-* was the most common initial syllable. Four of the forms given here (*ḡana*, *ḡanjdji*, *ḡanhthu* and *ḡambula*) begin with *ḡa-*, the other one being *ḡiya-*. In addition, the great majority of languages right across the continent have 1sg beginning with *ḡa-*. There is likely to be a link (or rather, an intertwined series of links) between these forms. But with fifty thousand or so years of evolution, it may never be possible fully to resolve them.

Blake (1988, after Dixon 1980) quotes a set of pronominal forms as characteristic of 'Pama-Nyungan' languages. These include some of the forms listed here – 3pl *djana*, 3du *bula*, 2pl *njurra*, 2du *njuNpaIV*, 1pl *ḡana* and 1du *ḡali*. As has been shown, each of these forms (excepting *ḡali*, which is discussed next) is found only in a selection of 'Pama-Nyungan' languages. It would be speculative to assign them to a 'proto-PamaNyungan' (if indeed there were independent evidence for such a construct, which there appears not to be).

The main defining features adopted by Blake (1988) and Evans (1988a) for 'Pama-Nyungan Mark II' as a genetic group are these six n-sg pronoun forms plus ergative suffix *-ḡgu* and locative *-ḡga*. The limited distribution of ergative *-ḡgu* was shown on map 5.1 in §5.4.3 (locative *-ḡga* has an even more restricted occurrence). In fact, each of these seven features (the six pronouns and *-ḡgu*) has an areal distribution, with their regions of occurrence overlapping but never corresponding. Some of the putative

subgroups of 'Pama-Nyungan' show most of the features, while others show few or none. For example, none of the seven features is found in the 'Yuin subgroup' (my Pb) and the 'Mirniny subgroup' (my WE) has just *-ngu* in one of its three languages. It is scarcely plausible to posit a large genetic grouping, with well-articulated subgrouping within it, if some of the subgroups show only one – or none – of the small array of features suggested for the putative proto-language.

(f) *I du*. In contrast to 1pl, there is a single recurrent 1du form, *ŋali*, which is found in the great majority of languages from groups A–Y, WA–WM and in none at all from NA–NL. Of the 130 languages in A–Y, WA–WM for which there are adequate data, *ŋali* occurs in 104. It is the sole 1du form in those languages (thirty-three in number) that lack an inc/exc distinction. For those languages which show this contrast, *ŋali* is 1du.inc in sixty-seven and 1du.exc in four.

It will be useful to survey the 20 per cent of languages in groups A–Y, WA–WM that lack a form *ŋali*. Their location is shown in map 7.7; they fall into three sets.

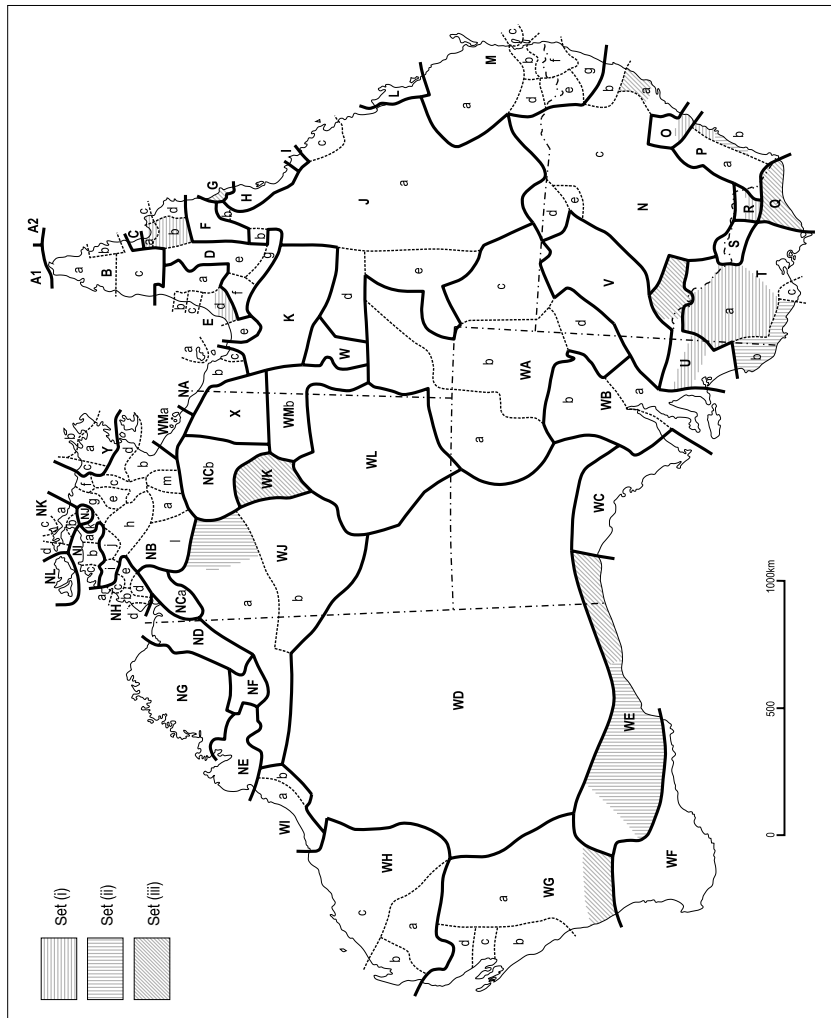
(i) A number of languages lack *ŋali* but do have one or more 1n-sg pronominal forms beginning with *ŋal-*. In Ed2, Kuthant, we find 1du *ŋal-uuk*, where the ending *-uuk* appears on all 1 and 2 pronouns. For U2, Ngayawang, the nineteenth-century sources give 1du as 'ngedlu' but in this language *-u* appears to have been added to the end of many words. In both these cases there is likely to have been an earlier form *ŋali*. Old materials on O1, Dharuk, give 1du as *ŋala* or *ŋalu* and there is no explanation for the final vowel (note, though, that *ŋali* is found in the closely related language O2, Darkinjung).

Other languages either have several 1n-sg pronouns beginning with *ŋal-*, or else have segmentable forms. It will be useful to tabulate these (the first two lines are repeated from (32) and (34) above):

(42)	1du.inc	1du.exc	1pl.inc	1pl.exc
Dc1, Flinders Island language	ŋal-untu	ŋal-ulu	ŋala-pal	ŋal-ada
R2, Dhudhuroa	ŋala	ŋala-ndha	ŋana	ŋana-ndha
Ta1, Wemba-Wemba	ŋal-ein	ŋal-aŋ	yaŋurr-ein	yaŋurr-aŋ
Pb1, Dharawal	ŋalgan	ŋungulin	njulgan	njunulin

The forms given for Dc1 are also found in Da and Db (but here initial dropping has lost the initial *ŋa-*). Ta1 has 2pl *ŋud-ein*, also involving suffix *-ein* (no 2du was recorded, in work with the last speakers).

Note that *ŋal-* is always found in the 1du.inc (or the sole 1du) column. It is perfectly possible that in each of these languages there was at an earlier date a form *ŋali-*, which was then fused with an increment (a different one in each language) as the pronoun system was reanalysed.



Map 7.7 Languages in groups B–Y, WA–WM lacking *n̥li*

(ii) In a few languages all n-sg pronouns involve increments to sg's. This is certainly a recent development in WJa4, Mudbura – see discussion under (d) above. It is also found in Pb2–3, Tb and WE2 – see (62), (47) and the discussion at the end of §7.4.2. Some of these languages may well originally have had a 1du form *ɲali* which was replaced as the pronoun paradigm was reanalysed. In Tb the bound 1du pronominal enclitic is =*ɲal* (see §8.4.1) suggesting an earlier free form *ɲali*. However, there is no definite evidence that Pb2–3 or WE2 ever had *ɲali*.

(iii) For the final set of languages there is no reason to posit a form *ɲali*- at an earlier stage. Consider:

(43) WE1, Mirning

	sg	du	pl
1	ɲathu	ɲarnta-tha	ɲarnta-ni
2	ɲuntu	ɲuntu-kutha	ɲuntu-ɲarri
3	panha-rtu	panha-kutharra	?

For 2 and 3 pronouns, du and pl are based on the sg, but for 1 they involve a n-sg root *ɲarnta*-.

For Q we have only old materials and they do not always agree. There is, however, consensus on the following subject forms:

(44) Q, Muk-thang (Gaanay)

	sg	n-sg
1	ɲayu	werna
2	ɲindu	nurdana
3	nuɲaɲu	dhana

For a number of other languages for which we have only old materials, these include no mention of any form like *ɲali*. U5, Yitha-Yitha, has 'ngainne' for 1n-sg, while in the slim materials available on WGa6, Witjaari, the only 1n-sg form quoted is *ɲaya-tha*.

(Ma4, Waga-Waga, has 1du *ɲaam*. However, this may well be a reduction from an earlier form *ɲalam*. Note that its eastern neighbour, Ma3, Gabi-Gabi, has 1du.inc *ɲalin* and 1du.exc *ɲalam*. On this basis, Ma4 could be added to set (ii) above.)

For WK, Warumungu, we do have full and reliable data:

(45) WK, Warumungu (Simpson and Heath 1982)

	sg	du	pl
1	arni	inc ayil exc atjil	anjul ankkul
2	aji	amppul	a(rr)kkul
3	(ama)	awul	atjtjul

Initial dropping and other phonological changes have applied, but it is difficult to perceive *ŋali* as an earlier version of any modern form.

In Na2, Gadjang, the 1du.inc form is *baali*, in all functions. In the neighbouring language Na1, Awabagal, the 1du.inc subject form is *bali* but we find *ŋali-* in object and oblique functions (this *ŋali* may be a loan, from the 1du.inc form found in neighbouring languages O2, Darkinjung, and Nc1, Gamilaraay).

There are thus at least seven languages (Na2, Q, U5, WE1, WGa6, WK – and also G1, to be mentioned shortly) that lack *ŋali* or any form beginning with *ŋal-* and for which there is no reason to posit *ŋali* at an earlier stage. Under (i) a further set of languages was given which lack *ŋali* but have pronouns beginning with *ŋal-*; some of these may go back to *ŋali* at an earlier stage but they need not all do so. Under (ii), I mentioned languages where n-sg pronouns involve an increment to the sg form. These may have replaced an earlier *ŋali* but they could equally well have replaced an earlier 1n-sg pronoun of quite different form (or else the n-sg's may always have been based on the sg's).

Six of the seven languages in (iii) lie on the edge of the area occupied by groups A–Y, WA–WM – Na2, Q, WE1, WGa6 and G1 are on the coast while WK is next to the NA–NL geographical block. The remaining language, U5, is some way up the Murray River. Interestingly, Pb2–3, Tb and WE2, from list (ii), and Da–c and Pb1, from (i), are also on the coast.

A major piece of evidence often quoted in favour of the 'Pama-Nyungan hypothesis' (that the languages in groups A–Y, WA–WM form one genetic group) is that *ŋali* occurs in these languages but in none of those from NA–NL (the 'non-Pama-Nyungan languages'). It is true that *ŋali* occurs in no language from the N groups. And it does occur in most of the languages from groups A–Y, WA–WM. But not in all of them. Two competing hypotheses are compared below: the 'Pama-Nyungan' hypothesis and the diffusional hypothesis.

(A) *The genetic (Pama-Nyungan) hypothesis.* A proto-language ancestral to all of A–Y, WA–WM had 1du.inc pronoun *ŋali*. This has been retained in nearly all the modern languages.

One would then have to explain why there is no trace of *ŋali* in the languages of our sets (iii) and (ii). It has, presumably, been lost. It must have been lost from at least nine distinct areas, all but one of them on the fringe of the 'Pama-Nyungan' region.

(B) *The diffusional hypothesis.* A 1du.inc (or 1du) form *ŋali* has simply diffused over a continuous area. It covers almost all the region occupied by groups B–X, WA–WM. However, it has not yet reached nine areas, eight of them on the fringe of this region (seven on the coast, with WK falling on the inland boundary, adjacent to

NC). The only non-fringe language lacking *ŋali* (or a *ŋal*- form) is U5. In fact the U areal group of languages has archaic features; it is likely to have been in its current location for a long time, and appears to have been relatively resistant to diffusional influences from other languages – see the discussion under (I) in §13.2.2.

The only difficulty with the diffusion hypothesis concerns subgroup Y, which is separated from the main *ŋali* area. As mentioned in §4.3, it is likely that Y did form part of this diffusion zone at some time in the past, and that it has become separated from it – see (6) in §13.1. (Note that Y also has 1pl *ŋana* but lacks 2pl *nhurra*, 2du *nhu(m)bV₁V₂* and also 1sg *ŋay* and 2sg *ŋin ~ njiŋ*, pronominal forms which are widespread among groups B–X, WA–WM.)

Alternative (A) involves nine separate losses of *ŋali*, almost all on the coast. Alternative (B) involves a steady diffusion over a continuous region (which is assumed to have originally included subgroup Y), not quite reaching nine areas, all but one on the coast or on the edge of the area in which we find non-number-segmentable pronouns. Alternative (B) is simpler and plainly to be preferred. Thus, the ‘*ŋali* argument’ for Pama-Nyungan as a genetic group is seen to be not too strong. As outlined in the appendix to chapter 2, the other arguments that have been put forward are also flawed.

The continuing diffusion of *ŋali* can be illustrated by considering the genetic subgroup G, on the coast near Cairns. The forms reconstructed for proto-G, and those in the two modern languages are:

(46)	proto-G		G1, Djabugay		G2, Yidinj	
	sg	n-sg	sg	n-sg	sg	n-sg
1	ŋayu	ŋanjɔdʒi	1 ŋawu	ŋanjɔdʒi	1 ŋayu	ŋanjɔdʒi
2	njundu	njurra	2 njurra	njurra-mba	2 njundu	njundu-ba

In G1 we have assimilation *ŋayu* > *ŋawu* for 1sg. The original 2n-sg *njurra* has become 2sg in G1 (probably through a politeness shift, such as applied to English *you*); a new 2n-sg has been formed by adding the nominal suffix *-(m)ba* ‘one of a group’ to the new 2sg. In G2 the original 2n-sg, *njurra*, has been replaced by a form made by adding *-ba* to 2sg *njundu*.

This is the full pronoun paradigm for G1. But G2 has one further form, 1du *ŋali*. This has not restricted the reference of *ŋanjɔdʒi*, which is still 1n-sg, referring to the speaker and one or more other people. The form *ŋali* is, effectively, outside the paradigm, and is used sparingly. It may be employed in the first sentence of a text, to identify a set of two people, but later in the text *ŋanjɔdʒi* will be used for further reference to the same two people.

It is of course impossible to be certain, but the most likely scenario is that *ŋali* was recently borrowed into G2 from its southerly neighbour H1, Dyirbal (where it is the 1du pronoun – see (29)). It is just coming into use in Yidinj, for particular specification of ‘we two’. In time it would be likely to become more integrated, being always used for ‘we two’, with *ŋanjɔdji* then contracting its semantic range to 1pl (i.e. ‘we three or more’). We also would expect it eventually to spread into G1 (*ŋali* is already established in G1’s other neighbour, F, Kuku-Yalanji, to the north and west – see (56)).

This provides an illustration of how *ŋali* is continuing to diffuse, here moving into one of the *ŋali*-less coastal pockets. A rather different example of the diffusion of *ŋali* comes from the south-west coast. The oldest materials suggest the following pronominal forms in WE2, Kalaaku, from the western part of the Bight:

(47) WE2, Kalaaku

	sg	du	pl
1	ŋatju	ŋatju-kutha	ŋatju-ŋarri
2	ŋuntu	ŋuntu-kutha	ŋuntu-ŋarri

However, later materials do include 1du *ŋali*. This appears to be a loan from Kalaaku’s northerly neighbour WD, the Western Desert language. After the White invasion Kalaaku numbers fell and speakers of the Western Desert language moved down to the goldfields in Kalaaku country. This accelerated what would probably have happened anyway, given more time – the further diffusion of *ŋali* into a coastal area that had not previously had this form.

The widespread occurrence of *ŋali* is a notable feature of the Australian linguistic area. Why is it that this particular form should have diffused more widely than any other? There is an explanation available. I suggest, in §7.4, that the original pronoun paradigm just had sg and n-sg for first and second persons. Then a ‘you and me’ pronoun was added, as a term tangential to the system. The next stage was for the ‘you and me’ pronoun to get incorporated into the system in one of several ways, creating a sg/du/pl system (Type 1), or sg/du/pl plus inc/exc (Type 2), or min/(ua)/aug (Type 3). Now we have noted that grammatical categories tend to diffuse rather more than do actual grammatical forms. However, if a quite new kind of category diffuses (here, a ‘you and me’ pronoun) then it is rather likely that the form used to express it in one language should be taken over, with the category, into another language.

Under (e) we noted three recurrent forms for 1pl.inc and two for 1pl.exc. There is a single form, occurring in 80 per cent of languages, for 1du.inc. And there is no distinct recurrent form for 1du.exc. It will be seen from (33–5) and (37–8) that 1du.exc most often involves an increment to the 1du.inc form, or else is a separate, language-specific form, e.g. *ŋatjarra* in (36).

In just a few languages 1du.exc is *ŋali*, or a reflex of it. These are, quoting also 1du.inc:

(48)	1du.inc	1du.exc
Ed1, Kurtjar	ntiŋa-l	ŋaa-l (see also (60))
WAa3, Arabana	arimpa, aruna	ari
WAb1, Yandruwanhdha	ŋaldra	ŋali
WAb2, Diyari	ŋalda	ŋali
WAc1, Wangkumara	ŋala	ŋali

In all except Ed1, 1du.inc might be historically related to the 1du.exc form.

A number of Australian languages, scattered around the continent, have further pronominal complexities. A different pronominal form may be used depending on the kinship relation between the participants, and/or on whether they belong to the same or different moieties, and/or on whether they belong to the same or different generation levels. This applies, prototypically, to 1du, but is often extended to other person–number combinations. It applies only to 1du in northern dialects of H1, Dyirbal, where *ŋanaymba* is used for ‘we two’ when referring to people of the same generation level (or two levels apart) and *ŋali* for people one (or three) generations apart. (Southern dialects just use *ŋali*, whatever the generation levels – Dixon 1989.)

Other languages with kinship/moiety/generation-determined pronouns include:

- WAa3, Arabana, has three distinct du and pl forms in all persons, for ‘same moiety, adjacent generation’, ‘opposite moiety’ and ‘all else’.
- WAb2, Diyari, has distinct du forms in all persons for ‘same moiety’ and ‘opposite moiety’.
- WBb1, Parnkalla, has distinct 1du and 2du forms for ‘participants of same moiety’ and ‘participants of opposite moiety’.
- WBb2, Adnjamathanha, has the most complex system of all, where there can be up to ten different forms for a given person and number combination, depending on moiety, generation level, and kinship relation. (See Schebeck, Hercus and White 1973.)
- WL, Arandic languages, have three forms of all n-sg pronouns. The basic set is used for ‘same moiety, same generation’ or for two generations apart (irrespective of moiety), with suffix *-ak* added for ‘same moiety, odd number of generations apart’ and *-anth* for ‘opposite moiety’.

The languages just listed, in groups WA, WB and WL, constitute a linguistic area, with the occurrence of special pronominal forms being a defining feature of the area.

Note though that the phenomenon also occurs in languages from other regions. In addition to H1, mentioned above, we find:

- WF, Nyungar, was not thoroughly described before it ceased to be actively spoken, but it appears to have had distinct du pronouns, in all persons, for 'siblings, or two friends', 'parent and child, or uncle and nephew', and 'husband and wife'.
- WHc3, Panyjima, has special 1du and 1pl forms for reference to a group who are not all in the same generation or two generations apart. There is also a special 2du pronoun with rather specific conditions of use, relating to sex, patrimoiety and generation (Dench 1991: 157–8).
- NA, Tangkic, has distinct du and pl forms, in all persons, for 'same generation or two generations apart' and 'one or three generations apart'.
- NBe, Dalabon, has distinct du pronouns, in all persons, again for 'same generation or two generations apart' and for 'one or three generations apart' (Alpher 1982).
- NHd1, Murrinh-patha, has distinct n-sg pronouns (for all persons except 1+2) marking whether the referents (i) are all masculine, (ii) include some feminine, (iii) are from the same subsection (Walsh 1976a: 150ff).

(g) *1sg, 2sg and 3sg*. These pronouns often have distinct forms for S, A and O functions, and a reconstruction is deferred until the discussion of case forms in §7.5. Summarising the conclusions from §7.5:

- 1sg was originally *ɲay*. In many languages the A form *ɲadhu/ɲadju* has been – through reanalysis – adopted as the new root.
- 2sg was originally *ɲin*, with A form *ɲin-du*. There have been assimilations and lenitions: *ɲin* > *njin/nhin* > *yin*, *ɲindu* > *ɲundu*, *ɲindu* > *njindu* > *njundu*, etc. Again the original A form has in some languages been adopted as the new root.
- 3sg (or 3sg.masculine in languages with a gender distinction) was originally *nhu-* with A form *nhulu* and O form *nhunha*. There has been assimilation *nhu* > *ɲu-*, and adoption of *nhulu* in some languages and of *ɲunha* in others as the new root.

In addition, a word-final *u* in sg pronouns shifts to *a* in one area in the west and in two areas in the east, e.g. 1sg *ɲadhu* > *ɲadha*; 2sg *ɲindu* > *ɲinda* or *njuntu* > *njunta*; 3sg *nhulu* > *nhula*; this is discussed in §7.5.2.

The recurrent pronominal forms that have been discussed in this section and the last are summarised in table 7.2.

Table 7.2 Recurrent pronominal forms across N groups and non-N groups

NUMBER-SEGMENTABLE PRONOUNS IN GROUPS NA–NL (RELIABLE DATA ON c. 56 OUT OF c. 60 LANGUAGES)		NON-NUMBER-SEGMENTABLE PRONOUNS IN GROUPS A–Y, WA–WM (RELIABLE DATA ON c. 130 OUT OF c. 185 LANGUAGES)
1sg	28 begin with <i>ŋay</i> -, a further 14 with <i>ŋa</i> -	original form <i>ŋay</i>
2sg	<i>ŋinj</i> (in 25 languages)	original form <i>ŋin</i>
3sg	various forms	original form <i>ŋju</i> -
number suffix on n-sg	<i>-rrV</i> (50 languages)	no corresponding form (but <i>-rra</i> in 2pl <i>nhurra</i>)
1n-sg	varied roots, the most common initial syllable for all of 1n-sg.inc, 1n-sg.exc and 1du.inc is <i>ŋa</i> -	1du.inc <i>ŋali</i> (c. 104 languages) 1pl.inc <i>ŋiya</i> - (c. 6), <i>ŋambula</i> (c. 25), <i>ŋanjdu</i> (c. 12) 1pl.exc <i>ŋana</i> (c. 60), <i>ŋanjdi</i> (c. 12)
2n-sg	<i>nu</i> -, <i>nugu</i> -, <i>gu</i> - (c. 30)	2du <i>nhu(m)bV₁IV₂</i> (c. 70), <i>bula</i> (c. 10) 2pl <i>nhurra</i> (c. 75)
3n-sg	<i>bu</i> - (c. 40)	3du <i>bula</i> (c. 70) 3pl <i>dhana</i> (c. 60)

7.4 The evolution of pronoun systems

It has been mentioned that about two-thirds of the languages in groups A–Y, WA–WM have an inclusive/exclusive distinction. The most common pronominal form, *ŋali*, is generally 1du in languages which lack this contrast, and it is 1du.inc in 94 per cent of the languages that differentiate inc from exc. Yet there is no recurrent form for 1du.exc. In most cases 1du.exc involves an increment to *ŋali*; in other instances it can be formed in some other way. Consider, for instance, n-sg pronominal forms in the four languages of subgroup WM, and my reconstruction of proto-WM forms:

(49)	WMa, Yanyuwa	WMb1, Wagaya	WMb2, Bularnu	WMb3, Warluwara	proto-WM
1du.inc	<i>ŋali</i>	<i>ŋal(i)</i>	<i>ŋali</i>	<i>ŋali</i>	* <i>ŋali</i>
exc	<i>ŋadha-rra</i>	<i>ŋali-i</i>	<i>ŋali-ya</i>	<i>ŋaya-rra</i>	—
1pl.inc	<i>ŋambala</i>	<i>ŋambəl</i>	<i>ŋabala</i>	<i>ŋabala</i>	* <i>ŋambala</i>
exc	<i>ŋanu</i>	<i>ŋanii</i>	<i>ŋanu</i>	<i>ŋanu</i>	* <i>ŋanu</i>
2du	<i>yimbala</i>	<i>yibul</i>	<i>yibala</i>	<i>yibala</i>	* <i>yimbala</i>
2pl	<i>yirru</i>	<i>yirr</i>	<i>wurru</i>	<i>wurru</i>	* <i>wirru</i>
3du	<i>wula</i>	(<i>yawul</i>)	<i>bula</i>	<i>wula</i>	* <i>bula</i>
3pl	<i>alu</i>	<i>yal(i)</i>	<i>yalu</i>	(<i>yanu</i>)	* <i>yalu</i>

Note that the developments from postulated proto-forms to the forms in the modern languages involve regular phonological changes in these languages. (Forms in parentheses appear to be innovations.) It will be seen that a proto-form can be suggested for every pronoun excepting 1du.exc. Indeed, the individual languages have innovated 1du.exc forms in two different ways. In WMb2 we get *-ya* added to 1du.inc *ɲali*, with WMb1 showing the reduction *ɲaliya* > *ɲalii*. In WMa, 1du.exc appears to involve the addition of *-rra* to *ɲadha*, which is the 1sg oblique stem. And *ɲaya-rra* in WMb3 may have arisen by lenition from *ɲadha-rra* (*ɲadha* is again the 1sg oblique stem).

There are many examples similar to this, where 1du.exc has special status. They suggest that the inc/exc distinction – especially in the du, but often also in the pl – has developed and spread by diffusion, rather recently, across a large part of the area with non-number-segmentable pronouns.

At the end of the discussion of *-rrV*, under (a) in §7.2.1, we took the varied meanings of *-rrV* in modern languages to imply that at an earlier stage pronoun systems across the NA–NL area had fewer number distinctions, probably just sg/n-sg (with *-rrV* coming in later, as marker of different numbers within n-sg).

Two observations correlate with each other. The first is that *ɲali* (with 1du.inc or 1du reference) is by far the commonest n-sg pronoun in the A–Y, WA–WM region. The second is that virtually every language in the NA–NL area either has a min/aug system, with 1+2 as a basic term, or else has an inc/exc contrast within a sg/du/pl system. In a number of these languages there is a special form for 1du.inc, which stands outside the regular organisation of number-segmentation (as illustrated in (3–7) above).

All this suggests the following scenario. (In what follows, systems will be given with just first and second person pronouns. In many – but not all – languages there is also a third person row, often structured in exactly the same way as second person.)

First of all, there may have been a simple sg/n-sg system, as shown in (46) for G1, Djabugay:

TYPE 0	1sg	1n-sg
	2sg	2n-sg

Then, as a characteristic feature of the whole Australian language area, a further form was added, essentially standing outside the basic system. It refers to ‘you and I’ (coded here as 12). We can call this a system of type 0+:

TYPE 0+	1sg	1n-sg	plus	12
	2sg	2n-sg		

Here 1n-sg can be used for any group of two or more people, including the speaker, but there is in addition a special pronoun for particular reference to ‘you and I’. (G2, Yidinj, in (46), is like this except that its extra pronoun refers not to ‘you and I’ but

to 'any two people, one of them me'. This is because Yidinj almost certainly borrowed *ŋali* from its neighbour H1, Dyirbal, where it has 1du, and not 1du.inc, reference.)

There has been a tendency to integrate the original 'rogue pronoun', 12, into the system. There are a number of ways in which this has been achieved. The first consists in keeping five pronouns (i.e. not adding any forms) but reorganising their meanings, so that the original 12 is now 1n-sg.inc (two or more people, including you and me) and 1n-sg (two or more people, including me) has become 1n-sg.exc (two or more people, including me but excluding you). That is (with earlier reference of terms in parentheses):

TYPE 2 (sg/n-sg)	1sg	1n-sg.inc (12)
(from Type 0+)		1n-sg.exc (1n-sg)
	2sg	2n-sg

More complex systems developed from this by adding number markers to the n-sg terms. For instance:

(50) NAb1, Kayardild (Evans 1995a: 202)

	sg	du	pl
1	ŋada	inc ŋa-rra	ŋa-lda
		exc ŋaku-rra	ŋaku-lda
2	njiŋka	ki-rra	ki-lda

Here number suffixes *-rra* and *-lda* are added to the n-sg stems. The paradigm in (1) illustrates a more complex system in NG3, Wunambal, where the basic n-sg roots (all ending in *-rra*) are used for reference to a group of four or more, with *-miya* and *-na* added for du and trial reference respectively.

There is another way in which the terms from a Type 0+ system can be reorganised (and no new terms added). This is for the original 12 (you and I) to become 1du (any two people, one of them me) and for the original 1n-sg (two or more people, including me) to become 1pl (three or more people, including me):

1sg	1du (12)	1pl (1n-sg)
2sg		2n-sg

There would then be an analogic tendency to create a sg/du/pl distinction in second person, mirroring that in first person. The most likely way would be for 2n-sg (two or more people, one of them you) to become 2pl (three or more people, one of them you) and for a new pronominal form to be introduced as 2du. (Here and below, newly introduced forms are underlined.) This would give a system of:

Type 1	1sg	1du (12)	1pl (1n-sg)
(from Type 0+)	2sg	<u>2du</u>	2pl (2n-sg)

This is the system found in many languages in the non-number-segmentable area, and illustrated in (29–31) above.

The third way in which 12, from a Type 0+ system, could be integrated into the paradigm would be in the formation of a minimal/augmented system, Type 3. 12 would now be grouped with the old 1sg and 2sg as minimal terms, and a new 1+2n-min (you and I and one or more other people) added to the system. All terms would retain their reference except that 1n-sg (two or more people, including me) would become 1n-min (two or more people, including me and excluding you). We then get:

Type 3	1min (1sg)	1n-min (1n-sg)
(from Type 0+)	1+2min (12)	<u>1+2n-min</u>
	2min (2sg)	2n-min (2n-sg)

A pronominal system essentially of this type is found in Bb, Kuuku Ya'u and NL, Tiwi, and on free pronouns in NBh2, Warray – see (40), (17) and (16). However, in most languages from the number-segmentable pronoun area, number increments are added to the n-min roots, distinguishing ua (one more person than minimal reference) from aug (two or more people in addition to minimal reference), as illustrated in (12–13), (15) and (19).

There are in fact a number of ways in which a Type 2 (sg/du/pl plus inc/exc) system can evolve.

(a) *Type 2 from a Type 3 system.*

Type 3	> Type 2			
1min	1n-min	1sg = 1min	1du.inc = 1+2min	1pl.inc = 1+2n-min ((+pl))
1+2min	1+2n-min		1du.exc = 1n-min+ <u>du</u>	1pl.exc = 1n-min (+pl)
2min	2n-min	2sg = 2min	2du = 2min+ <u>du</u>	2pl = 2n-min (+pl)

Here no new pronoun roots are added to the system. The forms are simply reorganised and at least one number suffix is innovated. A du suffix is added to the existing 1min and 2min to form 1du.exc and 2du. For 1pl.exc and 2pl either the original 1n-min and 2n-min could be used alone, or a specific plural suffix could be added to them. If there is a pl suffix on 1pl.exc and 2pl it may also be added to 1pl.inc, as an analogical process.

This scheme would explain paradigms such as those in (3–7) where the n-sg pronouns can all be segmented into n-sg root plus number suffix except for 1du.inc, which stands outside the system. That is, 1du.inc involves a different root from 1pl.inc and does not include the du suffix. In (8–10) we get a similar system except that 1pl.inc does not include the regular pl suffix; that is, there has not been analogical extension of the pl marker to 1pl.inc.

(b) *Type 2 from a Type 1 system.* This would require the innovation of an inc/exc distinction for 1du and 1pl. It appears that, in most instances, the original 1du and 1pl are taken as 1du.inc and 1pl.inc, with a suffix being added to mark the corresponding exc. That is:

Type 1			> Type 2		
1sg	1du	1pl	1sg	1du.inc = 1du 1du.exc = 1du <u>+exc</u>	1pl.inc = 1pl 1pl.exc = 1pl <u>+exc</u>
2sg	2du	2pl	2sg	2du	2pl

This is illustrated in (41) for Nyawaygi, where the exc suffix is *-liŋu*; in (33) for Gumbaynggirr, where it is *-gay*; and in (34) for Dhudhuroa, where it is *-ndha*. We also find exc suffixes *-yu* in Nc1, Yuwaalaraay, *-na(n)* in Nc3, Ngiyambaa, and **-rna* in WL1, proto-Arrernte (shown in (58)). Note also:

(51) Eb2, Koko Bera

	inc	exc
1du	ŋel	ŋəlɪŋjintuw
1pl	ŋen	ŋənhthéntuw

The exc forms may be based on the inc's, but perhaps not in such a straightforward way as suggested by this paradigm (the SA for 1sg and for 3pl also show a final element *-ntuw*).

An alternative type of development is shown at (42), where in Ta1, Wemba-Wemba, there are two explicit suffixes, *-ein* for inc and *-aŋ* for exc, each added to both 1du *ŋal-* and 1pl *yaŋurr-*.

In (48) we had the four languages in which *ŋali*, or a reflex of *ŋali*, is the 1du.exc form. For two of these it appears that the inc forms are based on the exc's:

(52)

	1du.exc	1du.inc	1pl.exc	1pl.inc
WAb1, Yandruwanhdha	ŋali	ŋaldra	ŋani	ŋandra
WAa3, Arabana	ari	arimpa, aruna	arni	arni-ri

(dialect variants)

In Yandruwanhdha there appears to be a regular morphological process with *-dra* replacing the final vowel of an exc pronoun to form the corresponding inc form. (Note that the oblique stems corresponding to the four columns are *ŋali-*, *ŋalu-*, *ŋani-* and *ŋanu-* respectively, with *-u* replacing the final *-i* of an exc form to form the inc.) In Arabana, different increments are used in du and in pl.

(c) *Type 2 directly from a Type 0+ system.* There are two ways in which this development can take place. One way, in a language with number-segmentable pronouns,

was illustrated at (50), with 12 being reinterpreted as 1n-sg.inc and 1n-sg as 1n-sg.exc and then number increment(s) added to distinguish du from pl.

The other way, in a language without number-segmentable pronouns, involves the reinterpretation of 12 as 1du.inc, of 1n-sg as 1pl.exc and of 2n-sg as 2pl, together with the introduction of three additional terms, for 1pl.inc, 1du.exc and 2du. That is:

Type 0+		> Type 2		
1sg	1n-sg	1sg	1du.inc (12)	<u>1pl.inc</u>
	12		<u>1du.exc</u>	1pl.exc (1n-sg)
2sg	2n-sg	2sg	<u>2du</u>	2pl (2n-sg)

It is likely that quite a few languages in the A–Y, WA–WM area developed their pronominal systems by this route. As noted above, in many languages an increment is added to 1du.inc to form 1du.exc, as in (35); in a few languages an increment is added to 1du.inc to form 1pl.inc, as in (36); and in some languages both increments are found, as in (37).

(Dd2, the Barrow Point language, has the same 1du pronouns as its neighbour Dc1, the Flinders Island language, given in (32). However it has different 1pl forms, with *ɲana* for 1pl.exc and *ɲana-rna* for 1pl.inc. There is one other example of a language in which 1pl.inc appears to be based on 1pl.exc: Me, Yugambal, also has 1du.exc *ɲana* but here 1pl.inc is *ɲaninda*. In this language it appears, from the limited material available, that there is a single 1du form, *ɲali*.)

Where there is an exc suffix it is interesting to enquire what the origin of this might be. There is a suffix *-tha* or *-tja* or *-ya* which is added to 1du.inc *ɲali* in a number of languages from groups WG and WH, as illustrated in (35) and (38). A further example is:

(53) WGa1, Watjarri (Douglas 1981: 223; Marmion 1996: 61)

	sg		du		pl
1	ɲatha	inc	ɲali		ɲanhu
		exc	ɲali-tja		ɲantju
2	njinta		njupali		njurra
3	palu		pula		thana

However, in Watjarri *-tja* is not only added to 1du.inc to form 1du.exc. It is also added to 3sg, *palu*, and to 3du, *pula* (but not, apparently, to 3pl, *thana*), to refer to people from outside the local group. This suggests that the exc suffix may originally have been a general suffix (perhaps coming from an earlier lexeme) referring to ‘out group’ membership, which then became an integral part of the 1du.exc pronominal form.

There are a few languages in which the development suggested from a Type 0+ to a Type 2 pattern is only partly completed, resulting in an asymmetrical system. In (54)

we see the addition to a Type 0+ system of 1du.exc and 2du but no distinction between inc/exc in 1pl. (Ja2, Biri, has a similar system.)

(54) Dd1, Guugu Yimidhirr (Haviland 1979a: 65)

	sg		du	pl
1	ɲayu	inc	ɲali	} ɲana, ɲanhɗha:n (dialectal variants)
		exc	ɲali:nh	
2	njundu		yubaal	yurra

In (55) there is a different kind of asymmetrical system. The du/pl distinction is made for 1inc and 2, but not for 1exc.

(55) Bc, proto-Wik

	sg		du	pl
1	ɲayu	inc	ɲali	ɲampu(la)
		exc	} ɲana	
2	nhintu		nhupu(la)	nhiya

The paradigm in (55) could have evolved directly from a Type 0+ system, by adding 1pl.inc and 2du. Or it could have come via a Type 3 system, by simply adding 2du.

Most Australian languages have a three-term number system on their pronouns – either sg/du/pl or min/ua/aug. There is just a handful of languages with a simple sg/n-sg or min/n-min number contrast. These include NBh2, Warray, shown in (16); NL, Tiwi, in (17); Mf, Bandjalang, in (28); G1, Djabugay, in (46); and also subgroups NHe, Eastern Daly, and NKa, Mawung-Iwaydja, plus NBi, Gungarakanj. At the other end of the scale there are just a few languages with a four-term number system in pronouns. We find a trial ('three') or paucal ('a few') term added to a sg/du/pl system in NG, the North Kimberley areal group – see (1) and (2) – and also in NHa, NHb2–3, NHd and NBd3. This involves an increment added to the n-sg root (in NHd it is added to the du which is in turn based on the n-sg root). Trial forms of pronouns have been reported for Ta1 and Ta2 in western Victoria, here involving the addition of the word *gali* 'group of people' to sg forms (Hercus 1966, 1986: 37). And in WAa3, Arabana, the trial suffix *-kari* can be added to nouns or to the plural forms of pronouns.

In the NA–NL area there are a few languages that mark gender on some n-sg pronouns. We find masc and fem genders marked just on ua pronouns in NBd1/2 and NBf, just on aug in NHb1, just on du in NBd3, on all n-sg's (except for 1+2 person) in NHd1, and on all n-min's in NBk. In NHa, Patjtjamalh, just the trial pronouns are marked for gender, by the addition of m and f 3sg pronoun enclitics – Ford (1990: 96,

113). (Gender marking on 3sg is discussed in §10.3. There is no record of gender marking on 1sg or 2sg or 1+2min.)

In summary, I suggested an original 1/2 sg/n-sg pronoun paradigm, with 12 as an extra-systemic term. The various kinds of modern system developed out of the different ways of integrating the 12 pronoun into the system. The remodelling of systems, and changes from a sg/du/pl system to a min/ua/aug system, and vice versa, basically centre on the reinterpretation of 12 – as a 1+2 minimal term, as 1du.inc or (with extension of meaning) as 1du.

There are two main principles to note in the development of pronominal systems across Australia – diffusion and recurrent tendencies of change and reanalysis. These will be discussed in the next two subsections.

7.4.1 *Diffusion*

The most prevalent kind of diffusion is the borrowing of grammatical categories and patterns (rather than of forms). Map 7.1 shows the distribution of (a) Type 3 min/aug systems, and (b) Type 2 sg/du/pl plus inc/exc systems. (The blank area comprises Type 1 systems, sg/du/pl with no inc/exc contrast, plus those languages in groups Df/g, I, Jc, Mb–d, O, Q, U, WA, WG and NBj for which there are insufficient data to assign them to a type; these are indicated by ‘?’ on the map.) It will be seen that the largest group of Type 3 languages forms a continuous (although slightly jagged) area in groups NB, NH, NI, NL and WJ. Similarly, the Type 2 languages are – with just a few exceptions – in a number of solid areas.

The pattern of having n-sg (or n-min) pronouns involving segmentable number elements is found over a continuous area (with subgroup NA as an outlier) and is likely to have spread by diffusion. Its occurrence almost coincides with a further diffused feature, that of prefixing. It is unlikely that there is any kind of principled connection – genetic, or typological dependency – between these two parameters; they just happen almost to coincide in extent. As already noted, there are some examples of number-segmentable pronouns (of different types) well away from the prefixing area; see, for example, (38) and (60).

There is no doubt that ‘type of pronominal system’ has diffused, from language to language, over a number of largish regions. In most instances the actual forms realising the terms in a Type 3 or a Type 1 system – or those in a number-segmentable or non-number-segmentable system – differ from language to language; it is just the structural pattern (the type of system) that has evolved.

But there is also some diffusion of individual forms. This is most obvious in the A–Y, WA–WM area and most noticeable for 1du.inc (or 1du) *ŋali*. But recall, from §7.3, that *ŋali* is not found over the whole of this region – it covers a continuous area (plus Y) but

is missing from a number of pockets, mostly along the coast. Diffusion is also undoubtedly at least partly responsible for the wide distribution of 2pl *nhurra*, 3du *bula* and the other recurrent forms discussed in §7.3.1. Diffusion of categories and patterns is strong in the NA–NL region but here there appears to have been somewhat less diffusion of forms; in particular, 1+2min and 1du.inc tend to have a different shape in almost every language (as illustrated in (1–20)). Nevertheless, we do find a 2sg based in *ɲinj* in almost half the languages, and 3n-sg *bu-* in almost three-quarters of them, and so on.

In many parts of the world, pronouns are said to be resistant to borrowing. There is no such constraint in Australia. (It was mentioned, under (f) in §7.3.1, how in the years immediately following the White invasion, *ɲali* was borrowed from WD, the Western Desert language, into the neighbouring WE2, Kalaaku.)

Sometimes the borrowing of a pronominal form can add a new systemic dimension to a pronoun paradigm. Under (e) in §7.3.1 we noted two recurrent 1pl.exc forms – *ɲana*, across most of the continent, and *ɲanjɖji/a* in groups C, E and G in the Cape York Peninsula. F, Kuku-Yalanji, falls in the area in which some languages have *ɲana* and others have *ɲanjɖji/a* for 1pl.exc. Its pronoun system is:

(56) F, Kuku-Yalanji (Hershberger and Hershberger 1982: 275, 279)

	sg		du	pl
1	ɲayu	inc	ɲali	ɲana
		exc	ɲalin	ɲanjɖjin
2	yundu		yubal	yurra
3	njulu		bula	djana

The fact that *ɲana* is here 1pl.inc (instead of the usual 1pl.exc) suggests an earlier system with no inc/exc contrast, having *ɲali* as the sole 1du and *ɲana* as the sole 1pl pronoun. An inc/exc contrast was then introduced. Like in H3, Nyawaygi and R2, Dhudhuroa – shown in (41) and (34) – the original 1du and 1pl became the new 1du.inc and 1pl.inc respectively. A new 1du.exc developed, by adding *-n* to the 1du.inc form, *ɲali*. To fill the 1pl.exc slot, it is likely that a 1pl.exc form, *ɲanjɖji-*, was simply borrowed from a nearby language. (As shown in (46) the 1n-sg form is *ɲanjɖji* in G1, Djabugay, the language bordering Kuku-Yalanji to the south.)

The next language to the north is Dd1, Guugu Yimidhirr, illustrated in (54). Note that this also has both *ɲana* and *ɲanhɖha:n*. But here each functions as the sole 1pl pronoun – *ɲana* in the coastal and *ɲanhɖha:n* in the inland dialect. Guugu Yimidhirr has innovated an inc/exc contrast just in 1du (with 1du.inc *ɲali* and 1du.exc *ɲali:nh*, possibly cognate with *ɲalin* in Kuku-Yalanji) but not yet in 1pl. The dialect difference suggests that it has borrowed one 1pl form from a nearby language, but has not yet used this to add an inc/exc contrast for 1pl, in the way that Kuku-Yalanji has done.

There are also examples of parts of paradigms being borrowed. Compare the sg pronominal forms in H2, Warrgamay, in the neighbouring Girramay dialect of H1, Dyirbal, and in dialects of Dyirbal that are further removed from Warrgamay:

	1sg			2sg		
	S	A	O	S	A	O
H2, Warrgamay	ɲayba	ɲadja	ɲanja	ɲinba	ɲinda	ɲina
H1, Girramay dialect	ɲayba	ɲadja	ɲanja	ɲinba	ɲinda	ɲina
H1, northern dialects	ɲadja		ɲayguna	ɲinda		ɲinuna

Note that H1 and H2 are distinct languages – Warrgamay and Girramay are not mutually intelligible but Girramay is fully intelligible to speakers of nearby dialects of H1. The H1 dialects have very similar grammars, which are different from that of H2 – except in the forms of sg pronouns where Girramay is identical to H2. It seems most likely that the 1sg and 2sg pronominal forms have been simply borrowed from Warrgamay into the Girramay dialect.

Thus, one of the ways in which a language can change the kind of pronoun system which it has – whether the change is between Types 1, 2 and 3, or in the case patterns exhibited – is by borrowing: either a pronominal form from another language or several related forms (that is, a part of a pronoun paradigm).

7.4.2 *Recurrent features of change and reanalysis*

A particular type of pronoun system will, as can be seen from map 7.1, diffuse over a certain area. But it may also develop independently in widely separated languages. The map shows that most Type 3 systems are in one continuous area in the central north. (Note that all of these languages are prefixing, except for WJa3, Gurindji, which is next to the prefixing area and appears recently to have developed a Type 3 from a Type 2 system, probably as the result of pattern diffusion – compare (39) with (36)). But Type 3 systems are also found in two other small areas: in Bb and Ba2, in north-east Queensland – see (40) – and in subgroup NE, in the north-west – see (14–15). The fact that the 3n-min, 2n-min, 1+2min and 1n-min in (40) are cognate with 3du, 2du, 1pl.inc and 1pl.exc respectively in other languages suggests that this Type 3 system developed from an earlier system of Type 2, presumably through loss of three terms (1du.exc, 2pl and 3pl) and reassignment of meanings for others. The Type 3 system in subgroup NE has irregular 1+2 forms, suggesting that it may have developed out of an earlier Type 2 system (and the difference in forms between dialects of NE1 indicates that the development of a Type 3 system here may have been quite recent). That is, we have three separate instances of a Type 3 system developing from one of Type 2, showing that this is a recurrent tendency within the Australian linguistic area.

The development of a Type 2 from a Type 1 system (that is, the addition of an inc/exc contrast) is illustrated by F, Kuku-Yalanji, in (56). But this language is bordered by others that mark this distinction, and the development can be explained in terms of pattern diffusion. The Type 2 system in H3, Nyawaygi, a language that is entirely surrounded by Type 1 languages, was given in (41). It is clear that Nyawaygi has independently innovated an inc/exc distinction, by taking the original 1du *ɲali* and 1pl *ɲana* and adding *-liɲu* to form exc correspondents. (Note that *ɲana* is here 1pl.inc, whereas it is 1pl.exc in most languages with an inc/exc contrast.) Some (at least) of the instances of *ɲali* as 1du.exc probably result from *ɲali* being 1du in a Type 1 system and then being assigned the value 1du.exc when an inc/exc distinction was introduced – see (52).

Like many other parameters within the Australian language area, the development of pronominal systems appears to be cyclic. I have suggested lines of development between types of systems: $0 > 0+$, $0+ > 2$, $0+ > 1$, $0+ > 3$, $3 > 2$, $1 > 2$, all of these essentially adding more terms to the system. Just above I suggested a change $2 > 3$, losing three terms.

There are other examples of pronoun systems becoming simpler, for example:

(i) Mf, Bandjalang, set out in (28), has a Type 0 system, with just sg/n-sg (and no 12 term at all). But note that 1n-sg is *ɲali* and 2n-sg is *bulagan*, cognate with 1du and 2du in nearby languages. One possible genesis would be a change Type 1 > Type 0. 1pl and 2pl would have been lost, with 1du and 2du being generalised to become 1n-sg and 2n-sg respectively.

(ii) For WL1, Arrernte (which has undergone extensive initial dropping, etc.) the original pronoun paradigm has been reconstructed (based on Koch, p.c., and see Koch 1996: 254–5) as:

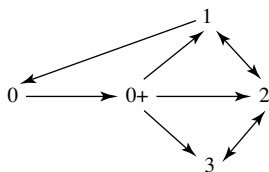
(58) proto-WL1, Arrernte

	sg		du		pl
1	ɲathu	inc	ɲali		ɲuna
		exc	ɲali-rna		ɲuna-rna
2	nhuntu		nhumpala		nhurra

This is a Type 2 system, but the forms suggest development from a Type 1 system, with *-rna* being added to 1du.inc and 1pl.inc (presumably the original 1du and 1pl) to form the corresponding exc terms. Now an inc/exc system is maintained only in northern dialects of WL1. Southern dialects have a single 1du and 1pl form, and these are reflexes of the original exc pronouns, *ɲalirna* and *ɲunarna*. (It is this which suggests that an inc/exc contrast was present in proto-WL1 and has been lost in southern dialects, in preference to the alternative hypothesis, that proto-WL had no inc/exc contrast and it has been recently innovated in the north.) Thus, in this one language, we get a profile shift from

Type 1 to Type 2 and at a later stage – in just some dialects – back to Type 1. It is likely that each of these changes was motivated by diffusional influence from neighbouring languages. It will be seen from map 7.1 that languages to the north of WL1 have an inc/exc distinction, but those to the east lack this. WD, the Western Desert language, to the west, has recently innovated an inc/exc distinction but just in bound pronouns, not in free forms.

The attested and inferred changes between the types of pronominal systems can usefully be summarised in diagrammatic form:



Dench (1994) has made a close study of pronominal systems in the languages of areal group WH. He suggests that there was originally a Type 2 system with forms similar to those in WHc10, Ngarla, shown in (35). The inc/exc contrast was then lost from some languages – it is not now found in WHb1, Payungu, and appears to be being lost from WHc4, Yinjtjiparnrti. Dench concludes that the inc/exc distinction was lost from WHa, the Mantharta language, but was then re-established. Compare (35), which shows the original Type 2 system, with (59) which shows the re-formed Type 2 system.

(59) WHa, Tjiwarli dialect

	sg		du	pl
1	ŋatha	inc	ŋali	ŋanthurru
		exc	ŋali-tju	ŋanthurru-tju
2	nhurra		nhupalu	nhurra-kara

This suggests that in the reanalysis within a Type 2 system, *-tju* was introduced to mark exc, in both 1du and 1pl. The original 2pl pronoun *nhurra* has become 2sg (similar to the shift in G1, Djabugay, given in (46)), with a new 2pl being formed from it by the addition of *-kara* (this suffix is not attested elsewhere in the language).

Dench shows that the restructuring (including analogic levelling) of pronoun paradigms in WH area languages involves a good deal of local pattern diffusion. In this restructuring, dual is taken as the basis, on which plural may be formed – for example, by the addition of *-kuru*, as in (38) – and within du it is always 1du.exc that is based on 1du.inc, as in (35), (38) and (59). We noted in §7.3 that in many languages 1du.exc is based on 1du.inc (only very seldom the reverse) and in some 1pl.inc is based on 1du.inc. Under (i) above it was noted that in Mf, Bandjalang, the du's appear to

have become the new n-sg's. And in Bb, Kuuku Ya'u – shown in (40) – it is the old 2du and 3du that have become the new 2n-min and 3n-min.

This shows that, over much of Australia, the du category in pronouns has greater salience than pl and, within du, 1du.inc (or just 1du) has greatest salience of all. In fact, all of the diachronic schema suggested above centred on the status of 12 ('you and I') – commencing as an extra 'rogue term' outside the pronoun system proper, and then being integrated into the system as 1+2min, or 1du.inc, or just as 1du. Discussing languages in the NA–NL region, Harvey (ms.-a: 34) considers that 'it is necessary to take account of continuing paradigmatic instability caused by recategorisation and remodelling focussing on the 1+2 category'.

The wide distribution of *ɲali*, occurring in at least 80 per cent of the languages in the A–Y, WA–WM area, is a notable feature. But this is surely what would be expected. Since 'you and I' plays such a pivotal role in the great majority of pronominal systems, it is natural that a '12' form should be the one with the widest geographical distribution. As pointed out in §7.3.1, it is reasonable to posit that when a quite new category (here, 1+2 as an extra-paradigmatic pronoun) diffuses from one language to another, then the form used to express it (here, *ɲali*) is likely to be taken over as well.

However, the fact that languages in the NA–NL area have such widely different forms for 1+2min and 1du.inc, stands out in contrast to the wide occurrence of *ɲali* over the rest of the continent. It seems reasonable to infer that the idea of a 'you and I' category diffused across this area (it is difficult to make a guess as to the relative time-depth) with each language or subgroup creating its own form from its internal resources. Why there should be such a significant difference between languages in the central north and those in the remainder of the continent remains a matter for further study.

There are other kinds of remodelling. Some languages in the area that prototypically do not have number-segmentable pronouns have moved towards number-segmentability. This can be seen in WHc3, Panyjima, in (38), where a basic n-sg root is used for du, with an increment added for pl in the case of 1inc, 1exc and 2. In WJa3, Gurindji – shown in (39) – ua involves an increment to min for 1+2, 2 and 3 (quite unlike the typical pattern in NA–NL). Another number-segmentable system, for 1inc and 1exc (and partly for 2) occurs in the non-prefixing language Kurtjar:

(60) Ed1, Kurtjar

	sg		du	pl
1	ɲa:y	inc	ntiɲa-l	ntiɲa-n
		exc	ɲa:l	ɲa:-n
2	a:nt		wa:l	ö:rr

The occurrence of min/aug (Type 3) and number-segmentable pronominal systems is a characteristic feature of the NA–NL area. But, as we have seen, Type 3 systems

are also found in the WJb subgroup, immediately to the south of NC, and in subgroup B, far away in the east; while number-segmentable n-sg forms occur in WH and E.

Another development can be noted in a few scattered languages. This is the rebuilding of du and pl pronominal forms by adding number suffixes to the corresponding sg's. Compare the paradigms of adjacent languages Pb1 and Pb2 from the New South Wales south coast (Eades 1976: 49):

(61) Pb1, Dharawal (SO forms)

	sg		du		pl
1	ɲaya-gaŋ	inc	ɲal-gaŋ		njul-gaŋ
		exc	ɲuŋg-uliŋ		njun-uliŋ
2	njindi-gaŋ		bil-gaŋ		njirr-gaŋ

(62) Pb2, Dharamba (SO forms)

	sg		du		pl
1	ɲaya-ga	inc	ɲaya-waŋal		ɲaya-wanji
		exc	ɲaya-waŋala		ɲaya-wanjaga
2	njindi-ga		njindi-wu		njindi-wanhu

In (61) there are traces of *-uliŋ* as a possible ancestral marker for exc. But in (62) we simply have all n-sg forms based on 1sg *ɲaya* and 2sg *njindi*, although with slightly irregular number increments. And exc involves the addition of *-a* or *-aga* to the corresponding inc form.

In the Tb subgroup, on the coastal border of Victoria and South Australia, du and pl are also based on the sg's – on 1sg *ɲadhu(g)*, 2sg *ɲuru/ɲudug*, 3sg *nuŋ* – but again with a variety of allomorphs for du and pl suffixes. In (47) it was shown how in WE2, Kalaaku, from the western Bight, du and pl involve the addition of *-kutha* and *-ɲarri* respectively to 1sg *ɲatju* and 2sg *ɲuntu*. And in WJa4, Mudbura, du and pl are formed by suffixes *-kutjarra* and *-tartu* added to 1sg *ɲayi* and 2sg *njuntu*. Northern dialects of WD, the Western Desert language, behave in a similar way, with du *-kutjarra* and pl *-(r)ti(n)* added to 1sg *ɲayu* and 2sg *njuntu*.

In a number of other languages, second (and sometimes also third) persons are rebuilt on the sg, but 1du and 1pl forms do not relate to 1sg. This applies to WJa1, Wal-matjarri, and to languages of the Nc subgroup, from central NSW. (And also to WE1, Mirning, in (43), although here there is a single root underlying 1du and 1pl.) In Nc, du and pl suffixes are added to 2sg and 3sg after case suffixes, suggesting that this reorganisation of the pronoun paradigm was rather recent.

Some explanation has been provided for almost all of the types of pronominal systems found in Australia. There remain a handful that seem decidedly odd, and may be the result of diachronic changes (or contact-induced changes) that cannot now be recovered.

The system in NF, the South Kimberley subgroup, set out in (18) falls into this category; here *yaa-rrī* is used for 1pl.inc and *ŋiyi-rrī* for all of 1du.inc, 1du.exc and 1pl.exc.

During the tens of millennia that Australian languages have been in situ, there will have been continual diffusion of paradigmatic patterns and of forms, continual restructuring of paradigms, and shifts from one pattern to another (and then, at a later date, back again). It is noteworthy that the only languages with no trace of a 1du or 1+2min pronoun are on the coast – the NK subgroup in the far north; G1, Djabugay, in the north-east; and Mf, Bandjalang, in the south-east. It is likely that NK and G1 were just beyond the reach of a chain of diffusion that led to almost every language having a 1du or 1+2min pronoun. (There is some evidence that Mf had a sg/du/pl system at an earlier stage, and then simplified it.)

Changes are, of course, currently in progress. WD, the Western Desert language, has recently innovated an inc/exc distinction just in bound (not in free) pronouns, by means of an exc suffix *-tju*. In those dialects of WD that have a full set of bound pronouns these are obligatory, with free pronouns being used rather sparingly. In the adjacent language, WGa1, Watjarri, an inc/exc distinction is made in free but not in bound pronouns. In fact bound pronouns are optional – and little used – in this language.

It is unlikely that it will ever be possible to fully reconstruct the tangled skein of changes by which each modern pronoun system evolved. But we have been able to survey the kinds of shifts that take place, and the role of diffusion, and to illustrate the cyclic nature of the changes.

7.5 Pronominal case forms

The various kinds of case marking on free pronouns in Australian languages can best be explained through a number of stages of diachronic development. First recall (from chapter 5) that for nouns the normal situation is to have the stem used without any case suffix for S and O functions, and for an ergative suffix to be used to mark A function. We saw in §5.4.3 that the original forms of ergative were *-dhu* after specific common nouns and *-lu* elsewhere (i.e. after proper names, kin terms, generic nouns, demonstratives, interrogatives/indefinites; and with pronouns in those languages where pronouns have developed an ergative form – see below).

For case on free pronouns we have the following steps in development.

Stage A. Sg pronouns have distinct forms for S, A and O functions. N-sg's use the root for S and A functions and for O function they add an accusative suffix (generally *-nha*, sometimes *-n(a)*, occasionally *-ŋa(n)* – see §5.4.2).

Stage B. N-sg pronouns retain the same case marking and it is extended, by analogy, to sg's. That is, all pronouns have one form for S and A and another for O. It is generally the original A form of sg pronouns that now covers both A and S functions.

There are three alternatives for the next stage – C-i, C-ii or C-iii.

Stage C-i. Free pronouns shift to an absolutive/ergative system of case inflection, by analogy with nouns. The basic pronominal root, previously used for S and A functions, is now used without suffix for S and O functions, and an ergative suffix is added to mark A function.

Stage C-ii. Whereas at Stage B nouns had zero suffix for S and O, and ergative for A, and pronouns had zero suffix for S and A, and accusative for O, ergative is now extended also to apply to pronouns and accusative also to apply to nouns. Both nouns and pronouns are used without suffix in S function, with the addition of accusative (generally *-nha*) for O and ergative (generally a development from *-lu*) for A. (There can sometimes be limitations, e.g. accusative is not used with inanimate nouns, and/or ergative may not be used with every pronoun.)

Stage C-iii. Free pronouns have a single form for all core functions, S, A and O. That is, the basic stem – used for S and A functions at Stage B – is extended to also cover O function. (Or, C-iii could develop from C-i, with the S/O forms also being used in A function.)

Stage C-iii is found only in languages with obligatory bound pronouns (either as prefixes or as enclitics) which include specification of noun class. These play the major role in specifying core arguments, with free pronouns becoming a sort of optional extra (used mainly for emphasis).

The next five subsections consider these stages one at a time, stating the language groups in which each occurs, and also the mechanisms of development from one stage to the next. Case marking on core pronouns, and the reconstructed root forms, are summarised in §7.5.6. There are then brief remarks, in §7.5.7, on case marking for non-core functions.

7.5.1 Stage A

At this stage n-sg pronouns have one form for S and A functions, and add a suffix for O, whereas sg pronouns have three distinct forms, one for each of the core functions. Non-core functions generally involve suffixes added to the SA form for n-sg's, but may require a special oblique stem for sg's.

The SA forms of n-sg pronouns were discussed in §7.3.1. I reconstruct the original forms of 1sg and 2sg, across languages of groups A–Y, WA–WM, as:

(63)	S	A	O
1sg	* <i>ŋay</i>	* <i>ŋadhu</i>	* <i>ŋanha</i>
2sg	* <i>ŋin</i>	* <i>ŋindu</i>	* <i>ŋina</i>

Table 7.3 *S, A, O and oblique forms for 1sg*

	S	A	O	oblique
A1, West Torres	ɲay	ɲath	ɲoena	ɲaw (masc), ɲuzu (fem), genitive
H2, Warrgamay	ɲayba	ɲadja	ɲanja	ɲaygu, genitive
Ma2, Gureng-Gureng	ɲay	ɲadju	ɲanja	ɲanju-nda, genitive
Ma3, Gabi-Gabi	ɲay	ɲadhu	ɲanha	ɲay-bala, genitive
Ma4, Waga-Waga	ɲay	ɲadju	ɲanja	ɲarri, genitive/dative
Mc, Guwar	ɲay	ɲadju	ɲjin(?)	ɲadja(?), genitive
Mf, Bandjalang	ɲay	ɲadju	ɲanji	ɲanjaa, genitive
Mg1, Gumbaynggirr	ɲaya	ɲa:dja	ɲa:nja	ɲanju, dative
U1, Yarlalde	ɲab(i)	ɲath(i)	ɲanh(i)	ɲanawi, genitive
WHc10, Ngarla	ɲaya	ɲatja	ɲanja	ɲanu, dative
S1, Yota-Yota	ɲa	ɲadha	ɲjanug	ɲayani(?), genitive
S2, Yabala-Yabala	ɲaya	ɲadha	ɲaya-nin	ɲaya-ni(?), genitive
V, Baagandji	ɲaba	ɲadhu	ɲanja	genitive = O
WAa1, Pitta-Pitta	ɲanjtja	ɲatju	ɲanja	ɲanjtju-ku, dative
WAc1, Wangkumara	ɲanji	ɲathu	ɲanha	ɲanjtja(ni), genitive/dative

The H2 system is also found in H3 and in one dialect of H1. The forms given from WAa1 and WAc1 are representative of ten languages in WAa/b/c. Most forms in Ma, Mc, U1 and S are from medium to poor quality old sources and some may only be an approximation.

(i) *1sg*. Table 7.3 sets out the forms in a selection of languages that retain a Stage A system. Note that these comprise languages from pockets around the coast (A, H, M, U1 and WHc10) and also a few inland languages (S, on the Murray River; V, on the Darling River, and WA which is adjacent to V but extends into desert country).

Evidence from the comparison of nouns, of verbs, and of pronouns, suggests that monosyllabic words and roots were common at an earlier stage of the Australian linguistic area. It is most likely that the original S form of 1sg was *ɲay*. This is retained in a few languages that still permit monosyllables – A1, Ma2/3/4, Mc, Mf; and it is reduced to *ɲa* in S1. In other languages a disyllabic form has been created. This has been achieved by adding *-a* in Mg1, WHc10 and S2. In H2 *-ba* has been added (with *ɲaba* in V probably resulting from simplification of an earlier form *ɲayba*). In WA we get *ɲanjtja* and *ɲanji*, which may or may not relate directly to an earlier *ɲay*.

The original A form of 1sg was undoubtedly *ɲadhu* (the *dh* becoming *dj* in a single-laminal language). The final *-u* has become *-a* in some languages, as an areal change (discussed in §7.5.2). A form *ɲanha/ɲanja* (or a development from this) predominates as the O form in table 7.3. Note, however, that the oblique forms show wide variation, so that little can be inferred about any common earlier form for this column.

With a basic root *ɲay* we might expect the O form to add accusative suffix *-nha*, and the A form to add an ergative suffix consisting of a homorganic stop plus *-u* (as is normal after a consonant-final root), i.e.

(64)	1sg	S	A	O
	predicted	ɲay	ɲay-dhu	ɲay-nha
	reconstructed	ɲay	ɲadhu	ɲanha

Some languages no longer permit syllable-final *y* and it is natural that there should have been a tendency towards simplification: *ɲaydhu* > *ɲadhu* and *ɲaynha* > *ɲanha*. However, we would expect to find traces of forms *ɲaydhu* and *ɲaynha*; there are none (unless it be the long vowel in Mg1, Gumbaynggirr).

It is perfectly feasible that *ɲay* could have been the S form and *ɲa* the form for A and O functions. However, this does run into a difficulty. Ergative should be *-lu* after a vowel-final pronominal root, giving *ɲalu* (just as we get 3sg(masc) A form *nhu-lu*, in (65) below). An ergative pronominal form *ɲadhu* requires an original root ending in *y* (the root-final consonant conditions a following homorganic stop). This, and the segmentability of the reconstructed 2sg forms, in (64), and 3sg forms, in (65), suggests that the earlier forms must indeed have been *ɲay*, *ɲaydhu* and *ɲaynha*, even though the *-y-* in the A and O forms has been lost from all modern languages.

(ii) 2sg. We find that fewer languages preserve separate S, A and O forms for 2sg than do for 1sg. Of the languages in table 7.3, Mg1 and U1 have generalised the 2sg A form to also cover S function (that is, they exhibit Stage A for 1sg but have moved on to Stage B for 2sg). A selection of languages that do retain distinct S, A and O forms is given in table 7.4.

The basic S form of 2sg is plainly *ɲin-* (the *nji-* and *yi-* alternatives will be discussed shortly; see also Dixon 1980: 343–4). This is retained in a few languages that still have monosyllabic words (and it is just *ɲi* in A1). A disyllabic form has been achieved by adding *-a* in S1 and S2 and *-i* (echoing the previous vowel) in WAc1. A *-ba* is added in H2 and V (languages that added *-ba* to 1sg *ɲay*) and also in WHc10 and WAa1; note that we get assimilation *ɲinba* > *ɲimba* in V.

Whereas the 1sg pronouns in Mf, Bandjalang, have familiar forms (see table 7.3), the 2sg forms begin with *wu-*, *wa-*, *we-* or *wi-* and are different from those in every other language. They may be an innovation or, more likely – from the irregularity within their paradigm – some not-yet-understood archaic substratum.

The 2sg A form is (or is a development from) root *ɲin-* plus ergative *-du* (homorganic stop plus *u*), *ɲindu*, in most of the languages of table 7.4. A1 and Ma3 have slightly different forms that suggest an original root *ɲinh* or *ɲinj* (the same as that reconstructed for the NA–NL area) while the A forms in S1 and S2 are very different

Table 7.4 S, A, O and oblique forms for 2sg

	S	A	O	oblique
A1, West Torres	ŋi	ŋidh	ŋin	ŋinu, genitive
H2, Warrgamay	ŋinba	ŋinda	ŋina	ŋinu, genitive
Ma2, Gureng-Gureng	ŋin	ŋindu	ŋina	ŋinu-nda, genitive
Ma3, Gabi-Gabi	ŋin	ŋindhu	ŋina	ŋin-bala, genitive
Ma4, Waga-Waga	ŋin	ŋindu	ŋina	ŋin-ba, dative
Mc, Guwar	ŋin	ŋinda	ŋina	?
WHc10, Ngarla	njinpa	njinta	njina	njinu, dative
S1, Yota-Yota	ŋina	njana	njunug	ŋuni, genitive
S2, Yabala-Yabala	ŋina	ŋinag	ŋunag	ŋuni, genitive
V, Baagandji	ŋimba	ŋindu	ŋuma	genitive = O
WAa1, Pitta-Pitta	yinpa	yintu	yina	yinku, dative
WAc1, Wangkumara	yini	yundru	yina	yinka(ni), genitive/dative
Mf, Bandjalang	wudja	waalu, weelu	wiinji	waŋaa, genitive

In one dialect of A1 all initial *ŋ*'s in 2sg are replaced by *n*. The H2 system is also found in H3 and in one dialect of H1. The forms given in WAa1 and WAc1 are representative of most languages in WAa/b/c but note that WAb2, Diyari, for instance, has 2sgO *yina-nha*, with *-nha* being added by analogy with n-sg pronouns. Most forms in Ma, Mc and S are from medium to poor quality old sources and some may only be an approximation.

from those in other languages. For O the consensus is for *ŋina*, with different forms in S1, S2 and V. In the oblique column there is again variation, although a form *ŋinu* (or a development from it) is attested for A1, H2, Ma2 and WHc10.

The actual forms for 2sg in the A–Y, WA–WM area vary, but can almost all be related to an original **ŋin-*. Firstly, the initial velar nasal can assimilate to the following high front vowel, becoming a laminal nasal, *nj*. Secondly, an initial laminal nasal can lenite, to the semi-vowel *y*. There are thus three well-attested initial syllables for 2sg:

- *ŋin-* in A, H, Je, L, Ma–d, Mg, Na1, Nb1, Nc, Nd (where we get *ŋindu* ~ *yindu*), O, Q–T, U1, V and WF;
- *njin-* (or *nhin-*) in Ba, Bc, Nb1 (where we get *njin-* ~ *ŋin-*), Pb, W, WB, WG and WH (and *njiŋ-ka* in NA – see (50));
- *yin-* in C, Ec, Ja, Jd, Nd, Ne, WA and WM.

A third type of change occurs just in A forms (*ŋindu*, *njindu*, *yindu*) with the first vowel assimilating to the second and becoming *u*. Note that, in table 7.4, WAc1, Wangkumara, retains *i* in the first syllable of S form *yini*, O form *yina* and genitive *yinkani* but has replaced it by *u* in the A form *yundru*. WF, Nyungar, has *ŋini* or *njini* for the S forms of 2sg (the O form involves *-nj* added to the S form) but *njuntu* for

the A form. That is, the original *i* is retained in the first syllable of non-A forms but can assimilate to the *u* of ergative suffix *-du* in an A form.

In languages that are at Stage B, the original A form has typically been generalised to also cover S function, with the original S form having been lost. In these languages the *i* > *u*/*-u* assimilation is often found. For example:

- *ɲundu* in WE1 – see (43); *ɲunu* in Bb – given in (40) – comes from an earlier *ɲuntu*, as indicated by the 2sg bound SA pronoun *-ntu*;
- *nhundu* or *njundu* in Dd1, Ea, G, WBb2, WD, WGa, WHc9, WI, WJ, WL (note also *nhunu* in Y);
- *yuntu* in Da–c, Eb, F, Jb, K.

In A1, 2sg forms begin with *ɲi-* in some dialects and with *ni-* in others, presumably a nonce change of initial *ɲ* to *n*. A similar change appears to have applied in subgroup X where the SA form for 2sg is *nɲɲdji* and the O form is *nɲɲja*.

It can be shown that languages in the Australian linguistic area may independently initiate the same kinds of change (this is what was called ‘parallel development’ in §2.1.2). And also that a given change is likely to diffuse over a wide geographical area. These two factors can be illustrated by considering the geographical extents of the changes just described (note that some languages show just one of these changes, some show two, and some have undergone all three):

- (a) *ɲin-* > *njin-* (*assimilation of initial nasal to following vowel*). This is found over a continuous area comprising most or all of the languages in groups B–G, J, K, Nd/e, W, WA, WB, WD, WG–WJ and WMb. It is also found in WMa which is presumed to have been in contiguity with WMb at an earlier stage (but is now separated by X). And in two small pockets – Nb1 (where *njin-* alternates with *ɲin-*) and Pb.
- (b) *ɲindu* > *ɲundu*, *njindu* > *njundu* (*assimilation of i to u*). This is found across a large area in the west, comprising WD, WGa, WHc9, WI, WJ and WL; in an eastern area comprising Da–d, F, G and Jb; and also in Ea and K.
- (c) *njin* > *yin*, *njindu* > *yindu*, *njundu* > *yundu* (*lenition of initial nj to y*). This is found in a continuous area in the north-east and centre, comprising C, Da–c, F, Ja–b, K, Nd/e, WA, WM; and also the nearby Eb and Ec.

(iii) 3sg. As already mentioned, only some languages have distinct 3sg forms, others simply employing demonstratives. (Indeed, a 3sg form in one language may be cognate with a demonstrative in another – see §7.8.) Distinct masculine and feminine forms of 3sg are only found in A1, Mf, Mg2, Na, O, WA and WM from the A–Y, WA–WM area. (Gender on pronouns is discussed in §10.3; see table 10.2.)

There are fewer data available on 3sg than on 1sg or 2sg, but enough to suggest an earlier paradigm (for some of the languages in groups A–Y, WA–WM):

(65)	S	A	O
3sg.(m)	nhu	nhu-lu	nhu-nha
3sg.f	nhan	nhan-du	nhan-nha

The *nhu-* forms are 3sg.m in languages with an m/f distinction and the only 3sg form where a gender distinction is lacking; the *nhan-* forms are always 3sg.f. (As shown in table 10.2, the 3sg.f form is *nja:n-gan* in Mf, Bandjalang, suggesting that the original form may have been *nha:n*, with a long vowel.)

Relatively few languages from groups A–Y, WA–WM have distinct S, A and O forms for 3sg pronouns – some in groups A, D, E, H, Ma, Mf, Mg, V, WA and WM. Those in WA are most suggestive of the original forms; these are presented in table 7.5.

There is clear evidence (here and elsewhere) for A forms m *nhu-lu* and f *nhan-du*. These can be taken as involving roots *nhu-* and *nhan-* with the expected ergative endings: *-lu* after a vowel and homorganic stop plus *-u* after a consonant. We would then expect the original S forms to have been simply *nhu* and *nhan*. Table 7.5 indicates the varied additions to these to create a disyllabic form. For 3sg(m) *-wa* or *-wu* or *-ya* or *-nu* is added, with various assimilations, etc. (in WAa2 *nhuwa* reduces to *nha-*, which is always followed by a ‘distance’ clitic). For 3sg.f, *-pa* or *-i* is added. I suggest that the O form for 3sg.f was originally *nhan-nha*; the cluster of two nasals has been simplified, to *-n-* in WAa1 and to *-nh-* in the other three languages. For 3sg(m) the original O form would be expected to be *nhu-nha*. There is no trace of an *-u-* vowel in the modern forms given in table 7.5, but this would have been assimilated either to the

Table 7.5 *S, A, O and oblique forms for 3sg(m) and 3sg.f*

		S	A	O	oblique stem
WAa1, Pitta-Pitta	3sg.m	nhuwa-	nhulu-	yinha-	nhu-
WAa2, Wangka-yutjuru	3sg	nha-	nhulu-	nhanha-	nhu-
WAb1, Yandruwanhdha	3sg.m	nhunu	nhulu	yinha	nhu(ŋ)-
WAb2, Diyari	3sg.m	nhawu	nhulu	nhinha	nhu(ŋ)-
WAb3, Ngamini	3sg	nhawa	nhulu	nhina	nhu(ŋ)-
WAc1, Wangkumara	3sg.m	nhiya	nhulu	nhinha	nhu(ŋ)-
WAa1, Pitta-Pitta	3sg.f	nhanpa	nhantu	nhana	nhan-
WAb1, Yandruwanhdha	3sg.f	nhani	nhandra	nhanha	nha(ŋ)-
WAb2, Diyari	3sg.f	nhani	nhandu	nhanha	nha(ŋ)-
WAc1, Wangkumara	3sg.f	nhani	nhandru	nhanha	nhaŋ-

Note that third person forms in WAa1 and WAa2 are always followed by a ‘distance’ clitic, e.g. *-yi* in WAa1, or *-ki* in WAa2 for ‘near’.

following *-a* (in *nhanha-*) or to the flanking laminals (in *nhinha* and *yinha*). Confirmation of the original *u* in all forms comes from Ja3, Gugu-Badhun, where the 3sg pronoun is AS *nhula*, O *nhunha* and genitive *nhugu*.

The original forms suggested for 3sg(m) and 3sg.f in (65) are a little less certain than those suggested for 1sg and 2sg in (63). Nevertheless, data from other languages, with a re-formed 3sg paradigm, do provide considerable support (see, for example, forms in H2 given at (76) below, in proto-Bc at (83), and others given in table 10.2).

Looking first at other languages with an m/f distinction, those in the WM subgroup show considerable phonological changes but we can discern original forms **yu-* for 3sg.m and **yan-* for 3sg.f; these are plainly developments from **nhu-* and **nhan* through initial lenition **nh > y*. Mf, Bandjalang, has S forms *nja:n-gan* for 3sg.f (note that *-gan* is a feminine suffix, added to the original S form) and *njula* for 3sg.m (the original A form, with final *u > a*). These take case suffixes for A and O functions.

Stage B languages have generalised *nhulu* (or *nhula*) to cover both A and S functions; this is found in groups B–F, J, L and Y. In some languages of areal group WH we find a ‘distant’ demonstrative that is likely to be cognate with 3sg(m) *nhu-*. For instance:

(66) WHb2, Thalantji, ‘distant’ demonstrative

S	A	O
ɲunha	ɲulu	ɲunha-nha

Here the original O form, *ɲunha* has been generalised to cover both S and O functions (S and O typically fall together, for pronouns, in this area), and then *-nha* was added, to distinguish O function. In the nearby language WHc8, Palyku, *ɲunha* is given as the 3sg pronoun.

In Dc1, the Flinders Island language, from the far north-east, we have a Stage B system with the SA form for 3sg being *ɲulu* and the oblique stem being *ɲuɲu-*.

For 2sg we posited an original form *ɲin* with the change:

(67) 2sg **ɲin > njin*

There appears to have been a parallel change applying to 3sg(m) *nhu*:

(68) 3sg(m) **nhu > ɲu*

That is, in each case the initial nasal assimilates in place of articulation to the following vowel.

Note that change (68) applies in groups Da–c and WH, at opposite ends of the continent. These are groups in which change (67) has also applied – see (a) under (ii) above.

There is another set of cognate forms for gender-marked 3sg pronouns, found in groups NB–ND, NH, NJ and NK – here the m form is *na-* and f is *ŋa(l)*. These are discussed in §10.3.

3sg pronouns are mentioned again in §7.8 on demonstratives, and in chapter 10, on generic nouns, classifiers, genders and noun classes.

7.5.2 Stage B

At this stage, sg pronouns have a single form for S and A functions and a different form for O function, just like n-sg's. There can be two interconnected motivations for this change, one phonological and the other morphological. I have suggested that sg pronouns originally had a monosyllabic S form. Then a constraint was introduced that every word should involve at least two syllables, and this diffused across most of the Australian linguistic area. A few languages – illustrated in tables 7.3–7.5 – added an increment to an original monosyllabic S form, so that it was still distinct from the A form (maintaining a Stage A system).

In the majority of languages there was a change involving systemic analogy to the nominative(SA)/accusative(O) inflection in n-sg pronouns. The disyllabic A form of a sg pronoun was simply extended to also cover S function. Exemplifying with 1sg:

(69) 1sg forms	SA	O	genitive
Nd, Muruwarri	ŋadhu	ŋanha	ŋandhi
WE2, Kalaaku	ŋadju	ŋana(nja)	ŋadju-wanja
WD, Western Desert language	ŋayu	ŋayu-nja	ŋayu-ku
H1, Dyirbal (northern dialects)	ŋadja	ŋaygu-na	ŋaygu

It will be seen that in Nd the original O form, *ŋanha* (from Stage A) is maintained. WE2 has *ŋana* (presumably from *ŋanha*, with *nh* > *n* in this form) alternating with *ŋana-nja*, with the accusative suffix *-nja* being added, by analogy with other pronouns. (Since it was suggested that *ŋanha* comes from an original **ŋay-nha*, *ŋananja* in WE2 includes, historically, two tokens of the common accusative *-nha*, similar to Thalantji in (66).) In WD and H1 the original accusative, *ŋanha*, has been replaced. In WD, as in many other languages, the O form involves *-nja* added to the SA form, copying the inflectional pattern on n-sg pronouns. H1 is unusual in that accusative *-na* (< *-nha*) is added to the genitive form.

Stage B – for 1sg and 2sg and also 3sg (where present) – has plainly spread by diffusion; it is found in languages from groups B–G, H1, J–L, Md/e, N, Q, R, T, X, Y, WD, WE, WG, WH and WM. In Mg1, Gumbaynggirr, 2sg and 3sg have been assigned an SA/O pattern while 1sg retains distinct S, A and O forms. In U1, Yarlalde, 2sg is SA/O while 1sg retains S/A/O (here there is no 3sg).

In almost all Stage B languages the SA form of sg pronouns relates to the original A form – 1sg, *ɣadhu*; 2sg *ɣindu*, *njindu*, *yindu*, *ɣundu*, *njundu* or *yundu*; and 3sg *njulu* or *ɣulu*. Just a few languages have other SA forms – 1sg *yandaŋ* in Ta, *ɣarra* in Y and *ɣarna* in WM; 2sg *biyay-bay* in Na2, *nhulu* in W2, *nhii* in Ya, *nhunu* in Yb, *njuni* in Yc and *kartu* in WHc2.

There are two recurrent phonological changes that have applied to sg S (in Stage A) or SA (in Stage B) forms, across a wide region of the continent. (These have also applied to SO forms in Stage C-i, S forms in Stage C-ii and SAO forms in Stage C-iii.)

(i) *Final u changes to a*. This change has applied to 1sg *ɣadhu*; to 2sg *ɣindu*, *njindu*, *njundu* and *yindu*; and to 3sg *ɣulu*. It is found in three distinct areas:

- A region down the east coast, including H, Ja, L, Mb/c/d/e/g, Nb and Nc1. Note that in Mf, Bandjalang – surrounded by languages that have undergone this change – we get the *u* retained in 1sg *ɣadju* but shifted to *a* in 3sg *njula* (2sg is here an innovation, see table 7.4). (1sg *ɣaya* in O and Pb may possibly also relate to original A form *ɣadju*, or else they might relate directly to S form *ɣay*.)
- Groups S and R, on the Murray River.
- Groups WG and WH, in the far west.

There is a recurrent phonotactic tendency in Australian languages: the later a vowel comes in a word, the less likely it is to be *u*. It is in keeping with this that, in these three areas, the final *u* on a sg A(S) pronominal form changes to *a*.

This final *u* comes from an original ergative suffix, i.e. *ɣay-dhu*, *ɣin-du*, *nju-lu*. We might expect that in those languages where sg pronouns have undergone a change of final *u* to *a*, the same change would apply to nominal ergative allomorphs on nouns and adjectives, *-dhu*, *-lu*, *-ɣgu*, etc. However, the change does not apply here. There is a morphological reason for the apparent discrepancy. On nouns and adjectives there is generally a locative inflection which is distinguished from ergative simply by having final *a* in place of *u*. It is likely that the change *u > a* has not applied to ergative suffixes on nominals in order to maintain the contrast between ergative and locative. However, there is generally no locative form of pronouns which differs from the A(S) form by having final *a* in place of *u*. Thus the change *u > a* on sg pronouns can apply without leading to neutralisation of case distinctions.

In §6.5.1 we noted a recurrent suffix on verbs, past tense *-nhu* or *-nju*. It appears that in some areas this has undergone a similar change, to *-nha* or *-nja*. And the *u > a* change for past tense has applied to some languages from the same areas in which the *u > a* change on pronouns is attested – to some languages in groups WGb and WH, on the west coast, and to H3 on the east coast. (We also find past tense *-na* in Nb2.) It appears that the changes *u > a* in sg pronouns and in past tense have diffused over

similar areas. Note, though, that the areas do not precisely coincide. For example, going from north to south down the east coast we find:

(70)	1sgS	1sgA	2sgS	2sgA	verb inflection
G2, Yidinj	ɲay <u>u</u>		ɲjund <u>u</u>		-ɲju, past
H1, Dyirbal (north)	ɲad <u>ja</u>		ɲind <u>a</u>		-ɲju, past
(south)	ɲayba	ɲad <u>ja</u>	ɲinba	ɲind <u>a</u>	-ɲju, non-future
H2, Warrgamay	ɲayba	ɲad <u>ja</u>	ɲinba	ɲind <u>a</u>	-ɲju, perfect
H3, Nyawaygi	ɲayba	ɲad <u>ja</u>	ɲinba	ɲind <u>a</u>	-ɲja, unmarked

G2 maintains *u* in sg pronouns and in the verbal inflection, while H3 has *a* in both. The intervening languages, H1 and H2, fall within the diffusion area for the *u* > *a* change on pronouns, but are outside the area for this change applying to the verbal suffix.

(ii) *Medial dh/dj lenites to y*. This applies to 1sg *ɲadhu*, *ɲadha* (and *ɲadju*, *ɲadja*) producing *ɲayu* or *ɲaya*. It is found in three areas:

- A large area in the east, including languages from groups B, F, G, Ja, Jd, K, Nb and Nc1.
- Group Q, on the far south-east coast. (Note that if the 1sg form *ɲaya* in groups O and Pb is taken to be a development from **ɲadhu*, then this would almost link up Q with the east-coast area.)
- Languages from groups WD, WG–WJ in the west.

Within subgroup WJa we find *ɲatju* in WJa1/2, *ɲayu* in WJa3, and *ɲayi* in WJa4, this last showing assimilation of the final vowel to the preceding semi-vowel. Different types of assimilation are found in other areas, e.g. G1 shows *ɲayu* > *ɲawu*, with the semi-vowel assimilating to the following vowel.

It is instructive to compare the closely related languages in subgroup G:

(71)	1sg forms	SA	O	oblique stem
G1, Djabugay		ɲawu(ɲgu)	ɲanja	ɲayi-
G2, Yidinj		ɲayu	ɲanjanj	ɲadju-

We can infer that at an earlier stage *ɲadju* was the SA form and also the oblique stem, to which genitive, dative, etc. suffixes are added. The original SA form *ɲadju* has become *ɲayu* in G2 and *ɲawu* in G1 (with nominal ergative -*ɲgu* being optionally added). The oblique stem has been retained as *ɲadju* in G2, but changed to *ɲayu* by lenition and then to *ɲayi* by vowel-to-semi-vowel assimilation in G1. G1 retains the original O form *ɲanja*, but G2 has added a final -*ɲj* (a reflex of accusative *-*ɲja*) by analogy with the other pronouns (Dixon 1977a: 165–76). (The change *ɲadhu* > *ɲayu* > *ɲayi*

has applied to the SA forms of pronouns in some languages from the far west – WHc4, Yinjtjiparnrti and WHc5, Ngarluma.)

Most languages in the prefixing area are at Stage C-iii, using the same free pronominal forms for all core functions. There are just a couple of languages showing Stage B (NIa, Umbugarla, may have this profile, but the data available are scanty):

(72) Prefixing languages at Stage B

	1sgSA	1sgO	1sg.dat/gen	2sgSA	2sgO	2sg.dat/gen
NBa, Mangarrayi	ɲaya	ɲan	ɲandju	njangi	njan	ɲaŋga
NBi, Gungarakanj	ɲirr-pa	ɲaruŋ	ɲirrp-a-gini	ɲinja-pa	ginjuŋ	ɲinjapa-gini

The 1sg forms in NBa may be related to those in the non-prefixing area, but the other forms appear to be separate developments.

In NCB3, Wambaya, n-sg pronouns have one form for SA and another covering O and oblique functions (Stage B) but sg pronouns have one form for S, A and O with a separate form for oblique (Stage C-iii). 1sg SAO form is *ɲawu* – as in G1 – and 2sg SAO form is *ɲjami*, as shown in (20). NHc, Malak-Malak, has a set of free pronouns for A and S functions; for O function there is only a set of bound pronominal enclitics (see §8.3).

7.5.3 Stage C-i

Here free pronouns have one form for S and O functions and another form for A, just like nouns. This can develop by two paths – either directly from Stage A, or via Stage B.

(a) *From Stage A.* Consider the following languages:

(73)	Stage	1sgA	1sgS	1sgO
A	original forms	ɲathu	ɲay	ɲanha
C-i	WBb2, Adjnamathanha	ɲathu	ɲayi	
C-ii	WC, Wirangu	ɲathu	ɲanha	

In WBb2 the old S pronoun has been extended to also cover O function, whereas WC has changed in the opposite direction, with the old O form also taking over S function. (Blake 1979c: 348 provides further examples of the O pronoun expanding to take over S function.)

The first type of extension (from S to O) is more common. On the basis of the data from free pronouns, it appears that the languages in group W have followed a similar path to WBb2. Consider:

(74)		1sgA	1sgSO	2sgA	2sgSO
W1,	Kalkatungu	ɲathu	ɲayi	ɲjinti	ɲjini
W2,	Yalannga	ɲathu	ɲiya	nhulu	nhawa

Here the original 1sgS *ɲay* has become 1sgSO *ɲayi* in W1 and is probably the basis for 1sgSO *ɲiya* in W2 (there could have been a development *ɲay* > *ɲaya* with assimilation yielding *ɲiya*). The original 2sgS *ɲjin* (< *ɲin*) is probably the basis for 2sgSO *ɲjini* in W1. (The 2sg forms in W2 are unusual. They are similar to 3sg forms in other languages – e.g. those in the neighbouring WAa1, Pitta-Pitta, shown in table 7.5 – and may possibly have been borrowed from 3sg in another language, with change of meaning from third person to second.)

In Kalkatungu and Yalarnnga the root form of n-sg pronouns, originally used for S and A functions (with accusative *-nha* added for O function) is now used in S and O functions, and a fused ergative suffix is added for A function, exactly as with nouns. Thus sg pronouns, n-sg pronouns and nouns all show an ergative system of inflection. In WBB2, Adnjamathanha, it appears that n-sg pronouns retain the original SA/O forms, so that just sg pronouns have moved to an ergative system like nouns. (Here n-sg pronouns are at Stage C-i and n-sg pronouns still at Stage A/B.) From the scanty data available on WC, Wirangu, it appears that n-sg pronouns are used without suffix for all of S, A and O (sg pronouns are at Stage C-i and n-sg's at Stage C-iii).

(However, as discussed under (g) in §11.4, the forms of bound pronouns suggest that Kalkatungu did at one stage have a Stage B system. There may have been different lines of development in different parts of the case-marking system for this language.)

(b) *Via Stage B.* Consider the sg pronominal forms in two sample dialects of WD, the Western Desert language. In (75) the historical paradigm (Stage A) for one sg and one n-sg pronoun is given as the top line:

(75) WD, the Western Desert language – free pronouns

dialect	stage	1sgA	1sgS	1sgO	1duA	1duS	1duO
[earlier forms]	A	ɲadhu	ɲay	ɲanha	ɲali	ɲali	ɲali-nha
(n) Yankuntjatjarra	B	ɲayu(lu)	ɲayu(lu)	ɲayi-nja	ɲali	ɲali	ɲali-nha
(e) Kukatja	C-i	ɲayu-lu	ɲayu	ɲayu	ɲali-lu	ɲali	ɲali

At Stage B, pronouns had a nominative(SA)/accusative(O) system of case marking and nouns an absolutive(SO)/ergative(A) system. At Stage C-i, pronouns have become like nouns, using the stem for S and O functions and adding an ergative suffix for A function. Note that the form *ɲadhu* (> *ɲayu*) was originally used just in A function at Stage A; then in A and S functions at Stage B; then in S and O functions in Stage C-i. (It is interesting to note that Yankuntjatjarra redundantly adds *-lu* to 1sg *ɲayu* for both A and S functions. In Yankuntjatjarra 1sgO form *ɲayu-nja* has become *ɲayi-nja* through assimilation.)

The dialects of WD which have shifted to Stage C-i include those with a well-developed system of bound pronouns, and these bound pronouns do still maintain an

SA/O accusative system. It is noteworthy that those dialects which lack bound pronouns retain the Stage B system of free pronouns.

Languages in group WI plus WJa1/2 and WJb1 (adjacent to the C-i dialect of WD) have developed in the same way – all first and second person pronouns inflect on an ergative pattern, like nouns. These languages also have bound pronouns, which retain an accusative system. The other languages in WJ are at Stage C-iii, where free pronouns have a single form used for all of S, A and O.

Pb1, Dharawal, on the far south-east coast, is also at Stage C-i. The forms of pronouns given in (61) are used in S and O functions, with ergative suffix *-ga* being added for A function. The forms given in (62) for the neighbouring language Pb2, Dharamba, are also used in S and O functions. The scanty data for Pb2 only include A forms for 1sg – *ɲayadja* or *ɲayaga-njdja* – and for 2sg – *njindidja* or *njindiga-njdja*.

A number of prefixing languages are also at this stage, with free pronominal roots being used for S and O functions. In NE2, Baardi, the quasi-ergative (or controller, see §5.1.1) suffix *-nim* can optionally be added to mark A function. In NHa, Patjtjamalh, a free pronoun in A function may optionally take the ergative suffix *-karran*, whereas this is obligatory on a noun in A function. In NHd1 and NHe1/2, free pronouns inflect on an absolutive/ergative pattern, exactly like nouns.

I have mentioned that not all Australian languages have third person pronouns as such, and where these do occur they do not always pattern like first and second person forms. Sometimes third person pronouns have SO/A forms, like nouns, while first and second person pronouns show an SA/O system (or a Stage A system, with separate S, A and O forms for 1sg and 2sg). For instance:

(76)	1sgA	1sgS	1sgO	3sgSO	3sgA
H2, Warrgamay	ɲayba	ɲadja	ɲanja	njuŋa	njulanga
Nc2, Wiradhurri	ɲadhu		ɲanhal	ɲin	gunj

The 3sg forms in H2 probably relate to the suggested earlier paradigm based on *nhu-*, in (65). O form *nhunha* could have given rise to SO form *njuŋa* by assimilation. H2 is within the area in which the change of final *u > a* on sg pronouns has applied and the original 3sgA form *njulu* should have become *njula*. It appears that the nominal ergative suffix *-ngu* has been added to this, and then the final *u > a* change has applied again. (3sg forms in Nc2 are suppletive and not at present explainable.)

In Nc1, Yuwaalaraay, 3sg has an SA/O paradigm, like first and second person pronouns, whereas 3du and 3pl have an SO/A paradigm, like nouns.

7.5.4 Stage C-ii

Here all nouns and pronouns have distinct forms for each of S, A and O functions. There are several ways in which this stage can be reached.

(a) *Directly from Stage A.* WAc1, Wangkumara, has distinct S, A and O forms for sg pronouns, as shown in tables 7.3–7.5. The root of a n-sg pronoun is used for S function, accusative suffix *-nha* being added for O, and ergative suffix *-ŋu* (probably generalised from nouns at an earlier stage of the language) for A function. It is instructive to compare the forms of 3sg pronouns with case inflections on nouns (Breen 1976f):

(77)	WAc1, Wangkumara	S	A	O
	3sg masc pronoun	nhiya	nhulu	nhinha
	3sg n-masc pronoun	nhani	nhandru	nhanha
	case suffixes on masc sg nouns	-iya	-(u)lu	-(i)nha
	case suffixes on other nouns	-(nha)ni	-(a)ndru	-((nh)a)nha

It is not hard to reconstruct the historical origin of these unusual case suffixes. It is likely that the appropriate 3sg pronoun was compounded with a noun, and then reduced to become its case marker. The separate S, A and O forms for 3sg naturally gave rise to distinct S, A and O suffixes on nouns. (WAb2, Diyari, shows a similar but less neat development – see Austin 1981a.)

(b) *From Stage B.* An earlier stage of the WHa and WHb subgroups would have had pronoun roots used in S and A functions, with accusative suffix *-nha* added for O function; and noun roots used in S and O functions, with ergative suffix (whose allomorphs included *-lu*) added for A function. The ergative suffix has been extended to pronouns and the accusative suffix to nouns, giving distinct S, A and O forms for both nouns and pronouns.

In fact, this tripartite S/A/O marking does not QUITE extend to all words that can be NP heads. In WHa, Tjiwarli, it applies to all nouns and to all pronouns save 1sg *ŋadha*, which stands alone in being used without a suffix for both S and A functions. In WHb1, Payungu, 1sg again lacks ergative marking and all inanimate nouns (except for *murla* ‘meat’ and *thanuwa* ‘vegetable food’) lack accusative marking.

(c) *From Stage C-i.* The data available on WF, Nyungar, are scanty but it seems that the O forms of sg pronouns were generalised to also cover S function, and then, at a later stage, accusative *-inj* (< *-nja*) was added to mark O function. Ergative suffix *-al* (< *-lu*) on nouns was also applied to n-sg pronouns and accusative suffix *-inj*, from pronouns, was applied to nouns. Thus, for sample sg and n-sg pronouns, and for nouns:

(78)	WF, Nyungar	A	S	O	dative/genitive
	1sg	ŋatju	ŋanja	ŋanja-inj	ŋana
	2n-sg	njurraŋ-al	njurraŋ	njurraŋ-inj	njurraŋ-ak
	noun cases	-(w)al	∅	-(w)inj	-(w)ak

Note that *ɲanja* was originally the O form (at Stage A), then the SO form (at Stage C-i) and finally the S form (at Stage C-ii). The 1sg O pronoun, *ɲanja-inj*, provides another example of a form which historically involves two reflexes of the accusative suffix **-nha*.

7.5.5 Stage C-iii

Languages that have well-established obligatory systems of bound pronouns (see chapter 8) often have one set of ‘cardinal’ free pronouns that are used for all core functions. This applies to the great majority of the prefixing languages in groups NB–NL.

The WJ subgroup is next to the prefixing area, and it has obligatory bound pronominal enclitics in an SA/O pattern. Most WJ languages are of Type C-i, with free pronouns inflecting like nouns, on an SO/A basis. That is, the ergative suffix (analogue from nouns) is added to a free pronoun root to mark A function. However, three languages do not add an ergative suffix to free pronouns, but simply use the root in S, A and O functions. WJa3, Gurindji, and WJa4, Mudbura, do have a full set of sg/du/pl plus inc/exc pronouns, used in all core functions. WJb3, Warlmanpa, has not only lost core case marking on free pronouns but also number differentiation. It simply has two free pronouns, first person *ɲayu* (< 1sgA **ɲadju*) and second person *njuntu* (< 2sgA **ɲindu*) used for all numbers and in all core functions.

7.5.6 Summary

Like virtually all other parameters within the Australian linguistic area, the shift from one kind of case-marking system on pronouns to another can be cyclic. NAb2, Yukulta, is conservative within the Tangkic subgroup, NA. It has SO/A inflection for nouns, S/A/O for sg bound pronouns and SA/O for n-sg bound pronouns, but free pronouns have one form used across all core functions. The closely related NAb1, Kayardild, has developed an entirely SA(nominative)/O(accusative) system. Its free pronouns are marked for O function (but with different accusative suffixes used in future and non-future clauses). That is, we get a Stage B developing out of a Stage C-iii system.

Thus, although the predominant scheme of development is from Stage A to Stage B to Stage C-i or C-ii or C-iii (or directly from A to C, etc.), there has also been some movement in the opposite direction. Indeed, there is likely to have been much more than can currently be recovered, during the fifty thousand years or so that the Australian linguistic area is thought to have been in existence.

In NHc, Malak-Malak, free pronouns may be used just in S and A functions; for O function only bound pronouns are possible. In WMa, Yanyuwa, free pronouns are only used in S and O functions; for A function a bound pronoun must be employed. Indeed, some languages have gone beyond this, losing their original free pronouns, and then

creating another set by adding bound pronominal forms to an invariable root. This is discussed in §8.4.1.

At the end of §7.3 we undertook a preliminary comparison of recurrent pronominal forms across the NA–NL and A–Y, WA–WM regions. Distinct S, A and O forms for sg pronouns are only retained in some languages from the non-prefixing area; it is these that enabled us to put forward the paradigmatic reconstructions in (63), with original roots 1sg **ɲay* and 2sg **ɲin*. Half of the languages in NA–NL reflect 1sg **ɲay* (and a further quarter have *ɲa-*) while almost half reflect 2sg **ɲinj*. 2n-sg *nu-* plus number suffix *-rrV* in NA–NL may well relate to 2pl *nhurra* (and perhaps also to 2du *nhu(m)bV₁IV₂*) in A–Y, WA–WM. Only for the 1n-sg forms is it difficult to establish correspondences.

There are notable correspondences between second person forms:

	NA–NL	A–Y, WA–WM
2n-sg	nu-	nhu-
2sg	ɲinj	ɲin

Under (2) in §4.3.1, we noted examples of lexemes with an initial apical in a northern region (roughly, groups NA–NL) and an initial laminal elsewhere, although there are a number of exceptions; these relate to the 2n-sg forms above.

Looking now at the second correspondence, we noted in table 7.4 two unusual forms – 2sgA *ɲidh* in A1, West Torres, and 2sgA *ɲindhu* in Ma3, Gabi-Gabi (although it must be pointed out that the Ma3 form is based on old materials which may not be fully reliable). Ma3 is a language from a noticeably archaic region (e.g. it retains monosyllabic pronominal forms). It may be that 2sg was originally *ɲinj*, with the final *ɲj* being replaced by *n*, a change that diffused over a wide region. Further work is needed on these two topics.

7.5.7 Non-core functions

The discussion so far has focussed on pronominal case forms for the core functions S, A and O. A few comments can now be added on further forms of pronouns – genitive, dative, etc. – although these will be far from exhaustive.

(1) In a number of languages the pronoun paradigm has been radically reanalysed so that new pronominal roots are used for S and O functions, with regular nominal suffixes added to them for other functions, i.e. free pronouns now inflect like nouns. This has happened in groups WI, WJ and NH.

(2) As already noted, many of the prefixing languages have a series of cardinal free pronouns used in all core functions. They always also have genitive and/or oblique (covering dative and other functions) pronoun series; some languages have separate

genitive and oblique series, others a single combined series. The genitive (and oblique, if there is one) are in some languages derived from the cardinal forms by addition of a suffix, e.g. genitive *-gurluŋ* in NBh1, Jawoyn.

More frequently, genitive and/or oblique involve a suffix added to the cardinal form for n-sg's, but sg pronouns have a separate stem for genitive/oblique. For instance (see also NBa, Mangarrayi, in (72)):

(79)	NCa1, Djamindjung		
	cardinal	dative	
	1sg	ŋayag	ŋarrgu
	2sg	nami	ŋuŋgu
	3sg	dji	nu

(80)	NF1, Bunuba		
	cardinal	genitive	
	1sg	ŋayini	ŋarragi
	2sg	ŋinjdji	ŋaŋgi
	3sg	niy	ni and nu

(81)	NB12, Wardaman		
	cardinal	oblique	
	1sg	ŋayugu	ŋanu
	2sg	yinjaŋ	yinŋi
	3sg	narnudj	guŋa

(82)	proto-NBf, Maningrida subgroup		
	cardinal	genitive	
	1sg	*ŋayV-	*ŋabu
	2sg	*ŋarra-	*ŋuŋgu

For n-sg's, NCa1 adds *-ag* to the cardinal pronoun to form datives, NF1 basically adds *-aŋ(g)i* to form genitives, and NB12 adds *-gu* to form obliques. (The individual languages in the NBf subgroup employ different suffix forms.)

In some languages – from both the prefixing and non-prefixing areas – genitive pronouns have become suffixes or enclitics. These may be added to a possessed noun, or just attached to a noun class prefix (marking the possessed noun). This is discussed in §8.9.

(3) In the non-prefixing area, peripheral case suffixes are generally added to the SA forms of n-sg pronouns, but again sg pronouns may have a distinctive oblique stem. Examples were given in tables 7.3–7.5 and in (78). Note also:

(83)	proto-Bc, Wik subgroup			
		SA	O	oblique stem
	1sg	ŋayu	ŋanha	ŋathu-
	2sg	nhintu	nhina	nhiku-
	3sg	nhulu	nhunha	nhugu-

(There are similar systems in Dd1 and Ea1.)

(4) There are some recurrent forms for 1sg oblique stems, including the following.

(i) *ŋarrV*. Non-core 1sg stems include *ŋarri* for Ma4, Waga-Waga, in table 7.3; *ŋarra-* for NF1, Bunuba, in (80). Languages of NCb, the Eastern Mindi subgroup, show all

three final vowels: *garru* in NCb1, *garri* in NCb2 and *garra* in NCb3. (Note also that the 1sgO form is *garri* in Mb, Yagara. In Ya and Yb the 1sg SA form is *garra* and in Yc it is *garri*.)

We also find 1sg oblique form *garrgu* in NCa1, Djamindjung, in (79); *garrkka* in NHa, Patjtjamalh; and *gurdu-* in NBg1 and NKa.

(ii) *nanu*. Examples already given include *nanu* for NBI2, Wardaman in (81); and *nanu* for WHc10, Ngarla, in table 7.3. We also find *nanu* (or a variant) in Na1, S, U2, WAd, WG, WH, NBb/c/d/e, NG and NIa (and *nana* in WF; see (78)).

(iii) *nanhdhu*. This form (or a variant of it) is found in WAa1 and WAc1 (table 7.3); in Nd, in (69); and in NBa in (72). The form *nanju* in Mg1, Gumbaynggirr (table 7.3) may also be related. Quite a number of languages have a 1sg oblique stem *nadhu-* but it is difficult to know whether this is a reduction from an original oblique form *nanhdhu*, or the transfer of the A form *nadhu* to also function as a basis for oblique forms. (The one explanation may be appropriate for some languages, and the other for others.)

(5) For the 2sg oblique stem there is one recurrent form, which may possibly relate to an original **nin-ku* (with the initial syllable repeating the types of assimilation and lenition reported in §7.5.1 for the 2sg root **nin*). We find:

nhigku in Bc, see (83);

yinku in WAa; *yinka-* in WAc1 (see table 7.4) and in WMa;

yinggi in NBI2, see (81);

njunku in W1;

nunku in NCa1, see (79), and in NBI1;

nngi in NF, see (80); *nanga* in NBa, see (72).

(6) If there are no distinct oblique stems, oblique forms of pronouns are generally based on the S or SA (or SO) form – see WD and WE2 in (69) and NBI in (72). Occasionally, obliques are based on the O form (e.g. in Ea3, K, V). Very occasionally, obliques are based on a genitive form – see (84).

A number of languages in the north-east add *-n* to a n-sg SA root (and sometimes to a sg genitive form) to derive an oblique stem, to which dative, locative, ablative, etc. suffixes can be added. Compare sample pronouns in:

(84)	S	A	O	genitive	oblique stem
1sg					
H2, Warrgamay	<i>ṇayba</i>	<i>ṇadja</i>	<i>ṇanja</i>	<i>ṇaygu</i>	<i>ṇaygu-n-</i>
H1, Girramay dialect	<i>ṇayba</i>	<i>ṇadja</i>	<i>ṇanja</i>	<i>ṇaygu</i>	<i>ṇaygu-n-</i>
H1, northern dialects		<i>ṇadja</i>	<i>ṇaygu-na</i>	<i>ṇaygu</i>	<i>ṇaygu-n-</i>

	S A		O	genitive	oblique stem
Idu					
H2, Warrgamay	ŋali		ŋali-nja	ŋali-ŋu	ŋali-n-
H1, Girramay dialect	ŋali		ŋali-nja	ŋali-ŋu	ŋali-nja-n-
H1, northern dialects	ŋali		ŋali-na	ŋali-ŋu	ŋali-n-

In H2, pronouns take the same non-core inflections as nouns: dative/allative *-gu*, locative/aversive *-da* and ablative *-inj* are all added to the oblique stem. H1, in contrast, only has dative, with *-gu* added to the oblique stem. Note that the oblique stem is formed by adding *-n* to the genitive form for sg's and to the SA form for n-sg's except in Girramay where it is added to the O form of n-sg's. Just in the northern dialects of H1, sg pronouns create their O form by adding accusative *-na* (<*-nja*) to the genitive.

It is possible that the *-n-* increment comes from accusative *-na* (<*-nja*), i.e. *ŋali-na-gu* > *ŋali-n-gu*. It does seem likely that the present-day pattern in Girramay, of adding dative suffix to the accusative form, plus the *-n-* increment (i.e. *ŋali-nja-n-gu*) is a recent innovation. It could be repeating an earlier reanalysis that gave rise to the stem-forming increment *-n-*. However, there may well be some alternative explanation for the *-n-* suffix.

(7) As has just been shown, languages differ in how many non-core cases their pronouns occur in. Those whose pronouns have been reanalysed on an SO/A pattern (or on an SA/O pattern in WH and NA) generally inflect like nouns, taking the full set of nominal affixes. In many languages, pronouns show fewer case forms than nouns, often omitting locative, allative and ablative (and, on pragmatic grounds, instrumental).

In only a few languages are oblique case suffixes on pronouns markedly different from those on nouns. In Pitta-Pitta, sg pronouns take suffixes rather different from nouns; interestingly n-sg pronouns take the same forms as nouns:

(85) WAa1, Pitta-Pitta non-core cases

	on nouns and n-sg pronouns	on sg pronouns
dative	-ku	-ku
purposive/genitive	-ŋa	-(k)ari
locative	-yin(t)a	-ŋina on 3sg, -(k)ira elsewhere
allative	-yin(t)u	-(nk)uru
ablative	-yinja	-tari in 3sg.f, -(ŋ)inja elsewhere

In §5.4.4, I mentioned that the most common nominal suffix in Australian languages is *-gu*. This is also used on pronouns in many languages, to mark dative/purposive and/or genitive.

The suffix *-ŋu(n)* is often used to mark genitive (and sometimes also dative) on pronouns. A partial list of languages showing this suffix as genitive on pronouns is:

- ŋu* in H, J, K, Nc1, U2, V, WG, WH, WM;
- ŋun* in D, E, G, S;
- ŋunh* in L.

and note *-uŋ* in NIa and NKa; and *-ŋa* in F, Mg2, WJ, WMa and NBm.

There is much more limited distribution of *-ŋu* as a genitive suffix on nouns; this is in G–M, U2 and WHc. It is rather likely to have been analogised across from pronouns.

Some languages distinguish genitive and dative on pronouns (typically marked by *-ŋu* and *-gu* respectively) but have a single suffix (typically *-gu*) covering both genitive and dative on nouns. For example:

(86)	on pronouns		on nouns	
	genitive	dative	genitive	dative
Ja1, Marrganj	- <i>ŋu</i>	- <i>ŋu-ŋu</i>	- <i>gu</i>	
Nc1, Yuwaaliyaay	- <i>ŋu</i>	- <i>ŋu-nda</i>	- <i>gu</i>	
H3, Nyawaygi	- <i>ŋu</i>	- <i>n-gu</i>	- <i>gu</i>	
H2, Warrgamay	- <i>ŋu</i>	- <i>n-gu</i>	- <i>ŋu</i>	- <i>gu</i>

Nyawaygi's northern neighbour, Warrgamay, is included in (86) to show the apparent analogic transfer of genitive *-ŋu* to also apply to nouns in this language.

There are many further forms of genitive, dative and other oblique case suffixes across the continent. In WD, the Western Desert language, for instance, genitive/purposive is *-mpa* on all pronouns except 1sg, which has *-ku* (some languages in WH show the same pattern).

(8) One suffix of particular interest is *-gin(V)*, since it occurs in widely separated languages:

- in Nc2/3, *-gin* is genitive on n-sg pronouns;
- in NBI, *-gin* is genitive on all free pronouns;
- in NC we find that the genitive suffix to free pronouns is *-gina* in
 - NCa, *-gin* in NCb1 and *-gan* in NCb2/3;
 - in NBI, Gungarakanj, genitive is *-gini* on free pronouns.

(9) There are some languages where the same pronominal form is used for O and dative functions (with a different form for genitive). These include A1, Dd and Eb3.

7.6 Reflexives and reciprocals

A reflexive construction is used when there is a transitive verb and either the A and O arguments are identical (e.g. 'John cut John') or the O argument is a further specification of the A (normally by the addition of a body part noun, e.g. 'John cut John's

hand'). In a reciprocal construction there are several participants with each being in A function for some instance(s) of the activity and in O function for some other instance(s) (e.g. 'John looked at Bill and Bill looked at John', or 'John looked at Bill's face and Bill looked at John's face').

A few languages lack any grammatical marking for reflexive and/or reciprocal, just saying 'I cut me/my hand' or 'We looked at us/our faces'. (This can lead to ambiguity in the third person, where it is unclear whether or not $A=O$ for 'He cut him/his hand'.) However, the great majority of languages do show special grammatical marking. The most common methods are:

- a verbal derivational affix, applying to a transitive stem and producing an intransitive stem with a single core argument, in S function, coding the underlying $A=O$;
- a special reflexive/reciprocal pronominal element which generally goes in the O slot (the reflexive/reciprocal construction may then remain transitive).

Australian languages have these two and also a number of other grammatical techniques for marking reflexive and reciprocal. A survey of the c. 140 languages for which good or fair data are available reveals that:

- (1) About ninety-five languages employ verbal derivation for both reflexive and reciprocal. That is, a derivational suffix comes between transitive verbal root and final TAM inflection and yields an intransitive stem.
- (2) In about twenty-five languages there is no verbal derivation but instead a reflexive/reciprocal pronoun. This sometimes involves a suffix to a regular pronominal series; or else it is an invariable form. It may be a free or a bound element. In some languages the reflexive/reciprocal construction remains transitive but in others it becomes intransitive.
- (3) About ten languages combine these profiles, with a verbal derivation for reciprocals, Type (1), but a pronominal element for reflexives, Type (2). Interestingly, there are no examples the other way around, with a reciprocal pronoun but a reflexive derivational affix.
- (4) About ten languages have some other mechanism – using a transitive verb in an intransitive construction without any special marking, or using a special reflexive/reciprocal auxiliary or verb, etc.

We can now discuss (1–4) in a little more detail.

(1) *Verbal derivations*. This reflexive/reciprocal mechanism is found in more than two-thirds of the languages. It applies to some languages in groups B–E; to all in H–W excepting H2, Mg1, S1, Ta1 and U1; to WA and WB; to some in WG and WH; to WL1; to NA; to all in NB excepting NBi and NBk; to some in NC; to ND1, to NF, NG, NHa and NL.

In slightly more than half of these languages the same derivational affix marks reflexive and reciprocal; the remainder have separate affixes. Some sample forms are in table 7.6.

These suffixes are added to a transitive verbal stem and derive an intransitive form, taking a single core argument in S function. For example:

- (87) Reflexive in the Mpakwithi dialect of Ba6, Anguthimri (Crowley 1981: 181)
 agu ?a-thi-ni
 1sgS cover-REFL-PAST
 I covered myself
- (88) Reciprocal in NL, Tiwi (Lee 1987: 188)
 pi-ri-pim-atjirri-ani
 3plS+PAST-LINKER-hit-RECIP-PAST.HABITUAL
 they used to hit one another

If the O NP in a reflexive (or a reciprocal) expands on the A by the addition of a body part noun, then this is included in the S NP of the derived intransitive, e.g.

- (89) WAb2, Diyari (Austin 1981a: 152)
 [ŋanhi mara]_S rdama-tharri-rna wara-yi
 1sgS hand+ABS cut-REFL-PARTICIPIAL AUX-PRES
 I cut myself on the hand (lit. I cut my hand)

More than half of the reflexive/reciprocal suffixes relate to **-dharri*, which can become *-dhirri-*, *-yi-*, *-rri-*, etc., e.g. *-dji* in NB11, *-yi* in Dc1, and probably also *-yindri-* in WAb1 and *-tjitja-* in NHa. Where there are distinct suffixes, the reflexive relates to **-dharri-* in well over half the languages – see table 7.6. In just a few languages, reciprocal may reflect **-dharri* – two of these (Ta3 and NL) are included in table 7.6.

There is further discussion of **-dharri* in §11.3.1, where I suggest that reflexive and reciprocal are just two instances of the general intransitivising thrust of this suffix (which may, in fact, have an original semantic basis). Note that *-dji-* in F and *-tharri-* in WAb2 both also have passive and antipassive senses, while *-(y)i-* in NBd1 can also mark an agentless passive. In addition, reciprocal *-pri-* in Ba6 also has an antipassive sense.

Other suffixes for reflexive and reciprocal vary widely. There is some evidence for a recurrent reciprocal suffix *-ba(rri)-* or *-wa-* (in groups B, E, F, H–L, Nd, WA, WH), and a little for a reciprocal *-njdjirri-*, in contrast to reflexive *-djarri-* (in groups G, NA, NBd, NBf).

NBb1, Marra, is unusual in that its reflexive/reciprocal suffix, *-rlana-*, is added to the end of the verb, after TAM inflections (the verb then takes an S pronominal prefix).

Table 7.6 *Reflexive and reciprocal verbal suffixes*

	reflexive	reciprocal
Ba6, Anguthimri	-thi-	-pri-
F, Kuku-Yalanji	-dji-	-wa-
Nc3, Ngiyambaa	-djili-	-la-
Ta3, Wuy-wurrung	-bali-	-djirri-
WAb2, Diyari	-tharri-	-mali-
WL1, Arrernte	-ərr-	-əlh-
NA, proto-Tangkic	-yi-	-njtju-
NBd1, Ngandi	-(y)i-	-(wa)ydhi- ~ -ywaydhi-
NL, Tiwi	-(am)iya-	-atjirri-
Dc1, Flinders Island language	-yi-	
W2, Yalarnnga	-njama-	
Ya1, Dhuwal-Dhuwala	-mi-	
WAb1, Yandruwanhdha	-yindri-	
NBe, Dalabon	-rre-	
NB11, Wagiman	-dji-	
NHa, Patjtjamalh	-tjitja-	

This suggests a recent innovation in this one language, contrasting with the normal derivational suffix which precedes TAM inflection.

If reflexive/reciprocal is marked by affixation it is almost always a suffix (in NF and NCa the reflexive/reciprocal suffix is fused with the TAM inflection). Subgroup NE combines prefix *ma-* with suffix *-njdji-* on simple verbs (see §9.2.1). In ND1, Kitja, there is a reflexive/reciprocal verbal prefix *ŋirri-* ~ *mi-* ~ *me-*; in this language reflexive/reciprocal can also be marked by changing the final nasal of a verb root to *-tj* (which may be a relic of the suffix **-dharri-*).

(2) *Special pronouns.* Reflexive/reciprocal pronouns are found in some languages from groups Bc, Db, De, E, Mg, S, Ta, U, X, Yc, WD, WE, WG–WM, NBi, NBk, NCb, NG, NH and NI. There are three parameters of variation: (i) whether the reflexive/reciprocal pronoun marks person and number or is invariable; (ii) whether the pronoun is free or bound; and (iii) whether the reflexive/reciprocal clause is transitive or intransitive.

Reflexive/reciprocal pronouns which mark person and number (as in English) are rather rare in Australia; they are always free forms. In U1, Yarlalde, reflexive/reciprocal pronouns end in *-nan̩k* and appear to be the S argument of an intransitive construction (but involving a transitive verb). In other languages the reflexive/reciprocal pronoun appears to fill the O slot within a transitive clause. In Bc1, Wik-Ngathan, for instance, reflexive pronouns involve *-m* added to the O form for n-sg's and *-nm* added to the oblique form for sg's. This type of pronoun is also reported for other languages of the Bc subgroup, for NHd/e, and just for sg pronouns in Ea1, Kuuk Thaayorre. In

Mg1, Gumbaynggirr, there is generally no marking of reflexive – one just says ‘I painted me’ with regular A and O pronominal forms. However, a reflexive suffix *-w* can optionally be added to O pronouns (making them into reflexive pronouns), e.g. to distinguish between ‘He painted himself’ (with *-w*) and ‘He painted him (someone else)’ (with no *-w*) (Eades 1979: 312–13).

In most languages, reflexive/reciprocal pronouns are invariable. Some are free forms, e.g. *nge* in De1, Kuku-Thaypan; *ḡayanj* in G1, Djabugay; *pulara* (homonymous with 3sg locative form) in WHc9, Nyamal; and *kunaym* in Ec, Kok Narr, as in:

- (90) Ec, Kok Narr (Breen 1976b: 257)
- | | | | |
|---------------|------|----------------------|----------|
| ḡuna | [mar | kunaym] _O | nhtha-ḡ |
| 1sgA | hand | REFL | cut-PAST |
| I cut my hand | | | |

Full information is not available for all languages, but it seems that at least in most instances of a free form reflexive/reciprocal marker, the clause remains transitive.

In other languages the reflexive/reciprocal marker is a bound form, being part of the pronominal prefix or enclitic complex. Independently of this marking, we can enquire whether a reflexive/reciprocal construction may include two core NPs, in A and O functions (that is, it remains transitive) or a single core NP, in S function (that is, it is intransitive). Some languages in groups WH and WJ – together with the adjacent WL2, Kaytjetj – are of the first type. A reflexive/reciprocal clause includes an A NP, in ergative case; if the underlying O involves a body part noun, then this will make up the O NP in the reflexive/reciprocal clause, as in (see also Simpson 1991: 153ff on WJb1, Warlpiri):

- (91) WJa1, Walmatjarri (Hudson 1978: 66)
- | | | | |
|--|-------------------|----------------------|-----------------------|
| la-ni | ma-rna-njanu | (tjina) _O | ḡatju-ḡu _A |
| pierce-PAST | INDIC-1sgS/A-REFL | foot | 1sg-ERG |
| I pierced myself (in the foot) [intentionally] | | | |

Here the auxiliary constituent includes 1sg subject clitic pronoun, and the reflexive/reciprocal marker *-njanu* in the slot normally reserved for object pronominal clitic.

However, in another group of languages with a bound-pronominal-type marker for reflexive/reciprocal, the resulting clause appears to be intransitive. This applies to some languages from groups WH and WI, e.g.

- (92) WHc8, Njiyapali (Dench ms.-b)
- | | | |
|-------------------------|----------------------|--------------------|
| ḡatha _S | wirnta-lpi-rna-njina | kutji _S |
| 1sg+ABS | cut-PAST-1sg-REFL | leg |
| I cut myself in the leg | | |

In (92) the clitic complex, attached to the verb, involves 1sg subject (S or A) marker *-rna*, followed by the reflexive enclitic *-njina*. There is only one core NP, consisting of the 1sg free pronoun *gatha* and body part noun *kutji*. This appears to be in S function since both words are in absolutive form (if *gatha* were in A function it would take ergative suffix *-lu*).

NCb3, Wambaya, is another language of this type. In (93) the auxiliary constituent includes a bound 3sgm pronoun in the form appropriate for A function (there would be a different set of possible forms for S function) followed by an invariable reflexive/reciprocal marker *-ng-* (effectively in the O bound pronominal slot). But the clause is intransitive since it can only include one NP, which bears absolutive marking (appropriate to S function) rather than ergative (which would indicate A function).

- (93) NCb3, Wambaya (Nordlinger 1998 and p.c.)
 andajarri gini-ng-a alajis
 hide+NON.FUT 3sgmA-REFL-NON.FUT child
 The child is hiding himself

Subgroup WM is fascinating from the point of view of transitivity of reflexive/reciprocal constructions. We can reconstruct a marker **-mba* for proto-WM. In WMb3, Warluwara, a non-prefixing language, the reflex of **-mba* (*-pa*, *-wa* or *-a*) is added to the S/A form of a n-sg pronoun, to the purposive form of 1sg or 2sg and to a special form of 3sg – to form a reflexive pronoun. A reflexive/reciprocal clause is still transitive, similar to (91) in Walmatjarri, with an A NP in ergative case and an optional O NP in absolutive case, e.g.

- (94) WMb3, Warluwara (Breen 1971: 176)
 warawurla-ku_A wupa-a wutjuru_O rnumara-rna
 dog-ERG 3sg-REFL leg break-PAST
 the dog broke its leg

However, the related language WMa, Yanyuwa, has adopted a prefixing profile. A reflexive/reciprocal construction involves a verb with S pronominal prefix (followed by *-inja-* for some person and number combinations) followed by reflexive/reciprocal marker *-mba-*. The clause is intransitive, with a single core NP, in S function (that is, it takes absolutive case, not ergative, which would indicate A function).

The question of the transitivity of reflexive/reciprocal constructions has been touched on only briefly here. This is a complex and important topic, in need of detailed study, within individual languages and also cross-linguistically. It would yield a book-length study. (For a useful beginning to this see Dench, ms-b.)

Reflexives/reciprocals can involve identity between A and O, or – for a ditransitive verb – identity between A and indirect object (marked by dative), e.g. ‘they gave one

another the meat'. Just occasionally there can be special marking for these two kinds of identity. In WK, Warumungu, reflexive/reciprocal constructions are marked by a special form, which consists of A+O fused pronouns for 1sg and basically the S/A form plus *-rnV* for other persons and numbers. If the coreference is between A (or S) and a dative argument, then *-kku(l)* is added after the reflexive marker.

In Wla1, Njangumarta, there are two reflexive/reciprocal pronominal enclitics (which attach after a subject enclitic, at the end of the verb): *-rninji* indicates identity between subject and object while *-rnaḡu* indicates identity between subject and indirect object. Interestingly, these appear etymologically to be a combination of 1sg subject clitic *-rni/a* with 1sg object clitic *-nji* and 2sg dative clitic *-ḡu* respectively; despite this, the clitics do not code person or number but simply signify reflexive/reciprocal (Sharp 1998: 324–7).

It seems that – in Australian languages – if reflexive and reciprocal are both marked by a (free or bound) pronominal form, then a single form will be employed. Unlike with verbal derivational suffixes, illustrated in table 7.6, we do not find separate markers for reflexive and reciprocal.

Where there is a single marker covering both reflexive and reciprocal, the sense is generally distinguished by whether the A=O is singular (indicating reflexive) or non-singular (generally reciprocal). There can be ambiguity in n-sg, since there could be a plural reflexive reading – for instance, 'they each saw themselves (their individual reflections in the stream)' – as opposed to the reciprocal 'they saw each other'. Generally, this ambiguity will be resolved by context.

(3) *Verbal derivation for reciprocal, special pronoun for reflexive.* Languages exhibiting this combination are found scattered across the continent, in groups Bc, G, S, Ta and WH. The reflexive pronoun is always a free form, and from the information available it seems likely that the reflexive construction is still transitive (although more work is needed on this). The reciprocal derivational suffixes to the verb (which derive an intransitive stem) include *-w(u)-* in Bc2/4; *-(l)njiṛri-* in G1; *-(a)dhu-* in S1; *-tjarra-* in Ta1; and *-marri-* in some WH languages.

There are some languages which may simultaneously employ both a verbal derivation and a reflexive pronoun, e.g. Ea1, Ea3, Eb2. In Bc1 there is a reflexive/reciprocal pronoun, described under (2) above. The related Wik languages, Bc2/4, have a verbal derivation, **(w)u-*, for reciprocal but maintain a reflexive/reciprocal pronoun – this must be used for reflexive and can optionally be used in a reciprocal, in addition to the verbal suffix. In NHa, Patjtjamalh, there is a reflexive/reciprocal derivational suffix to verbs, *-tjitja-*, and also a reflexive-type pronoun which is a compound of the

appropriate cardinal pronoun plus *ɲala* 'hand'. This can be used for emphasis (e.g. 'I did it myself') and also as a reflexive marker, e.g. to specify the reflexive sense of a reflexive/reciprocal verb with n-sg subject, as in:

- (95) NHa, Patjtjamalh (Ford 1990: 147, and p.c.)
- | | |
|---------------------------------------|-----------------|
| karrpø-tja-makka-kanji | parrmiyitj-ɲala |
| 3du.NON.FEM-hit-REFL/RECIP-PERFECTIVE | 3pl-hand(=REFL) |
| They each hit themselves | |

Without *parrmiyitj-ɲala* this clause would have a reciprocal meaning, 'they hit each other'.

It was mentioned under (1) that a verbal derivational suffix may have other senses in addition to reflexive and/or reciprocal, e.g. passive, antipassive. In similar vein, reflexive pronouns may have additional features, although an 'emphatic' sense, like that just mentioned for Patjtjamalh, appears to be rare. Table 7.6 included the reflexive and reciprocal suffixes in Tiwi. When added to a verb these come between root and final tense/aspect suffix, as in (88). The reflexive suffix can also be added to a pronoun, then meaning 'by oneself' or 'for oneself' (Lee 1987: 111–12).

In some languages reflexive/reciprocal markers can be added to intransitive verbs, e.g. Hudson (1978: 69) on WJa1, Walmatjarri. In Ya1, Djambarrupuyngu, the reflexive/reciprocal suffix, when added to an intransitive verb, indicates that the participants are jointly engaged in an activity e.g. 'they cry together' (Wilkinson 1991: 612). And either a verbal suffix or a reflexive/reciprocal pronoun can have a wider semantic sense – see Dixon (1977a: 274–93) on G2, Yidinj; and Waters (1989: 147–52) on the Yc subgroup. And see §11.3.1 below.

Reflexives and reciprocals can also have a more restricted meaning. The bound-pronominal-type marker *-njanu* in WJa1, Walmatjarri, only refers to something done volitionally, as in (91) 'I pierced myself in the foot INTENTIONALLY'. If one wanted to translate the English sentence *I pierced myself in the foot (on a stick) accidentally*, one would have to use a straightforward transitive clause 'A stick (A) pierced my foot (O)' (Hudson 1978: 66). Similarly in G2, Yidinj, a derived intransitive reflexive construction (marked by verbal suffix *:-dji-*) can only mark a volitional action (Dixon 1977a: 280–8). In many other Australian languages a reflexive construction is only likely to be used if the action is volitional; some other syntactic means is used to describe something that is accidental.

(4) *Other mechanisms.* A number of other ways of achieving a reflexive/reciprocal construction are found in a few languages.

(a) Simply using a transitive verb in an intransitive construction type. NKa1, Mawung, employs an S prefix on a transitive verb, instead of the normal A and O prefixes, to

mark a reflexive/reciprocal. A few non-prefixing languages employ a similar strategy. At the end of §6.5.3 we mentioned that in H2, Warrgamay, the original conjugations have become transitivity classes, so that different TAM allomorphs are used in transitive and in intransitive clauses. A transitive verb can be accorded a reflexive meaning by placing it in an intransitive clause; this is illustrated by (37–8) in §6.5.3.

(b) In NHc, Malak-Malak, a transitive verb will normally have a prefix cross-referencing A and a suffix for O. If the suffix position is simply left blank, the clause takes on a reflexive/reciprocal meaning. Consider the simple transitive clause:

- (96) NHc, Malak-Malak (I. Green 1991)
 pelji tap a-ya-nö
 white.ochre poke 1sgA-DO+PAST.PERF-3sg.mO
 I painted him with white ochre

If the final *-nö* is omitted, the clause will mean ‘I painted myself with white ochre’. (Note that the 1sgO suffix *-arrinj* cannot be included.)

(c) In a few of the languages with a small number of simple verbs – Type (a) from §6.3.1 – there are special reflexive/reciprocal simple verbs. This is found in ND2, Miriwung, and in NHd2, Ngan.gi-tjemerri, and in NE.

A special reciprocal form of a common verb is also reported for a few languages. In Mg1, Gumbaynggirr, *bu-m* ‘hit’ is the only verb to have a reciprocal form, *bumiri-* (this being intransitive); other transitive verbs are simply used, as is, in an intransitive construction, and then take on a reciprocal meaning. In G2, Yidinj, just the verb *bundja-n* ‘hit’ has a reciprocal sense when reduplicated, i.e. *bundja-bundja-n*, which is intransitive (Dixon 1977a: 281–2). For other verbs in Yidinj there is no reciprocal mechanism.

For all Australian languages for which data are available there is some way of marking a clause as reflexive. However, there are a couple of languages with no means for indicating a reciprocal – G2, Yidinj (except for ‘hit’, mentioned in the last paragraph) and Ed1, Kurtjar. Reciprocal clauses are simply not used in these languages.

7.7 Interrogatives/indefinites

The most common way of marking a polar (‘yes’/‘no’) question in an Australian language is simply by final rising intonation. In some languages there is a question particle, which may be encliticised to the first word of the sentence.

All languages have a set of content question words: ‘who’ (corresponding to the class of pronouns), ‘what’ (to nouns) and generally also ‘where’ (locatives), ‘when’ (temporal words), ‘how many’ (numbers), ‘which’ (adjectives), ‘why’ (adverbs). In some languages there are also interrogative verbs ‘do what/how’ (in both transitive and

intransitive varieties), e.g. H1, Dyirbal (Dixon 1972: 55–6). In other languages, interrogative verbs are derived from ‘what’ by adding a factitive or inchoative derivational suffix; or ‘what’ may itself be inflected as a verb, e.g. NBc2, Ngalakan (Merlan 1983: 78). In this section we briefly survey the forms of ‘who’, ‘what’ and ‘where’. The other interrogatives are often based on one of these three roots, e.g. ‘why’ may be ‘what’ plus purposive case, ‘what for’. ‘Which’ is generally the same as ‘who’ in ‘which person’, the same as ‘what’ in ‘which thing’ and the same as ‘where’ in ‘which place’. (A study of the kinds of derivation used for ‘when’, ‘how many’, etc. – and of the independent forms that are found in some languages – is a fruitful topic for future research. It is not attempted here.)

The pioneer amateur linguist W. E. Smythe (1948/9: 49–1) wrote concerning Mg1, Gumbaynggirr: ‘A peculiar feature of what are usually described as “interrogative” pronouns is that they are interrogative only so long as the right tone of voice is used; otherwise they become impersonal or indefinite . . . *wa:ru* – (i) who? (ii) someone; *mi:nja* – (i) what? (ii) something; *mi:njami:nja* – (i) how many? (ii) some, several . . .’

This comment applies to many – but not to all – Australian languages. The forms can perhaps be best viewed as basically indefinite, with an additional interrogative component added in appropriate circumstances. A sentence such as (97) from G2, Yidinj (Dixon 1977a: 182) was translated into English by the storyteller as ‘someone must have cut that rock – who did it?’ In elicitation, (97) would be given as the translation of ‘who cut the rock’.

- (97) *wanjdu_A* *walba_O* *yangi:nj*
 WHO/SOMEONE+ERG rock split-PAST

An interrogative – rather than an indefinite – interpretation of an indefinite/interrogative word may be marked by rising intonation (as suggested by Smythe) or by fronting the word to the beginning of the clause or by some other means. For instance, NBb2, Warndarrang, has a system of noun class prefixes which are generally added to nouns, adjectives, demonstratives and indefinite/interrogative roots. The form *-ngana* ‘what, something’ generally takes neuter-class prefix *wu-* in its interrogative sense and indefinite-class prefix *ra-* in its indefinite sense (Heath 1980b: 88).

In about twenty languages a single form is used for both ‘who’ and ‘what’ – this applies to languages from groups X, WB, WC, WE, WI–WK, NA–NC, NE–NG and NI (interestingly, there are no examples from the eastern third of the continent). In most of these (at least) the neutralisation has been a recent, language-particular change. For instance, all languages in the WJa subgroup have *ɲana* ‘who’ and *njampa* ‘what’ except WJa1, Walmatjarri, which has *ɲana* with both meanings. In almost all instances it appears that ‘who’ has been extended also to cover ‘what’. There are just two putative examples of semantic change in the opposite direction, with ‘what’ being extended also to have the sense

'who' – in WK, Warumungu, and in subgroup X. In X1, Waanji, we find *winjiga* 'who', *wanji* 'what', and *winjdja* 'where' but in the eastern dialect of X2, Garra, *wanji* is used for both 'who' and 'what' and *wanjdja* is 'where'. (In the data available on western Garra *wanji* and *wanjdjani* appear to be used more or less interchangeably for all of 'who', 'what' and 'where', a most unusual occurrence – Breen 1989.)

It may be significant that, for most of the languages in which one form covers both 'who' and 'what', the available grammars do not give any additional indefinite sense. Thus, Heath mentions an indefinite sense for interrogatives in his grammars of NBb1, Marra, NBb2, Warndarrang, and NBd2, Nunggubuyu (Heath 1981a, 1980b, 1984), where 'who' and 'what' differ, but not in NBd1, Ngandi (Heath 1978b) where 'who' and 'what' fall together. For WJa2, Djaru, Tsunoda (1981: 63, 67–8) mentions indefinite senses for *ḡana* 'who' and *njampa* 'what' but for the related WJa1, Walmatjarri, *ḡana* 'who, what' is restricted to an interrogative meaning (Richards and Hudson 1990: 173; and Joyce Hudson, p.c.). There is one known counter-example – in NAb1, Kayardild, *ḡaaka* covers both 'who' and 'what' and also has indefinite sense 'someone' and 'something' (Evans 1995a: 365–8). From the grammatical descriptions available there does seem to be a TENDENCY for languages that have one form for both 'who' and 'what' to assign this an exclusively interrogative meaning.

The range of meanings of interrogatives/indefinites in Australian languages would provide a rich field for detailed study. It is not made easy by the fact that some linguists (perhaps working mostly by elicitation) only mention an interrogative sense, whereas there may also be an indefinite one. And the indefinite sense can be grammatically conditioned: in some languages it only manifests itself in a negative clause (e.g. 'who' plus 'not' = 'nobody'), in others only in a conditional ('if who does it' = 'if anyone does it'). For brevity, I gloss interrogatives/indefinites just as 'who', 'what' and 'where' in the remainder of this section.

There is almost always a distinct root 'where'. However, in just a handful of languages one has to use 'what' or 'which' and say 'what place' or 'which place' – this is found in NA, NBc1, NBf3 and NE2.

There appears to be a tendency to shorten interrogative forms. Some languages – which do not manifest any general initial-dropping changes – tend to omit the initial syllable of an interrogative form. Compare the closely related languages Pitta-Pitta and Wangka-yutjuru:

(98)		'where'	'how'
	WAa1, Pitta-Pitta	winhtha-	withila
	WAa2, Wangka-yutjuru	thanha-	thilampara

It is likely that Wangka-yutjuru has simply omitted the initial syllable, *wi-*, from each form.

In Mf, Bandjalang, ‘where’ is *djiya*, probably relating to an earlier form *wanjddji*. G1, Djabugay, has recently innovated a few monosyllabic words. Their origin is clear from comparison with forms in the closely related G2, Yidinj:

(99)	G2, Yidinj	G1, Djabugay
‘vegetable food’	mayi	ma:
‘who’	wanjddju	dju:
‘what’	wanji	nji:
‘where’	wanjddja	dja:

For the lexeme ‘vegetable food’ it is the final syllable that has been omitted, but for the three interrogatives it is the initial syllable (in each instance the vowel has been lengthened since all monosyllabic words in Djabugay must involve a long vowel). Some explanation should be sought for why interrogatives tend to omit the initial syllable (in languages where stress generally goes on the initial syllable).

The prefixing languages in groups NB–NL have undergone considerable phonological change and fusion, and some of their forms for interrogatives/indefinites may well have developed out of the recurrent forms from elsewhere in the continent (shortly to be surveyed) but these are not now recognisable since it is difficult to unravel the changes that have applied.

The various interrogatives have different case possibilities. ‘Where’ generally just takes locative, allative and ablative endings; these may be the same as those on nouns or they may differ. In almost every language ‘what’ inflects like a noun (but generally takes the *-lu* allomorph of ergative). ‘Who’ can generally be considered an interrogative pronoun. In languages whose pronominal system is at Stage A, with distinct S, A and O forms for sg pronouns, ‘who’ may also have distinct S, A and O forms. In other languages ‘who’ inflects on the same pattern as nouns.

Some of the formal and other possibilities for interrogatives are illustrated in table 7.7. The upper portion shows two adjoining languages from North Queensland,

Table 7.7 *Sample interrogatives*

	A	‘who’ S	O	‘what’	‘where’
H1, northern dialects	wanjddju	wanja	wanjuna	minja	wanjddja-
H1, Girramay dialect	wanjddju	wanjunja		wanja	wanjddja-
H2, Warrgamay	ŋa:ndu	ŋa:nga	ŋa:na	minja	wanjddja-
Ma2, Gureng-Gureng	wanjddju	wanju	wanjuna	minja	wanjddja-
Ma3, Gabi-Gabi	ŋandu	ŋanga	ŋana	minja	wanjddju-

H1 and H2, while the lower portion shows two adjoining languages from a thousand kilometres to the south (just north of Brisbane), Ma2 and Ma3. Note that the forms for 'who' in H1 are similar to those in Ma2: they suggest an original root *wanj-*, with ergative *wanj-dju*. We would expect the S form to have originally been *wanj* and the O form *wanja*. However, as monosyllabic forms were eliminated, the S form was augmented to be *wanja* or *wanju*. The marker of O function on pronouns is *-ŋa* in Ma2, *-nja* in Girramay and *-na* in other dialects of H1 – see (84). The forms for 'who' in H2 are similar to those in Ma2: these suggest an original root *ŋa:n-* with A form *ŋa:n-du* and O form *ŋa:na* (vowel length has been lost from Ma3). We would expect the original S form to have been *ŋa:n*; as monosyllabic words were proscribed it became *ŋa:nga* in H2 (why *-ga* should have been added is not understood) and *ŋanga* in Ma3.

The typical form for 'what' in eastern languages is *minja*. This was probably the form across all dialects of H1 at an earlier stage. But then *minja* was eliminated in the Girramay dialect (it could possibly have been tabooed due to similarity with the name of some person who died). It was replaced by *wanja*, the S form of 'who', with the O form of 'who', *wanjunja*, simply expanding to also cover S function. (Thus in Girramay 'who' has the same form for S and O functions, like 'what' and like nouns.) This illustrates the kinds of semantic changes that take place, and explains why a form which is 'who' in many languages may also turn up as 'what' in a few (and vice versa, although this appears to happen to a lesser degree).

There are a number of interrogative forms that recur in languages of the non-prefixing region, and also appear in a few of the prefixing languages.

(1) *ŋa:n-*. As in H2 and Ma3 from table 7.7, this underlies 'who' in at least seventy languages from groups A, E, H, L–S, Tb, U, WB–WJ, WMa, NBb and NKa1. That is, it is missing from groups B–D and F–G in the north-east; from J, Ta, V–X, WA, WK and WL in the east-centre, as well as from most of the prefixing groups.

A number of languages retain *ŋa(:)ndu* for A function and a variety of forms based on *ŋa(:)n* for S and O, e.g. *ŋana* in L, WBa, Na2, Nb1, Nc and Nd; *ŋaninde* in Q; *ŋani* in WF; and probably just *ŋan* in Na1. In other languages there is a root for 'who' that inflects like a noun – this can be *ŋani*, *ŋanaŋ*, *ŋandu*, *ŋanba*, etc. Note that NBb has *ŋani* and NKa1 has *ŋandji*.

'What' appears to relate to *ŋa(:)n* in groups B–D, Ja and K, an area that lacks *ŋa(:)n* 'who'. We find *ŋa:ni* (or a reflex of it) in most of these languages but *ŋa:na:* in Dd1. We also find 'what' being *ŋara* in Tb2 and *ŋanma* in Q from the south-east, and *ŋani* or *ŋana* in W1a from the north-west. In the prefixing area, *ŋanda* is 'what' in NG3.

We noted that the 2sg root is **ɲin* in the A–Y, WA–WM area but **ɲinj* in NA–NL. Corresponding to **ɲa:n* ‘who’ in A–Y, WA–WM we might expect **ɲa:nj* in NA–NL. Forms for ‘who’, such as *ɲandji* in NHa (and maybe *ɲinjɲa* in NBa), and for ‘what’, such as *ɲanjɲjini* in NBm, *ɲanjɲjan* in NCa1 (and maybe *anjɲja* in NG2), could be taken as support for this. But note that in this region we also find forms that appear to relate to **ɲa:n*, such as *ɲani* ‘who’ in NBb and *ɲanda* ‘what’ in NG3 (plus *ɲunda* ‘who’ in NF1, *ɲurnrdu* ‘who’ in NF2). (It is not at all obvious that all of these forms are genetically related.)

Very few languages have a form ‘where’ that could possibly be related to **ɲa:n*. There is just **ɲantu* in Ba, *ɲala* in WAc1/2 and *ɲambila* in WAc3. For most of these forms the similarity to *ɲa:n* ‘who’ and ‘what’ may be coincidental.

(2) *wanh-* ‘Who’ based on a root *wanh-* is found just in languages from a north-eastern block, including groups C–K and Ma. Some languages have distinct S, A and O forms, like H1 and Ma2 in table 7.7, while others have a single stem that inflects like a noun, e.g. *wanthu* in Ja1, *wanhu* in Dd, Ja3 and K. Some dialects of F, Kuku-Yalanji, have *wanjɲɲu* (generalising on the original A form) and others have *wanja* (taking the original O form as the new root). Other forms for ‘who’ that are possibly cognate include *winja-* in Ta1, *winjel* in U4, *winjdjiga* in V, *winjiga* in X1 and *wanji* in X2.

Just a few languages have ‘what’ based on *wanh-*. Besides *wanja* in the Girramay dialect of H1 (shown in table 7.7) there is *wanju(rri)* in F and *wanji* in G and in X1.

We would expect the locative form of root *wanh-* to be *wanhɲɲa*. In fact the ‘where’ interrogative is *wanhɲɲa* (or a development from this) in more than 80 per cent of the languages in the A–Y, WA–WM region. A ‘where’ interrogative based on *wanhɲɲa* is missing only from Ba, Eb, Q, R, Tb, U, W, WAc, WE1 and WE3.

The form is generally *wanhɲɲa* or *wanjɲɲa* but – as expected – there are various forms that show assimilations, including:

- wunhɲɲa/wunjdja* in H1 (see table 7.7), Na1;
- wanhɲɲi/wanjɲɲi* in K, WJ;
- winjdja* in Ta, V, X1, WAa, WC;
- wunjdji* in S;
- winjdji* in WF.

We also find *wanha/wanja* for ‘where’ in Mb, Ya, WBB and *wanji* in Mc. Note that I do not take the following forms to be related: *wanda* in Bb and Mb, *wandi* in Bc and *wunda* in L and Pa.

We find *injdjani* ‘what’ in NCb3, from the prefixing area. In addition the following forms may possibly relate to *wanjɖja* through initial dropping (or they may have some other origin): *djana* in NBa and NE1, *djina* in NAb and *yaana-* in NBk.

(3) *wa:r(r)*. Forms for ‘who’ based on a root *wa:r(r)* are found in just a few languages; some of these are illustrated in (100):

(100) Forms for ‘who’

	S	O	A	oblique stem
Mg1, Gumbaynggirr	wa:rru		wa:du	wa:da-
WAb1, Yandruwanhdha	waranu	wara(nha)	warlu	wara-
WAb2, Diyari	waranha		warli	wa(ra)-
Ya3, Ritharngu	wara	waranha	warali	wara-
Yc1, Djinang	wari	wirinj(i)	wirli	wira-

Note also that Hale (1976b: 27) reconstructed *wa:ri* for ‘who’ in proto-Ba. No ‘what’ forms beginning with *wa:r(r)* are reported but we do get *warr-* ‘where’ in Eb.

In the prefixing area we find *wa:rra* ‘who’ in NBk and *-werre* ‘who’ (plus *werreka* ‘where’) in NBc2.

It appears that at an earlier stage there may have been an S form *wa:rr* (or *wa:r*) for ‘who’ and an associated A form *wa:(r)lu* or *wa:du*. But it is difficult to infer too much from the few paradigms available. (There is no evidence that *wa:r(r)* should be taken to be cognate with *wanj-*.)

Note that *wa:r(r)* interrogatives are scattered around the continent – in Ba from the north-east, Mg from the south-east, WA from the south-centre and Y and NB from the north-centre. This suggests that they may be relics of a form which once had wider distribution but was replaced in many languages due to the diffusion of some of the other interrogative forms discussed here.

(4) *nha:*. Forms for ‘what’ beginning with *nha(:)* are found in some languages from groups M, T, W, Y, WD, WF–WH, WJ–WL, NBg and NCb. Most languages have a single stem that inflects like a noun, e.g. *nha:nja:* occurs in WD, in some languages from groups WG and WH and in Ya; *nhaka* is in W1, *nhaɣu* in W2, *nhani* in Yc2, *nhampa* in WJa and NCb1, *njanja* in Ta, *njanjug* in NBg1.

In Mf, Bandjalang, *nja:ŋ* is the SO and *nja:lu* the A form; this suggests an original root *nja:* to which ergative *-lu* was added (and then *-ŋ* added to the SO form).

We also find forms for ‘who’ beginning with *nha* – *nhani* in W1 and *nhanha* in W2 (with A form *nhantu* in each case), *nhant* in WL2, *njalun* in Yc2 (and in WK *njayi*

covers both 'who' and 'what'). The forms in W and WL suggest a root **nhan*, which may well be unrelated to **nha*: 'what'.

(5) *minha* 'what'. The form *minha* occurs almost exclusively in the eastern part of the continent, with two meanings (the form is sometimes reduced to *minh* or extended to *minhag*):

minha/minja 'edible' animal' in B–G and Jd;

minha/minja 'what, something' in H, Je, L, Ma–e, Mg1, N–P, R, S, U, V, WA (in W1 'something' is *minhagarra*).

It will be seen that *minha* is a generic noun (or classifier) in the north-east and an interrogative/indefinite form in the south-east. The isogloss runs between G and H on the coast and between Jd and Je inland. It is likely that it began as a generic noun and was then grammaticalised to be an indefinite/interrogative, with the grammaticalisation diffusing over a continuous area. Note that a change from a generic noun '(edible) animal' to an indefinite 'something' is a very natural one.

In summary, we have the following recurrent forms, with a rough count of the languages each is found in:

'who'	'what'	'where'
ŋa(:)n-, c. 70	ŋa(:)n-, c. 35	(ŋan-, c. 4)
wanh-, c. 20	wanh-, c. 4	wanhdha-, c. 100
wa:r(r), c. 20		warr-, c. 2
(nha(n)-, c. 5)	nha:–, c. 25	
	minha, c. 45	

Other languages have different interrogative forms, each of which occurs in a very small region.

To a certain extent, these forms relate to mutually exclusive regions: *minha* 'what' is only found in the south-east; *wanh*- 'who' or 'what' is only found in the north-east; 'who' forms based on *ŋa:n*- are not found in the far north-east or the centre, but 'what' forms based on *ŋa:n*- are mostly in the far north-east. It is likely that *wanhdha*- 'where' is linked to *wanh*- 'who, what' (through locative inflection *-dha*) yet this is found all over the continent while *wanh*- is confined to the north-east.

The areal diffusion of the various interrogative/indefinite roots represents a prototypical example of the diffusion of grammatical forms, and the scattering of relic forms that have largely been replaced by the diffusion of others. Besides *wa:r(r)*, mentioned above, we should also take note of *nha*:– which is the predominant form for 'what' in a west-central region, and is found in just a scattering of languages in other parts of the continent. Most of the forms we have surveyed do appear to have some represen-

tation in the prefixing region. But, as already mentioned, languages in groups NB–NL have undergone a great deal of reanalysis and restructuring (in addition to phonological changes) which can make it difficult to recognise cognates.

7.8 Demonstratives

Australian languages generally have between two and four demonstratives which can function as NP heads or as noun modifiers (similar to *this* and *that* in English), with related forms functioning as verbal modifiers (like *here* and *there*). In some languages demonstratives inflect like nouns, in some they inflect like pronouns, and in others they inflect in their own way, distinct from nouns and from pronouns.

Demonstratives are generally distinguished in terms of distance ('near', 'mid-distant', 'far') and sometimes also visibility ('non-visible' may include something remembered from the past, or something previously referred to in the discourse). Just a few Australian languages are reported to have a demonstrative referring to something near the addressee. For example, WHc9, Nyamal, has, in all, a four term system: *nja*: 'this (proximal)', *ɲunja* 'that (distal)', *pala* 'that (definite, used in textual anaphora)' and *palanguya* 'that (near you)' (Dench ms.-c).

The forms of demonstratives vary widely – between languages in a group and sometimes even between dialects of a language (e.g. between the Arabana and Wangkangurru dialects of WAa3). There is need for a full survey of demonstrative forms and functions across the Australian linguistic area; this would be a considerable task. All I offer here are a few exploratory remarks.

Most demonstratives in modern languages have a disyllabic root. But, following on from our conclusions concerning sg pronouns and interrogative/indefinites, we might expect some modern forms to go back to monosyllabic roots. Consider the forms for the 'mid-distant' demonstrative in four western languages:

(101) mid-distant demonstratives (From Dench ms.-a)

	S	A	O	locative
WHb1, Payungu	panha	pala-lu	pala-nha	pala-la
WHb2, Thalantji	pala	pala-lu	pala-nha	pala-la
WHc3, Panyjima	panha	panha-ŋku	panha-yu	panha-ŋka
WHc5, Ngarluma	palu	palu-la	parnumpanu	palu-la
suggested proto-forms	*pa	*pa-lu	*pa-nha	*pa-la

The root is *palu* in WHc5 (with an irregular O form), *panha* in WHc3, *pala* in WHb2 and *pala* (with an irregular S form) in WHb1. The suggested original forms are in the final row of (101). It seems that each paradigm has been restructured with an original case-inflected disyllabic form being taken as the new root. The new root is the old A form in WHc5, the old O form in WHc3 and the old locative in WHb2. In each language

the root is used alone in S function and appropriate inflections (the same as those on nouns) added for other functions. We can perceive a little more of the historical process involved in the case of WHb1. It is likely that the O form *panha* was first generalised also to cover S function (replacing monosyllabic form *pa*) and then *pala* was chosen as the new root for paradigm restructuring, with nominal suffixes added to it (including *pala-nha* for O function) except that *panha* was retained as the S form.

Some other languages have mid-distant demonstratives that also appear to involve an original root **ba-*. We find *pala* in WG and WI (next to WH) and *bala-* in H1, on the other side of the continent. WC has both *pala* and *panha* while WE3 has *pala* with ergative form probably being *palu*. L1 has *banha* and WI has *ba:-*. The ‘that’ demonstratives in some of the prefixing languages may possibly be cognate, e.g. *ba(pa)* in NKa2 and *-bay* in NBe.

We noted in §7.5 that a demonstrative in one language can be cognate with a 3sg pronoun in another. In fact 3sg is *palu-* in WG and WHc9/10, *panha* in WE1 and *pal-* in WF. In similar fashion, the 3sg root discussed in §7.5.1, **nhu-* (> *ŋu-*), has taken on a demonstrative meaning, ‘that’, in some of the languages from the WA, WB and WH groups.

Another form that recurs in just a few languages from around the continent is *ginja*. It is ‘this’ in H1 from the north-east and in Ta1 from Victoria – see (52) in §8.9 – and it is the 3sg pronoun in two adjoining groups in the north-west, the prefixing NE and the non-prefixing WI. We also find *-gin* as the masculine noun class marker in Mf, in the south-east. Sands (1995: 293–8) discusses masculine *gi-* (> *dji-*, *yi-*) and feminine *ginj-* (> *djin-*, *yin-*) as they function within the noun class systems of prefixing languages (see also the discussion of noun classes in H1, Dyirbal, in §10.4 below). These probably relate to the 3sg and ‘this’ forms *ginja* (and perhaps also to *ginja* ‘here’ in NBb1, Marra – Heath 1981a: 157).

Bound pronouns

This chapter surveys the parameters involved in systems of bound pronouns across the languages of Australia, both non-prefixing and prefixing. Chapter 9 then focusses on the phenomena of prefixing and fusion, and examines in more depth the morphological structure of prefixing languages in groups NB–NL and WMa.

In languages without bound pronouns, core arguments must be coded through noun phrases, whose head can be a noun or a free pronoun. For instance:

- (1) Dd1, Guugu Yimidhirr
 njundu ŋanhi nha:-dhi
 2sgA 1sgO see-PAST
 You (sg) saw me

Example (1) illustrates the textually most frequent order in Guugu Yimidhirr: NP in A function before NP in O function before verb; but in fact words can occur in any sequence within a clause.

Slightly more than half the languages of Australia have bound pronouns, which either can or must be used to code core arguments. A little of the diversity involved can be illustrated by showing how to say ‘You (sg) saw me’ in seven of these languages.

- (2) W1a2, Karatjarri
 nja-ŋu=nja=n
 see-PAST=1sgO=2sgA

In Karatjarri, pronominal clitics (with cliticisation marked by =) are added to the verb after the TAM suffix, and the normal order is A bound pronoun before O. However (as here) any 1sg bound pronoun will always come first in sequence.

- (3) Ta1, Wemba-Wemba
 njan=ar=andin
 see+PAST=2sgA=1sgO

In Wemba-Wemba the A always precedes the O bound pronoun; the sequence of pronominal enclitics is added either to the verb (as here) or to an interrogative or negator or adverb in clause-initial position.

- (4) NB12, Wardaman
 ŋan-ni-na-rri
 REALIS + 1sgO-2sgA-see-PAST

In Wardaman we have bound pronominal prefixes to the verb, the order being determined by a hierarchy: first person before second person before third person singular before third person non-singular. The prefix complex also encodes realis (as here) or irrealis.

- (5) NBg2, Gunbarlang
 gi-ŋan-rna-y
 POS.INDIC + 2sgA-1sgO-see-PAST

In Gunbarlang the pronominal prefix in A function always precedes that in O function. There are four series of subject prefixes: (i) positive indicative (as here); (ii) non-performative, used when an activity did not occur, or where it occurred but the subject was not the performer of the action; (iii) future/intentional; and (iv) potential.

- (6) NHa, Patjtjamalh
 njen-n-ene=makka
 2sgA + 1sgO-NON.FUT-see=PERFECTIVE

In Patjtjamalh there is a portmanteau prefix which combines information about A and O (and is not separable into parts). Past time is shown by a combination of non-future prefix plus perfective enclitic. (In (4) and (6) a sequence *-n-* plus *-n-* becomes just *-n-* in surface realisation, and in (5) *-n-* plus *-rn-* also becomes just *-n-*.)

The verb root 'see' is cognate between the six examples just given: *nha:-* in (1), *nja-* in (2), *njan-* (fused with past tense) in (3), *-na-* in (4), *-rna-* in (5) and *-ene-* in (6) (note that Patjtjamalh has allomorph *-na-* for 'see' after the future tense marker). The next two examples have non-cognate roots:

- (7) NHb1, Emmi
 ganeden-ŋanj=eyi
 2sgA + see-1sgO=PAST

In Emmi the subject bound pronoun and the simple verb root have become fused into one portmanteau form. The object bound pronoun is a suffix, which precedes the tense enclitic.

- (8) NE1, Njigina
 min-ba-na=ŋayu
 NON.FUT + 2sgA-see-GENERAL.PAST = 1sgO

In Njigina the prefix combines information about tense with the subject bound pronoun. After the verb root we get a tense suffix and then a bound pronominal enclitic in O function.

Bound pronouns are found in all of the around sixty prefixing languages, in groups NB–NL, plus WMa; and in at least seventy of the *c.* 200 non-prefixing languages, in groups A–Y, WA–WL, WMb and NA – see map 8.1. (Broken lines for WK, Warumungu, indicate that this language has a single set of pronouns, part-way between free and bound; these are described at the end of §8.1.) Note that grammatical data are almost completely lacking for quite a number of languages in southern regions (and for a few in other parts of the continent) so that it is likely that the number of non-prefixing languages with bound pronouns was rather higher – perhaps around eighty (although this is simply an estimate).

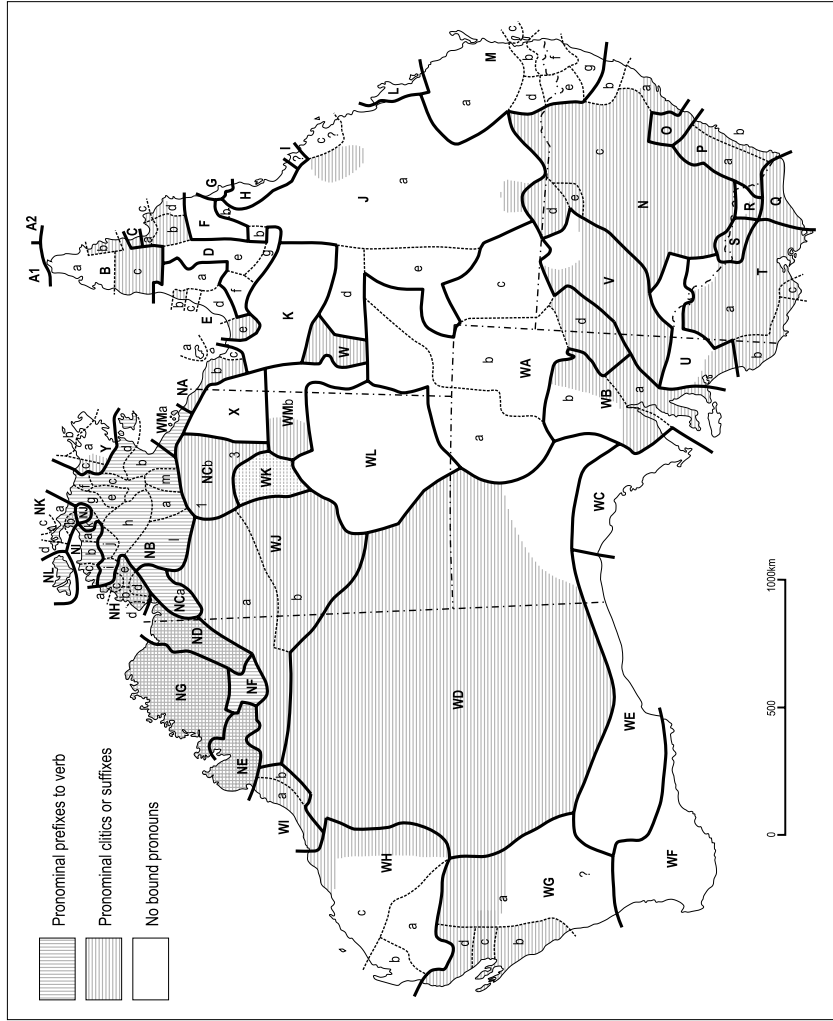
For some languages there are limited grammatical data – enough to discern that there were bound pronouns, but not sufficient to provide a full picture of persons and numbers involved, functions, order and positioning. These comments apply to groups Q, R and S (among others).

Bound pronominal prefixes are found in a continuous area – NB–NL plus WMa. In contrast, the distribution of pronominal suffixes/enclitics is markedly discontinuous. They occur in the following geographical regions:

- (1) A continuous zone in the west which includes NCb, ND, NE, NG, NH, WI, WJ; all of WD except for the most southerly dialects; some languages in WG (probably a continuous area joining up with WD, although we cannot be certain of this due to lack of data on some languages), and a few languages in WH that are adjacent to WD or WI.
- (2) A continuous area in the south-east which includes Na1, Nc–Ne, O–V, WAd and WB but excludes: (a) U2–5 plus an adjacent dialect of Ta1; (b) one dialect of V; and (c) the north-west dialect of Wb2. Note that (a) is in the middle of area (2), while (b) and (c) are on the fringe. Just one dialect of Ja1, which is spoken next to Nd, also belongs to this region.
- (3) Bb–c, C, Da–c, Dd2 in the Cape York Peninsula.

Bound pronominal suffixes or enclitics are also found in nine small regions, each including just one or two languages:

- (4) NKb, Amurtag, has object enclitics in addition to subject pronouns.
- (5) Yc, the Western Yolngu subgroup; (6) Ya3, Ritharnngu. These languages are contiguous, but bound pronouns have recently developed from free forms on quite a different basis in Yc and in Ya3 – see §8.8. Each development would have been motivated by diffusional pressure from the adjacent languages from group NB that have bound pronominal prefixes.



Map 8.1 Distribution of bound pronouns

- (7) NAb2, Yukulta; (8) Ee, Kukatj. These two languages may possibly have been contiguous although the balance of evidence suggests that they were not.
- (9) Eb1, Yir-Yoront, and Eb2, Koko Bera.
- (10) The Biri dialect of Ja2 (very little grammatical information is available for other dialects of this language).
- (11) WMb1, Wagaya.
- (12) W1, Kalkatungu (and just a trace of bound pronouns in the adjacent language W2, Yalarnnga).

What is worthy of particular note is the fact that dialects within a language may differ, with some showing bound pronouns and others lacking them; this applies to Ja1, Ta1, V, WBb2 and WD. In addition, some languages from a genetic subgroup or from an areal group may have bound pronominal enclitics while others lack them; this applies to B, Ja, U, Y, WH, WM, NA, NH and NK.

It is plain that, in a fair number of languages, bound pronouns are recent developments. This applies to most of the languages in small regions, (4–12) above, and to some on the edges of larger regions, such as Ja1 and WMa. Bound pronouns in group W (where no neighbouring languages share this trait) appear to be an archaic feature, which is being lost. Bc4, Kugu-Muminh, has an archaic set of pronominal suffixes fused with tense on the verb, and also a newly innovated set of pronominal enclitics which generally attach to the word immediately preceding the verb. (Each set provides partial – and complementary – information about person and number of subject.) This and various cyclic developments (e.g. gain and then loss) involving bound pronouns are discussed in §8.8.

Before proceeding further it is sensible to define what is meant by ‘bound pronoun’ in Australian languages; this is attempted in §8.1. Then §8.2 discusses the syntactic functions that are coded through bound pronouns; §8.3 looks at when bound pronouns are obligatory and when optional; §8.4 deals with the forms of bound pronouns and their relationship to free pronouns; §8.5 considers the categories of person and number; §8.6 looks at the relative ordering of bound pronouns and their positioning within the clause; and §8.7 discusses links with other categories such as tense, mood and definiteness.

The first eight sections of this chapter deal just with bound pronouns that code predicate arguments. Finally, in §8.9, we look at bound pronouns that attach to a noun and code its possessor.

8.1 **What are bound pronouns?**

Every Australian language has a set of pronouns – a closed grammatical system whose members have shifting reference, according to who is the speaker and who is being spoken to. These always include terms referring to speaker and addressee, plus a number specification. As discussed in chapter 7, some pronominal systems only include first

and second person forms, while others include in the system a term referring to third person (neither speaker nor addressee).

Some languages have a single set of pronouns referring to predicate arguments (S, A, O, etc.); these are free pronouns. Other languages have two (or more) sets – one will be free pronouns and the other(s) will be bound pronouns. There is no constant set of criteria for deciding whether a given pronominal form is free or bound. We can, however, contrast the properties of free and bound pronominal systems in Australian languages. Taking these properties together, it is always possible to determine ‘what is a bound pronoun’.

We are here dealing with pronouns that mark a predicate argument – either core (S, A, O) or peripheral (dative, ablative, etc.). This can be shown just by a free pronoun, as in (1) above, or just by a bound pronoun, as in (2–8), or by both together, as in:

- (9) Ja2, Biri (Beale 1974: 22)
- | | | |
|--------------------------|---------------------|----------------|
| <i>ɲaya</i> | <i>yanhi-dji=ya</i> | Gilibinbi-gu |
| 1sgS | go-HABITUAL=1sgS | Townsville-ALL |
| I often go to Townsville | | |

Some linguists say that the free pronoun, *ɲaya*, is basically the S argument, and that the enclitic to the verb, *-ya*, cross-references this. Others maintain that since the bound form is obligatory and an NP in S function is optional, then it must be the *-ya* which is the basic representation of the S argument in (9) with the NP in S function being an optional addition to this. In the approach followed in this volume, both of these positions (and the arguments between their proponents) are misconceived. An intransitive predicate is regarded as having an abstract underlying S argument (here ‘1sg’) which may have a number of modes of realisation. In some languages it can only be stated through an NP; in others it can either be an NP or a bound pronoun but not both; in others it may be an NP or a bound pronoun or both; in many languages it is obligatorily realised through a bound pronoun and optionally also through an NP. But these are language-particular conventions for realisation. There is in each case a constant conceptual structure – predicate and S argument (and perhaps also peripheral argument(s)).

(Free and bound pronouns referring to a possessor within an NP are not included in the discussion here; they are considered in §8.9.)

We can now compare the typical properties of free and of bound pronouns.

(A) *Function.*

Free pronoun. Functions as head of an NP, and may be substitutable by a noun. Can take modifiers within its NP, e.g. generic classifier; possessive NP; body part or other inalienably possessed noun; and qualifier. (See Dixon 1977a: 251–2 for a list of modifiers that may occur in a pronominal NP for G2, Yidinj.) In some languages free pronouns inflect like nouns, in others they follow a different principle.

Bound pronoun. Is not head of an NP; is not substitutable by a noun; takes no modifiers. Bound pronouns will only inflect like a noun if they are transparently reduced forms of free pronouns, and these inflect like a noun. (That is, bound pronouns in a language never inflect like nouns unless the corresponding free pronouns do so too.)

(B) *Position.*

Free pronoun. Has the freedom of positioning of words within an NP, and of NPs within a clause (and thus of words within a clause) appropriate to that language. Many Australian languages allow considerable freedom of position for free pronouns, as for other types of word.

Bound pronoun. If prefix or suffix to the verb, it has fixed position within the verb. Most languages with bound pronominal enclitics have severe positional restrictions on them, e.g. they must attach to the end of the verb, or to the end of the first constituent in the clause (see §8.6.3). However, a few languages are reported to allow bound pronouns to be cliticised to the end of any word – these include Bb, Umpila, WJa3, Gurindji, and WMb1, Wagaya.

(C) *Form.*

Free pronoun. Each free pronoun constitutes one phonological and also one grammatical word. In most (but not quite all) languages it must be of at least two syllables. It can never be a zero form.

Bound pronoun. In almost every language bound pronouns are either affixes to a verb or clitics. Clitics constitute a separate grammatical word but not a phonological word – they must attach to some other phonological word. That is, a clitic does not itself bear stress but immediately follows (or immediately precedes) another item that does.

There are, however, a few exceptions. In WIa1, Njangumarta, some members of the bound pronominal paradigm are clitics while others are full (grammatical and phonological) words. However, bound pronouns (whether clitics or words) must follow the verb while free pronouns have freedom of positioning. Also, bound pronouns have an AS/O case system while free pronouns and nouns have an A/SO system – see (41) below and Sharp (1997, 1998). A similar situation is found in Yc, the Western Yolngu subgroup. Here all bound pronouns come immediately before the verb, but some of them are enclitics, attaching to the end of the preverb constituent, while others are full phonological words with their own stress. (See Waters 1989: 23, 136–40, who uses the term ‘reduced pronoun’ for our ‘bound pronoun’.)

Bound pronouns often constitute a single syllable – see (2–9) above – or just a single segment, e.g. 2sgA -n in (2). Unlike with free pronouns, one or more terms in a bound pronominal system (whether affixal or clitic) may have zero realisation; these almost always include third person, generally 3sg (see §8.4.2).

(D) Discourse properties.

Free pronoun. In a language with no bound pronouns there is often a convention that a free pronoun may be omitted if the identity of its referent can be inferred from the discourse (and/or on the syntactic rules for argument omission in that language), e.g. English *I came in and sat down*, where *I* does not have to be repeated in the second clause. Where there are bound pronouns, free pronouns tend to be used sparingly, mostly for discourse emphasis.

Bound pronoun. In many languages bound pronouns are obligatory and must be included in every clause, regardless of discourse considerations. In some of the languages where bound pronouns are optional, a major function of their presence may be to mark inter-clausal cohesion in discourse – see Waters (1989: 136) on the Yc languages. This is in contrast to free pronouns, whose absence may signal inter-clausal cohesion.

Generally, if an Australian language has free and bound pronouns, these are clearly distinguishable. But in WK, Warumungu, there is just one set of free pronouns which combines the properties of free and bound. An intransitive clause will have an S pronoun and a transitive clause will have A and O pronouns as an inseparable unit (these all begin with *a-*). The pronoun constituent is normally encliticised to the first phrasal constituent of the clause. But it can occur as an independent word, with its own stress (and an initial *y-* may then be supplied, since very few full words in Warumungu begin with a vowel).

8.2 The predicate arguments involved

The question of which predicate arguments may be expressed through bound pronouns is considered in §8.2.1; and of how many bound pronouns there may be in a clause in §8.2.2. Then §8.2.3 discusses what the case system is for bound pronouns in a given language (e.g. ergative or accusative) in relation to the case systems for free pronouns and for nouns.

8.2.1 Which arguments?

The most common situation is for there to be bound pronouns for:

- (i) S function in an intransitive and A and O functions in a transitive clause. This applies in prefixing languages from groups NB, NC, NF, NG, NI, NJ, NKa, WMa and also in non-prefixing languages Bc2, Da, Ja1, Na1, Ne, O1, Pa1, Q, T, U1, W1, WAd, WBa and WGd.

A number of languages have more extensive systems, with bound pronouns for:

- (ii) S, A and O plus one or more peripheral functions. We find dative or dative/genitive bound pronouns (or separate dative and genitive, with the latter being used just with nouns, see §8.9) in Bb, Bc1, Bc4, Db, Dc1, Dd2, Eb1, Eb2, Ee, Ja2, Nc3, Nd, Pb, V, Yc, WGb, WHc8, Wlb, WJ, WMb1, NAb2, ND, NE, NH, NKb and NL.

A few languages have more than one clausal peripheral function coded through bound pronouns, e.g. WD, the Western Desert language, has dative and locative; Bc4, Kugu-Muminh has dative and ablative/genitive; W1a, the Marrngu subgroup, has distinct dative and benefactive; Ya3, Ritharngu, has bound pronouns corresponding to all free forms – AS, O, genitive, dative and oblique; Nc2, Wiradhurri has bound pronouns just for 1sg and 2sg but in all functions available to free pronouns, i.e. AS, O, dative, genitive, locative and ablative.

There are just a few languages that have bound pronouns for:

- (iii) Just S function in an intransitive and A function in a transitive clause. Definite examples of this are Nc1, WBb1 and WHc9. We only have evidence for SA bound pronouns in C, O2, R2 and S, but in each case the data are slight and we cannot be certain that some of these languages did not also have O bound pronouns.

A sprinkling of languages have a limited (and often irregular) set of bound pronouns. X1, Waanji, has just one bound pronoun, 1sg SA *-ŋa*. W2, Yalarnnga, has just a 2pl SA enclitic in imperatives. WHc10, Ngarla, has just 3du and 3pl SA bound pronouns; WHc3, Panyjima, has just 1sg O and 1sg beneficiary pronominal enclitics. And Bc3, Wik-Mungknh, has a full set of SA clitics but only 1sg and 3sg for O (and also dative/allative, oblique/genitive and comitative); see §8.8. There are also partial paradigms in Ja1, W1, WGd and some dialects of WD.

8.2.2 *How many in a clause?*

Those languages which only have bound pronouns for one syntactic function in a clause are plainly only able to include one pronominal enclitic in each clause.

There are some languages that have two or more functional sets of bound pronouns but seldom or never include more than one in a clause. This applies to Bb, Umpila, which has AS, O and dative/genitive bound forms but appears never to include more than one in a given clause (and, unusually, the bound pronoun may add on to any word in the clause). The same applies for bound pronouns in anaphoric function in W1, Kalkatungu. In Bc1, Wik-Ngathan, it is possible to include two pronominal enclitics in a clause but this is encountered rather seldom.

The great majority of languages include two bound pronouns in a transitive clause and either one (S) or two (S and a peripheral form, if the language has them) in an intransitive clause. That is, whether the language belongs to Type (i) or Type (ii) from §8.2.1, the maximum number of bound pronouns that can be used in a clause is two. For a transitive clause one bound pronoun will be in A function and the other either in O or in dative (or some other peripheral function).

There is an absolute rule that the maximum number of bound pronominal prefixes is two. Indeed, some prefixing languages include full person and number information

for just one of the core transitive arguments, and only indicate the number of the other (this is discussed further in §9.5). Generally, there are no more than two pronominal enclitics, but just a few languages do permit three.

Those prefixing languages that can code more than two clausal arguments through bound pronouns employ a combination of prefixes and suffixes/enclitics:

- (a) NHa, Patjtjamalh, has prefixes for S and for A-plus-O and enclitics to the verb for dative. The NG group has O-plus-AS prefixes and also a dative enclitic.
- (b) ND1, Kitja, has a pronominal prefix that marks S or A-plus-O (fused together) and two pronominal suffix positions, the first providing further information about S, A and O, and the second coding a dative argument (plus more information on O or A).

Among the non-prefixing languages there are just a few which permit three bound pronouns in a clause:

- (c) Yc1, Djinang, generally has its bound pronouns immediately before the verb (either as free forms, or as enclitics to the preceding word). If there are two bound pronouns, before the verb, the non-subject (O or dative) must precede the subject (S or A) form. It is possible to include three bound pronouns, but then O and A must precede the verb and the dative form must be enclitic to the end of the verb, e.g.
- (10) Yc1, Djinang (Waters 1989: 65)
- | | | | | | | |
|-----|-------|--------|------|-----------|-----------------|----------|
| a | ŋarri | djiniŋ | wali | nji-rr | gu-ŋ=inga | mundjarr |
| AND | 1sgSA | THIS | food | 2sgO-1sgA | give-FUT=3sgDAT | present |
- And I (will) do this: food I will give to you for him (as) a present

Note that here the recipient is coded by the O bound pronoun, and the beneficiary by the dative bound pronoun.

- (d) Ja2, Biri, permits three pronominal enclitics, all following the verb (always in the order: A, O, dative), e.g.
- (11) Ja2, Biri (Beale 1974: 16; repeated in Terrill 1998: 27)
- | | | |
|-------|----------------------|---------------------------|
| nhula | manhdha _O | yaba-nha=la=ŋga=ŋgu |
| 3sgA | food | give-FUT=3sgA=3sgO=1duDAT |
- He will give food to us two
- (e) Nc3, Ngiyambaa, exhibits similar possibilities, e.g.
- (12) Nc3, Ngiyambaa (Donaldson 1980: 131)
- | | |
|--------------------|---------------|
| gala:y=dji:=lu=na | ŋa:rayma-laga |
| again=1sgDAT=3A=3O | show-IRREALIS |
- He will show it to me again

Note that in Ngiyambaa the pronominal clitics attach to the first word in the clause and are ordered according to a person hierarchy (first before second before third), with A before O when the same person is involved in both.

- (f) In Bc4, Kugu-Muminh, no more than two clitic pronouns have been encountered in texts but Smith and Johnson (2000: 402–3) were able to elicit a clause with three (although not with four).

One bound pronoun will always be in S or A function. If there are bound paradigms for O and also for dative (and perhaps other functions), languages vary in the criteria they employ for which argument to code by the second bound pronoun that is permitted in the clause. In NL, Tiwi, the seventh prefix position is filled by an O or by a dative bound pronoun. Lee (1987: 179) states that an intransitive verb may code a dative argument in this slot but a transitive verb must code the O argument unless it is 3sg (and would then have zero realisation within the bound O paradigm) in which case dative can be coded.

In most languages, however, dative outranks O. In U1, Yarlalde, the second pronominal enclitic encodes a dative argument, if there is one, and otherwise an O argument (if there is one) (Cerin 1994: 111–12). In WJa1, Walmatjarri, the second pronominal clitic (i) refers to what Hudson (1978: 21) calls an ‘accessory’ argument (e.g. ‘He went WITH JOHN’, ‘I fell OVER THE MAN’); (ii) if there is no accessory argument then it refers to the dative argument; (iii) and if there is no accessory or dative it refers to the O argument, if there is one.

8.2.3 *Case systems*

There are four ways of marking the core arguments (S, A and O) in a clause (what we can call the ‘case system’):

- (i) Tripartite, with S, A and O all marked differently – shown as A/S/O.
- (ii) Nominative (for A and S) versus accusative (for O) – shown as AS/O.
- (iii) Ergative (for A) versus absolutive (for S and O) – shown as A/SO.
- (iv) No contrastive marking at all (syntactic function being indicated by some other grammatical strategy) – shown as ASO.

We will here survey the case systems of bound pronouns and compare them with those of free pronouns and of nouns. (Note that for a few languages with bound pronouns full information on case marking is not available, and these are left out of the discussion below. They include Ne, O1, Q, R, S, NBj and N1b2.)

It will be useful to structure the survey in terms of the hypothesis which runs through this book, concerning the development and loss of case marking in Australian languages. Table 8.1 summarises what has already been presented concerning the development of case marking on nouns and free pronouns, adding a column for bound

Table 8.1 *Case systems on nouns, free pronouns and bound pronouns*

	nouns	free pronouns		bound pronouns
		singular	non-singular	
Type A	A/SO	A/S/O	AS/O	as free pronouns
Type B	A/SO		AS/O	AS/O (as free pronouns)
Type C	A/SO		A/SO	AS/O
Type D	A/SO		A/SO	A/SO

pronouns. Note that Types A and B here correspond to Stages A and B in the discussion of §7.5; Types C and D relate to Stage C-i.

I suggest that the original grammatical organisation was Type A, where nouns had an ergative system, A/SO, singular pronouns had a tripartite system, A/S/O, and non-singular pronouns had an accusative system, AS/O. Then the accusative system was generalised to apply to all pronouns, both singular and non-singular, giving Type B. Bound pronouns developed out of free pronouns and in languages of Types A and B they follow the same case system as free pronouns. In Type C languages, bound pronouns retain an accusative profile, but free pronouns (which are now used rather sparingly) follow an ergative system, analogised from nouns. In Type D (which is much rarer than Types B and C) there is an ergative system in all columns. Either bound pronouns developed out of free pronouns after free pronouns adopted an ergative profile, like nouns; or else the ergative system was analogised from nouns into free pronouns and then right across into bound pronouns.

There are two sets of Australian languages that have developed an entirely accusative (AS/O) case system for both nouns and free pronouns – some in WHc and some in NA. It is interesting to note that none of these has developed a full set of bound pronouns. In NA, only NAb2, Yukulta, retains ergative marking and it is also the only language to develop bound pronouns. Within WHc there are bound pronouns in SA and O functions in WHc8, Palyku, and in SA function in WHc9, Nyamal, two languages that retain ergative case marking (and just 3du and 3pl bound forms in WHc10, Ngarla, another ergative language). Of the WHc languages that have switched to a fully accusative marking scheme, only WHc3, Panyjima, has bound pronouns and here there are only two forms: 1sg O and 1sg beneficiary. The correlation – in two regions – between developing an accusative profile and NOT developing bound pronouns, may or may not be significant (it might just be coincidental).

Languages with obligatory bound pronouns have in many cases lost case marking on nouns or on free pronouns or both. As a result of this, we also encounter the types of system shown in table 8.2 (Types E and G relate to Stage C-iii, and Type F to Stage B, in §7.5). These reduced systems are found predominantly in prefixing languages, in

Table 8.2 *Reduced systems of case marking*

	nouns	free pronouns	bound pronouns
Type E	A/SO	ASO	AS/O, A/SO, A/S/O or fused
Type F	ASO	AS/O	fused
Type G	ASO	ASO	AS/O, A/SO or fused

some of which it is possible to segment out A and O bound pronouns (and identify one of the sets with S bound forms), but in many A and O are fused into one unit, making it difficult to say whether the bound pronominal system is ergative or accusative.

In Type E free pronouns have the same form for all of A, S and O but nouns retain an ergative system. In Type F nouns do not distinguish A, S and O but pronouns retain an accusative system. In Type G neither nouns nor free pronouns have distinct forms for the core syntactic functions. Some languages of Type G have bound pronouns organised on an ergative pattern and in others they are accusative. Type E shows the same possibilities plus tripartite marking for singular bound pronouns in one language. And all three types cover some languages in which A and O are fused.

We can now survey the seven types and their variants.

Type A: nouns ergative, singular free pronouns tripartite, non-singular free pronouns accusative, bound pronouns the same as free. This type is found in V, Baagandji (where the pronoun system is essentially restricted to first and second persons). In U1, Yarlalde, 1sg is A/S/O but 2sg and 1du, 1pl, 2du, 2pl are AS/O (third person/demonstrative appears to have A/S/O in sg and du with AS/O for pl).

There is a variant on this type in WAd, Maljangapa:

nouns	free pronouns	bound pronouns	
A/SO	A/S/O	sg	A/SO
		n-sg	AS/O

The full pronoun paradigm in Maljangapa is given at (13) in §8.4.1, with an accompanying commentary.

Type B: nouns ergative, both free and bound pronouns accusative. This type of syntactic organisation is found in all the languages with bound pronouns (on which there is adequate information) from groups B–N, T, Y, WG and WH; in some dialects of WD; and in WMb1, NCb, NHa and NHc. (Note that in Nc3, Ngiyambaa, both free and bound pronouns have an AS/O system for first and second person, and A/S/O for third person.) In addition, NIa, Umbugarla, is of this type, except that A and O bound pronouns are fused.

Type C: nouns and free pronouns ergative, bound pronouns accusative. This is found in Pb, W1, WI, WJ, NE2, NHb, NHd, NHe2 and some dialects of WD. It is also in NF where A and O are fully fused but diachronically an AS/O system can be recognised for bound pronouns.

Type D: ergative system for nouns, free pronouns and bound pronouns. This rather rare system is found in WBb2, Adnjamathanha. In WMa, Yanyuwa, nouns and bound pronouns have an A/SO system while free pronouns have just an SO form; there is no A form for free pronouns, only a bound pronoun being available for this function.

NB1 provides a variant on this type, where nouns and free pronouns are ergative but A and O bound pronouns are fused.

Type E: ergative system for nouns, no distinction for free pronouns. Within this type, there are various possibilities for bound pronouns:

- (i) accusative (AS/O) in NCa, West Mindi, and NE1, Njigina.
- (ii) ergative (A/SO) in NBc1, Rembarnga.
- (iii) tripartite (A/S/O) for sg, and accusative for n-sg, in NAb2, Yukulta.
- (iv) A and O fused in NBb1, NBc2, NBd1, NBe, NBh2 and NBm.

Type F: accusative free pronouns, no distinction for nouns. The only language which appears to be of this type is NBi, Gungarakanj, where A and O pronominal prefixes are fused.

Type G: no case distinction for nouns or free pronouns. Within this type we get, for bound pronouns:

- (i) accusative (AS/O) in NL, Tiwi (where AS and O bound pronouns go into non-contiguous prefix slots); in NG, North Kimberley (where O immediately precedes AS); and in NBg2, Gunbarlang (where AS immediately precedes O). And in NHe1, Matngele, and NKb, Amurtag, where AS is a prefix and O is a suffix or enclitic to the verb.
- (ii) ergative (A/SO) – for the pronominal prefixes in NBk, Gaagudju, and NKa, Mawung/Iwaydja.
- (iii) A and O prefixes are fused, in NBb2, NBd2/3, NBf, NBg1, NBh1, ND, NIb1 and NIc.

NBa, Mangarrayi, does not fit neatly into any type. It has fused noun prefixes combining reference to noun class with case – masculine and feminine nouns have an AS/O and neuter nouns an A/SO system of case marking (see §10.7). Free pronouns are AS/O while bound pronouns are fused.

It can be seen that prefixing and non-prefixing languages show the same sorts of arrays of case systems. The only significant difference is that in the presence of obligatory

pronominal prefixes, case marking on nouns and/or on free pronouns has been lost from many languages in groups NB–NL.

8.3 Choices

If a language has both free and bound pronouns, we need to ask when each will be employed. Can a given predicate argument be coded by either a free or a bound pronoun, or by both, or is one variety obligatory and the other an optional addition?

Most languages with bound pronouns have a full set of free and bound forms for at least the core syntactic functions, S, A and O. But not all do. Na1, Awabagal, was the first Australian language to have its grammar studied. From materials gathered by the missionary L. E. Threlkeld in the 1820s and 1830s we can infer the following grammatical system:

	singular pronouns	non-singular pronouns
A and S functions	free and bound	} only free
O function	only bound	
dative function	only free	

There was thus only a choice available for sg pronouns in A or S function. (A full study of Threlkeld's materials has not yet been attempted, but it seems that for A and S functions sg bound pronouns were preferred over the free forms.)

In §8.2.1 we looked at languages that have a full set of free pronouns but limited bound forms – just for AS, or just for some person and number combinations in AS (or in O). There are a few languages with a full set of bound pronouns but gaps in the free pronoun paradigm:

- (i) NHc, Malak-Malak, and Tb1, Bungandik, have free pronouns in AS but not in O function.
- (ii) WMa, Yanyuwa, has free pronouns in SO but not in A function.

Looking now at languages with full sets of free and bound pronouns, we can distinguish four types.

Type 1: bound pronouns for A, S and O functions obligatory in every clause; free pronouns can be included in addition, mostly for emphasis. This type appears to include all the prefixing languages in groups NB–NL except for some in NI which are of Type 3. Non-prefixing languages that belong to this type include Ee, Pb, Q, Ta, WAd, WJ, NAb2 and probably also (although full details are not available) Ne, O1, Pa1. In Ja2, Biri, a bound pronoun in AS function is obligatory (unless it would be 3sg) but others are optional.

Type 2: bound pronouns optional; can use bound pronoun or free pronoun or both (note that many of these languages have a preference for employing a bound pronoun).

Languages of this type occur in B, D, Eb, Ja1, Nc, Nd, U, V, Ya3, WB, WGb and WMb1.

Type 3: bound pronouns optional; can use bound pronouns or free pronouns but, it seems, not both. Two prefixing languages appear to be of this type – NIa, Umbugarla, and NIB1, Limilngan (although the data on each is limited). The data available on C, R2, S1 and S2 are also limited, but suggests that these languages may also be of Type 3. In WGb, Nhanta, either free or bound pronouns (but not both) may be used to mark A or S function; however, for O function the free pronoun or the bound pronoun or both may be used.

Type 4: bound pronouns can only be used (and may then be obligatory) in certain grammatical circumstances. In WHc9, Nyamal, bound pronouns are obligatory except in subordinate clauses. In the adjacent W1a1, Njangumarta, they are obligatory except in purposive subordinate clauses (which include a nominalised verb plus dative case suffix). In W1, Kalkatungu, there are three distinct sets of bound pronouns – one used in purposive subordinate clauses, one in ‘lest’ subordinate clauses, and one in main clauses but used just for discourse anaphora.

There can be variations within a language. WD, the Western Desert language, covers a large area (about one-sixth of Australia); its dialects have similar lexical and grammatical forms but differ in a number of structural parameters (each dialect tends to be typologically similar to languages that it borders). We can roughly identify three dialect groups, with case systems and pronoun choice as follows:

DIALECTS	NOUNS	FREE	BOUND	CHOICE
		PRONOUNS	PRONOUNS	
northern e.g. Manjtjiltjara	A/SO	A/SO	AS/O	bound pronouns obligatory; there may in addition be a free pronoun for emphasis
central e.g. Ngaanjatjarra	A/SO	AS/O	AS/O	bound pronouns obligatory in AS functions (a free pronoun can also be used); for O func- tion, bound pronouns are op- tional (and can only be used with a human referent – Glass 1997: 20–1)
southern e.g. Kukarta	A/SO	AS/O	none	—

In terms of the parameters set out in §8.2.3, it will be seen that central dialects are of Type B, and that they are just developing bound pronouns. Northern dialects are (like their northerly neighbours, in subgroup WJ) at a later stage of development, in Type C, and here bound pronouns have hardened into obligatory grammatical elements in the clause.

8.4 **Forms**

It is useful to distinguish between affixes and clitics. An affix is attached to a root and makes up, with the root and whatever other affixes it may have, a single grammatical and phonological word. An affix generally has fixed position within a word. Two affixes (with different meanings) may become fused together into one portmanteau form. The word to which an affix belongs has a single stress pattern, and phonological processes such as assimilation may apply across a root–affix (or an affix–affix) boundary within the word.

A clitic is a grammatical word that cannot be used independently; it must attach itself to something else, as part of that phonological word. A clitic does not normally bear primary stress, nor does it normally enter into processes such as assimilation. Some clitics must attach to words of a particular class, but many clitics may attach to a word of any class (say, whatever word happens to come first in the clause, in a free word order language).

There are no absolute criteria for deciding whether a given form is an affix or a clitic. Specific criteria – along the lines just sketched – have to be adopted for each individual language, on a language-internal basis. It is generally not difficult to decide between ‘affix’ and ‘clitic’ but there can be fuzzy instances where the decision could go either way (depending on the weighting of criteria).

Linguists working on Australian languages have varied levels of sophistication. Some have not been aware of the distinction between affix and clitic and it is not always an easy matter for someone else to assess their materials with respect to this question. Nevertheless, some tentative generalisations are possible.

All bound pronouns that are part of the verb and precede the root, in Australian languages, are prefixes, with the probable exception of NBe, Dalabon, where an O-enclitic precedes an SA prefixal bound pronoun. In most of the prefixing languages (NB–NL and WMa) all bound pronouns are prefixes but we also find suffixes in ND and enclitics in NE, NG, NH and NKb.

In the majority of non-prefixing languages bound pronouns appear to be enclitics. However, there are some instances of pronominal suffixes. This is quite clearly the case, for instance, when a bound pronoun is portmanteau with tense, as in Bc2–4, Ja2 and Q. Bc4, Kugu-Muminh, has two series of bound pronouns: an enclitic set which normally attaches to the word immediately preceding the verb, and a verbal suffix that

is fused with tense (see the discussion in §8.8). V, Baagandji, presents an unusual case, which is also discussed in §8.8. It may be that obligatory systems of bound pronouns in some other languages should also be best regarded as suffixes rather than enclitics; this is a matter for further study.

8.4.1 *Free and bound pronominal forms*

It is clear that at an earlier stage Australian languages simply had free form pronouns. In those languages which now have bound pronouns we can recognise three stages of development.

- Stage I bound pronouns are identical to free forms, or are a transparent reduction from them.
- Stage II bound pronouns are substantially (or totally) different from free pronouns.
- Stage III the old free pronouns have been lost and new ones formed, involving the addition of bound pronominal affixes or clitics to an invariable root.

We can now discuss and exemplify these, one at a time.

Stage I: bound pronouns based on free pronouns. In some languages there is a single pronominal paradigm. Its forms can be used as free pronouns, functioning as head of an NP, or they can be cliticised to the end of the verb (or of some other constituent), as bound pronouns. This probably applies to C, Da, Db, R2 (the paradigm was given at (34) in §7.3) and S (although for some of these languages the information available is only partial).

Most languages at Stage I have their bound forms slightly reduced from free forms. In the languages with pronominal enclitics these generally omit the initial C or CV from the free form and in languages with pronominal prefixes these typically retain just the first syllable from the free form.

The free pronominal paradigm for AS function in Dc1, the Flinders Island language, was given at (32) in §7.3; O and locative/ablative forms involve the addition of *-ŋin* and *-(rr)mu* respectively to the AS form. Corresponding to each free pronominal form there is an enclitic which involves omitting the initial CV-; these clitic pronouns are then attached to the verb after the tense-mood inflection (with A preceding O).

The free pronoun roots in AS function for WMb1, Wagaya, were given in the second column of (49) in §7.4. In this language the bound pronouns are generally derived from free forms by omitting the initial C-; for instance 1pl.exc free form *ŋanii*, bound form *-anii* (see Breen 1976d: 591). A further example of Stage I is given in (13).

(13) WAd, Maljangapa (Austin 1978b)

	free pronouns			bound pronouns		
	A	S	O	A	S	O
1sg	ŋadhu	ŋanji	S+nha	-dhu	-nji	
2sg	yindu	yini	"	-ndu	-ni	
3sg	nhundu	nhunhu	nhunha	-mbu	-nha (human) ø (non-human)	
1du	S+ŋu	ŋali(bula)	S+nha	-li		AS+nha
2du	"	nhula(bula)	"	-la		"
3du	"	bula	"	-bula		"
1pl	"	ŋana	"	-ŋana		"
2pl	"	nhura(gurnrda)	"	-rra		"
3pl	S	dhana	"	-rna		"

As noted under Type A in §8.2.3, in Maljangapa free pronouns (except for 3pl, in the materials available) have separate forms for A, S and O; sg bound pronouns have one form for S and O and another for A, while n-sg bound pronouns have one form for S and A and another for O. Bound forms are identical to free for 3du and 1pl but otherwise involve the omission of the initial CV- from the free pronoun, except for 3sg which is quite different (and 3pl where *dhana* reduces to *-rna*).

Other languages in which enclitic pronouns are either the same as the corresponding free pronoun or else omit the initial C- or CV- (or a mixture of these) include Bc1, Ja1, Ja2, Nc, Nd, U1, Wb2, Ya3, and the O enclitic pronouns in NE1 and NH. In Yc, bound pronouns are derived from free by the omission of initial CV- and final -V except that 2sg and 3sg AS forms and 3sg O form are zero.

The kinds of reduction that occur are illustrated in (14) for AS and dative forms in Ee, Kukatj (O and genitive forms show similar reductions).

(14) Ee, Kukatj, free and bound pronouns for AS and dative functions

	AS free	AS bound	dative free	dative bound
1sg	ŋəw	-əw	ŋiya:ŋpənh	-amp
2sg	yət	-ət	na:mpənh	-namp
3sg	yəl	-əl	wa:mpənh	-wamp
1du.inc	ŋəl	-ŋəl	ŋa:lpənh	-alp
1du.exc	ŋənj	-ŋənj	ŋanjə(li)pənh	-anjəmp
2du	yuwəl ~ wil	-wəl	wi:npənh, yuwənpənh	-wənp
3du	pəl ~ pil	-pəl	pi:npənh	-pənp ~ -pinp
1pl.inc	ŋən	-ŋən	ŋa:npənh	-anp

	AS free	AS bound	dative free	dative bound
1pl.exc	ŋənhən	-ŋənhən	ŋanjənpənh	-anhənp
2pl	yirr ~ yirmp	-rr	yərrmpənh	-irmp ~ -yərrmp
3pl	thən ~ thin	-thən	thinpənh	-thənp ~ -thinp

The clitic pronouns in Kukatj can be added to the first word in the clause (whatever it is) or to an auxiliary, or two clitic pronouns can attach to each other, forming a word on their own. Note that the 2pl AS bound form involves a single segment, and that all bound pronouns are essentially reductions from free forms with some assimilations, etc. (These data are provided by Breen, p.c., as revision of Breen 1976c: 156–7, based on work with the last speaker of the language. See also (30) below.)

In prefixing languages of Stage I we tend to find that just the initial syllable of the free form is retained. We can repeat the paradigm of AS free pronouns in NBA, Mangarrayi – given at (12) in §7.2 – and add the bound pronominal prefixes in S function in (15):

(15) Nba, Mangarrayi, AS free/S bound pronouns (Merlan 1982a: 102, 160)

	min	ua	aug
1	ŋaya/ŋa-	ŋirr/ŋirr-	ŋirla/ŋirla-
1+2	ŋi/ŋi-	ŋarr/ŋarr-	ŋarla/ŋarla-
2	njanggi/nja-	rnurr/rnurr-	rnurla/rla-

Here the initial syllable is used for 1min and 2min, the monosyllabic form for 1+2min, and the whole form for the n-min's except for 2aug which (unusually, in this region) uses just the final syllable of the free form. Other prefixing languages at Stage I include NBb1, NBb2 and WMa.

In some languages the bound pronouns relate not to the current free forms but to free form pronouns at an earlier stage of the language – see the discussion of subgroup Tb under Stage III below. (This also applies for Bb, Umpila.) In Na1, Awabagal, the 1sg and 2sg bound pronouns are quite different from free forms, but they are similar to free pronouns in the next language to the north, Na2, Gadjang (which itself lacks bound pronouns for core arguments).

(16)

	Na1, Awabagal				Na2, Gadjang	
	free AS	bound AS	free O	bound O	free AS	free O
1sg	ŋadhuwa	-baŋ	<none>	-dja	ŋadhuwa	baraŋaŋ
2sg	ŋinduwa	-bi	<none>	-binh	biyay, bay	bi:naŋ

For 2sg, the bound AS and O forms in Awabagal are plainly related to the free AS and O forms in Gadjang. For 1sg the bound AS form in Awabagal appears to be related to the free O form in Gadjang. These relationships suggest

that at some time in the past there must have been borrowing of pronominal forms and possibly merging of paradigms (changes that we are unlikely ever to be able to fully recover).

Stage II: bound and free pronouns not obviously related. This stage can be illustrated from Pb1, Dharawal. Here free pronouns have a stem used for S and O functions, with ergative suffix *-ga* added for A function. Pronominal enclitics (which go onto the verb) have distinct forms for AS and O functions.

(17) Pb1, Dharawal

	free SO	bound AS	bound O		free SO	bound AS	bound O
1sg	ɲayagaŋ	-ɲay	-dhan	2du	bilgaŋ	-mbul	-bulaŋ
2sg	ɲjindigaŋ	-mbi	-ɲjiŋ	1pl.inc	ɲjulgaŋ	-ɲjaŋ	-ɲjinaŋ
1du.inc	ɲalgaŋ	-ɲal	-ɲalaŋ	1pl.exc	ɲjunuliŋ	-ɲjiliŋ	-ɲjiniŋ
1du.exc	ɲuŋguliŋ	-ɲaliŋ	-ɲalin	2pl	ɲjirraŋ	-nhur	-nhuraŋ

In the bound forms we can perceive traces of recurrent free pronominal forms in other Australian languages, e.g. 2du *nhu(m)bV₁IV₂*, 2pl *nhurra* (see §7.3.1). This should serve to emphasise the general point that all bound pronouns must originally have developed from free forms, but in Stage II languages enough time has elapsed since this happened for various phonological and morphological changes to have applied independently to the free and bound paradigms (and perhaps for some of the free pronouns to have been replaced by internal reanalysis and by borrowing) so that no clear relationship between free and bound pronouns is currently discernible.

Languages with enclitic pronouns at Stage II include those in groups O, Q, T, W1, WGd, W1 and NAb2. Prefixing languages at this stage include NBf/g/h/i/k and ND-NK.

A variant pattern is where sg or min free and bound pronouns appear unrelated but the bound n-sg's or n-min's appear to be based on free forms. This applies to enclitic pronouns in Eb1, Yir-Yoront; to O enclitics in NKb, Amurdag, and to pronominal prefixes in NBc1, NBd1, NBe, NBl and NC. Just in NL, Tiwi, we find similarities between bound and free pronouns in min number not in n-min (see Lee 1987: 105, 173, 180 and (17) in §7.2 above).

All the languages in groups WD and WH-WJ (and some in WG) which have bound pronouns show a recurrent pattern. For most person/number combinations the bound pronouns are transparently reduced from corresponding free forms. But for 1sg and 2sg bound and free forms differ. Consider the 1sg forms in (18) (where two rows are

given these relate to different dialects within the language, or different languages within the group).

(18) 1sg free and bound pronouns in a selection of languages from groups WD–WJ

	free				AS bound	O bound
	AS	ɲatha	O	ɲatha-nha	-rna	-rni
WGa1, Watjarri						
WHc8, Palyku	S	ɲatha	O	ɲathu	-rna	-tja
	A	ɲatha-lu				
WHc9, Nyamal	AS	ɲatja	O	ɲatja-nja	-rna	<none>
WD, Western Desert language	AS	ɲayu(lu)	O	ɲayu-nja	-rna	-rni
	SO	ɲayu	A	ɲayu-lu	-rna	-tja
WI, Mangunj languages	SO	ɲatju	A	ɲatju-lu	-rna	-nja
	SO	ɲayu	A	ɲayu-tju	-rna	-nja
WJa, Edgar Range to Victoria River subgroup	SO	ɲatju	A	ɲatju-ɲ(g)u	-rna	-tja
	ASO	ɲayu			-rna	-yi
WJb, Yapa subgroup	SO	ɲatju(lu)	A	ɲatjulu-rlu	-rna	-tju
	ASO	ɲayu			-rna	-tju

The 1sg free pronoun stem is a normal Australian form, *ɲadju/ɲadhu*, with final *u* replaced by *a* in some languages and the laminal stop leniting to *y* in others. The fascinating thing about this group of languages is that the AS clitic is always *-rna*, quite different from the free form. We do find a 1sg AS free form *ɲarna* in subgroup WM, over to the east of languages with 1sg AS enclitic pronoun *-rna*. In WE1, Mirning (to the south of the *-rna* enclitic region) the 1sg free pronoun forms appear to be *ɲathu* for A, *ɲarna* for S (and oblique stem) and *ɲarna-nha* for O; this language has no bound pronouns. It could be that, at an earlier stage, for some of the languages in groups WD–WJ (plus WM) there was 1sgA *ɲadhu* and S *ɲarna*, with bound forms *-dhu* and *-rna* respectively. In the free pronouns *ɲadhu* was generalised to cover S as well as A, while in the bound pronouns *-rna* was generalised to cover A as well as S. Except in WM where *ɲarna* became the AS free form, and in WE1 where the original A and S free forms were retained. But this is simply a suggestion; there are undoubtedly other plausible scenarios. The one thing that is clear is that the present situation must be the result of considerable diffusion of categories and of forms, and of types of neutralisation.

The 1sg O enclitics in this area show variation. In (18) there is *-nja* (which may relate to the accusative case ending *-nja*) and also *-rni*, *-tja*, *-tju* and *-yi*. Further work is needed to try to trace their etymologies.

The free and bound 2sg pronouns in the same set of languages also have differences, as shown in (19).

(19) 2sg free and bound pronouns in a selection of languages from groups WD–WJ

	free				AS bound	O bound
	AS	njinta	O	njinta-nja	-n	-nta
WGa1, Watjarri						
WHc8, Palyku	S	njinta	O	njinku	-npa	-nta
	A	njinta-lu				
WHc9, Nyamal	AS	njuntu	O	njuntu-nja	-ŋ(ka)	<none>
WD, Western Desert language	AS	njuntu(lu)	O	njuntu-nja	-n	-nta
	SO	njuntu	A	njuntu-lu	-n	-nta
WI, Mangunj languages	SO	njuntu	A	njuntu-lu	-n	-nta
	SO	njuntu	A	njuntu-ŋku	-n	-na
WJa, Edgar Range to Victoria River subgroup	SO	njuntu	A	njuntu-ŋ(k)u	-n	-njtja
	ASO	njuntu			-n	-ŋku
WJb, Yapa subgroup	SO	njuntu(lu)	A	njuntulu-rlu	-npa	-ŋku
	ASO	njuntu			-n(ku)	-ŋu

In §7.5.1, I suggested **ŋin* as the original 2sg root, used in S function, with A form *ŋindu*. Assimilation yields *njindu* and then a further assimilation *njundu*, with final *u* shifting to *a* in some languages. The stem forms of 2sg free pronouns in (19) accord with this pattern. But the recurrent 2sg AS clitic is just *-n*, which may relate to the earlier monosyllabic form *ŋin/njin*. A syllable *-pa* is added in Palyku and in the Yapa subgroup; *-ka* in Nyamal (with assimilation of the preceding nasal); and *-ku* in a further Yapa language; these additions may have been simply to give the clitic greater phonological substance. The 2sg O enclitic is *-nta* (or by reduction, *-na*) or *-ŋku* (reducing to *-ŋu*) or *-njtja*. Further work is needed to provide etymologies for these bound O forms.

As already mentioned, most other bound pronouns in WD–WJ are clearly related to the corresponding free forms, e.g. 1du(inc) free form *ŋali*, bound enclitic *-li*. But there is a 1pl clitic *-la* in a number of languages, shown in (20).

(20)		free AS	bound AS
WD, Western Desert language	1pl	ŋana(rna)	-la
WGd, Yingkarta	1pl	ŋanhu	-la
WIb, Mangala	1pl.inc	ŋanjtjurra	-la
WJa3, Gurindji	1pl.inc	ŋali-wa	-rlaa

In these languages, the bound and free forms for 1pl are quite different. Note, however, the forms in two other languages from this region:

(21)			free AS	bound AS
	WHc8, Palyku	1pl.inc	ṇanhula	-la
	WHc9, Nyamal	1pl.inc	ṇanjtjula	-la

In these two languages the clitic appears to continue the final syllable of the free form *ṇanhthula (reduced to ṇanhula in Palyku). The free forms in Yingkarta and Mangarla may be related to this, with ṇanhthula reducing to ṇanh in the first instance and final -la being replaced by -rra in the second. The other two languages, Gurindji and the Western Desert language, may simply have borrowed the -la clitic from a neighbour. (Alternatively, they may at one time have had free form ṇanhthula which was later replaced.)

Stage III: the original free pronouns have been replaced by a new set, based on the bound pronouns. When bound pronouns first evolve they are optional; often a clause will include either a free form or a bound form pronoun encoding a certain predicate argument, but not both. The next stage of development is for bound pronouns to become obligatory. Free pronouns are then scarcely needed and are likely to be employed mostly for emphasis. Under such conditions, the original free form pronoun may drop out of use. If emphasis is required, one of the sets of bound pronouns may be added to an invariable root, effectively creating a new set of free pronouns (which can function as head of NP, and so on).

Language Ta1 covers a considerable area of fertile country in Victoria and has a number of dialects. These vary in the kinds of pronouns they use:

(22)		POSSESSIVE	PRONOMINAL	
		PRONOMINAL	ENCLITICS	
		ENCLITICS	FOR CORE	
	DIALECTS OF Ta1	ON NOUNS	ARGUMENTS	FREE PRONOUNS
	Madhi-Madhi	yes	none	original set
	Wemba-Wemba	yes	yes	original set
	southern dialects	yes	yes	new forms, using possessive enclitics

The basic pronominal forms in the Wemba-Wemba dialect are given in (23). Note that the free form possessive pronouns – not shown in (23) – are formed by adding -eug to the AS free form root (omitting final -aṇ, -ein or -in). The bound forms for core arguments are added to the verb or to an interrogative or negator in clause-initial position (A precedes O).

(23) Pronouns in the Wemba-Wemba dialect of Ta1 (Hercus 1986: 37–8, 41, 34)

	FREE AS	BOUND AS	BOUND POSSESSIVE
1sg	yand-aŋ	-anda	-andag after a case suffix, -eg otherwise
2sg	ŋin, ŋind-in	-arr	-in
1du.inc	ŋal-ein	-a-ŋal	-a-ŋal-ag
1du.exc	ŋal-aŋ	-a-ŋal-aŋ	-a-ŋal-ag-aŋ
2du	<not recorded>	-a-wal	-al-ag-aŋ, -al-ag
1pl.inc	yaŋurr-ein	-a-ŋurr	-a-ŋurr-ag
1pl.exc	yaŋurr-aŋ	-a-ŋurr-aŋ	-a-ŋurr-ag-aŋ, -and-ag
2pl	ŋud-ein	-adj	-ad-ag

It will be seen that most of the n-sg bound pronouns are fairly clearly based on the corresponding free forms, basically by adding initial *-a* and omitting any final *-ein*. But 2sg and 2pl and, to a lesser extent, 1sg, differ between the columns.

The north-eastern dialect, Madhi-Madhi, lacks bound pronouns for predicate arguments (although it does retain possessive bound pronouns). It is likely that Madhi-Madhi lost these pronominal enclitics rather recently, under diffusional pressure from its northerly neighbour U5, Yitha-Yitha, which lacks bound pronouns altogether (like U2–U4, from the U linguistic area). See (I) in §13.2.

The southern dialects have re-formed free pronouns by simply adding the possessive enclitic to an invariable root. The actual root used varies from dialect to dialect: *beŋ-* (which also means ‘body’) or *win-* or *yurw-* or *nhuŋ-* (these have not been traced outside pronouns). Thus the free pronoun ‘I’ is *beŋ-eg*, free pronoun ‘you (sg)’ is *beŋ-in*, and so on.

The two other languages in subgroup Ta behave in a similar way. In Ta2, Wadhawurrung, new free pronouns are formed by adding possessive enclitics to *baŋ-* ‘body’ (similar to neighbouring dialects of Ta1) while Ta3, Wuy-wurrung, uses *waŋ-* (meaning not known).

(To the south of Ta, but not closely genetically related, is subgroup Tb. These languages retain the original 1sg and 2sg free pronouns – *ŋadhu* (or *ŋadhug*) and *guru* (or *ŋudug*) respectively. The original n-sg free pronouns have been replaced by new forms, involving the addition of du and pl suffixes to the sg forms. But the n-sg enclitic pronouns provide clues as to what the original n-sg free forms are likely to have been; e.g. 1du AS enclitic = *ŋal* is surely likely to reflect an original 1du free form *ŋali*.)

Pa1, Gundungurra – spoken some way to the north-east of Ta – has also lost its original free form pronouns. It had created a new paradigm of first and second person free forms by adding the AS enclitics (not the possessive enclitics as in Ta) to an invariable stem *gula-*. This can be illustrated with the sg pronouns:

(24) Pa1, Gundungurra

	SA enclitic	possessive	
	to verb	enclitic to noun	free pronoun
1sg	-ŋga	-dja	gula-ŋga
2sg	-njdji	-dji	gula-njdji

The same sort of re-creation of free pronouns is found in the prefixing region. All of the languages in groups NB–NL and WMa have pronominal prefixes for at least A and S functions (generally also O). Some have O enclitics. Some have no bound possessive pronouns, many have a possessive pronominal suffix to nouns, while a few have a possessive pronominal prefix. The only clear examples of free pronouns being re-formed involves an S prefix added to a constant stem (with some assimilation across the morpheme boundary). Compare pronominal forms given in (25) for the two closely related languages in subgroup NBc. (Note that the ergative suffix *-yi?* is added to an SO free pronoun, to mark A function.) Rembarrnga data are from McKay (1975: 105, 107, 142) and Ngalakan from Merlan (1983: 87, 71).

(25)

	NBc1, Rembarrnga			NBc2, Ngalakan	
	free SO pronoun	free dative pronoun	bound S prefix	bound S prefix	free SO pronoun
1min	ŋi-nta	ŋə-nə	ŋa-	ŋu-	ŋay-ka?
1+2min	<see note>	yəkkə	ya-	yi-	yi-ka?
2min	ta-nta	kə	ŋinj-	ŋinj-	ŋinj-dja?
1aug	ya-nta	ya-rrə	ya-rra-	yi-rr-	yi-rr-ka?
1+2aug	ŋaku-nta	ŋako-rrə	ŋa-rra-	ŋu-rru-	ŋu-rr-ka?
2aug	naku-nta	nako-rrə	na-rra-	rnu-rru-	rnu-rr-ka?
3aug	pu-nta	pa-rrə	pa-rra-	bu-rru-	bu-rr-ka?

(a) 1+2min in Rembarrnga is *yirappara?* or (in another dialect) *yintapara?*, involving *-ppara?*, which is generally a *ua* suffix; (b) 3min forms vary for gender/noun class in free pronouns and are in some circumstances *ø* for bound pronouns.

Looking at the aug forms in (25) it is clear that in Rembarrnga the bound pronouns are based on the free – 1+2aug and 2aug have roots *ŋaku/o-* and *naku/o* respectively, which are reduced to *ŋa-* and *na-* respectively in the prefix column. In Ngalakan, however, all free forms involve the addition of *-ka?* to the S prefix, with the final vowel being lost from a disyllabic prefix, and assimilation of *-ka?* to *-dja?* after *nj*. Only the 1min form is irregular – it does end in *-ka?*, but is added to *ŋay-*, whereas the 1min prefix is *ŋu-*.

We thus get cyclic renewal of the free pronouns. For 1+2aug, for instance, it is likely that the free form in proto-NBc was *ŋaku-*, and this is continued into Rembarrnga. The S prefix was a reduced form of this: *ŋa-* in Rembarrnga and *ŋu-* in Ngalakan

(plus an aug increment *-rV*). Ngalakan has now replaced the original free form *ŋaku* with a new form involving S prefix *ŋu-rr-* added to invariable form *-kaʔ*.

Harvey (ms.-a, -b) first drew attention to free pronouns being based on bound prefixes in prefixing languages. However, he suggests that this applies not only to Ngalakan but also to Rembarrnga, and to NBd1, Ngandi; NBh1, Jawoyn; NBi, Gungarakanj; among others. For none of these other languages can the 'free-based-on-bound' analysis be maintained.

There is a correlation between the morphological status of bound pronouns and their relation to the corresponding free forms. The most established (i.e. the oldest) bound forms tend to be affixes and to have a less obvious relationship to free forms; those that developed more recently tend to be clitics, and to be obvious reductions from free forms. But this is – it should be noted – only a tendency.

8.4.2 *Zero realisation*

One often finds that one term in a closed grammatical system has zero realisation, e.g. singular in a number system (as on nouns in English) and nominative or absolutive in many case systems. Some systems of bound pronouns in Australian languages have one or more terms with zero realisation – they almost always include 3sg (most commonly, zero is used just for 3sg).

Generally, zero realisation is found in a bound pronominal system (a) which is obligatory; (b) which has the form of affixes, not of clitics; and (c) in which the bound pronouns are rather different in form from the corresponding free pronouns, an indication that they are fairly ancient. (Note, though, that these are just tendencies; a few exceptions will be mentioned.) It is likely that – at least in most cases – when free pronouns first come to be used as clitics, all terms will be non-zero. Over time some terms may shorten and some may fuse with tense, aspect or another morpheme. It is at this stage of development that one or more terms may take on a zero realisation.

We can conveniently survey the languages with a zero bound pronoun in two sets – first non-prefixing, and then prefixing.

Non-prefixing languages

- (1) 3sg is $\emptyset$ in AS and in O functions in WD, WHc8 and WJ. In Pb2, Dhurga, 3sg is $\emptyset$ in O function but $\emptyset$ after a consonant and *-n* after a vowel in AS functions.
- (2) In Pb1, Dharawal, the 3sg AS clitic is *-ŋ* in future but $\emptyset$ in non-future; 3sg O clitic is *-nd(dh)uŋ*. In Bb, Umpila, the 3sg AS clitic is $\emptyset$ and the O clitic is *-lun*. In Bc1, Wik-Ngathan, and Bc2, Wik-Me'nh, the 3sg clitic is $\emptyset$ for AS but *-nhin(a)* for O function. In Bc3, Wik-Mungknh, the AS bound pronouns are fused with tense and 3sg is $\emptyset$ just in past tense (3sg O is *-an*).

- (3) In WHc9, Nyamal, the 3sg AS bound pronoun is $\emptyset$. In this language there is no O series.
- (4) For a number of extinct languages we only have information on the AS series of bound pronouns and it is clear that 3sg is $\emptyset$; full information on the O series is lacking. This applies to O1, Pb3, Ta1 and WGa1. In Tb2, Kuurn-Kopan-Noot, the 3sg AS bound pronoun is either $\emptyset$ or is fused with present tense as *-a*.
- (5) W1, Kalkatungu, has $\emptyset$ for 1sg and 3sg in the anaphoric bound pronouns (there is no information on the O form for 3sg but the 1sg O form is *-ŋi*). Bound pronouns in purposive clauses have $\emptyset$ for 3sg O (but *-ayi* for 3sg AS) while bound pronouns in 'lest' clauses have $\emptyset$ for 3sg in AS and in O functions.
- (6) NAb2, Yukulta, has separate bound pronominal paradigms for S, A and O functions. In the S series 3n-sg is $\emptyset$, and 3sg is $\emptyset$ in non-future but *-rni* in future clauses. In the A series both 3sg and 3n-sg are $\emptyset$ while in the O series just 3sg is $\emptyset$.

All the languages listed thus far have bound pronouns that are markedly different in form from the corresponding free pronouns. There are, however, three languages whose bound pronouns are clear (and presumably recent) reductions from free pronouns, and which do include a zero form:

- (7) In (13) we had the paradigms for WAd, Maljangapa, where the 3sg SO bound form is *-nha* when referring to humans but $\emptyset$ for non-human reference. (This *-nha* may be diachronically related to the accusative suffix *-nha* on pronouns and some nouns, which is typically restricted to human reference – see §5.4.2.)
- (8) In the two languages of Yc, the Western Yolngu subgroup, bound pronouns are clear reductions from free forms (e.g. 1du.exc free form *ŋil-inji*, bound form *-linj*) except that in the AS series both 3sg and 2sg are $\emptyset$ and in the O series 3sg is again $\emptyset$.
- (9) WGb, Nhanta, has $\emptyset$ for 3sg and 3n-sg in the SA series of pronominal enclitics, which attach to the first word of the clause; and $\emptyset$ just for 3sg (with *-nhtha* marking 3n-sg) in the O series which is added to the end of the verb.

Prefixing languages. Many prefixing languages have noun class systems and a 3sg bound pronoun is likely to code the noun class. This explains why there are relatively few zero realisations for 3sg. (Just occasionally one noun class may have zero realisation, e.g. class IV for 3min in S function in certain tenses and aspects in N1b1, Limilngan; and there are some zeros among the noun class prefixes in NBc2, Ngalkan.)

In some languages the bound pronouns are segmentable and we can then look for a zero realisation in each series:

- (10) In NHB-e the AS prefix is fused with the verb root. But the O bound pronoun is a suffix and we find $\emptyset$ for 3sg in NHd and $\emptyset$ as one allomorph of 3sg in NHe2.
- (11) In NBg2, Gunbarlang, and NL, Tiwi, 3sg is $\emptyset$ just in the O series of prefixes. In NC, the Mindi subgroup, 3sg is always $\emptyset$ in the O series; for the AS series $\emptyset$ is one allomorph of 3sg.
- (12) For each language in NG, the North Kimberley group, there is a different pronominal pattern. In NG1, Worrorra, 3sg A is $\emptyset$ (the O and S prefixes show noun class). In NG2, Ungarinjin, 3sg A is $\emptyset$ only when combined with a third person O. NG3, Wunambal, is unusual in that it is 2sg that is $\emptyset$ in the A series (3sg being *-du-*).

In many languages A and O pronouns are fused, so that we can only talk about $\emptyset$ for S, or for a combination of A and O.

- (13) 3min is $\emptyset$ in the S series for NBa, Mangarrayi, and just in past tense for NBc1, Rembarrnga and NIa, Umbugarla. In NKa2, Iwaydja, pronominal prefixes are fused with a directional marker ('hither', 'thither' or neutral) and here 3sg S is $\emptyset$ in conjunction with the neutral directional choice.
- (14) In NBh2, Warray, we find $\emptyset$ just for the combination of 3minA and 3minO.
- (15) 3sg S is $\emptyset$ for bound pronouns in NF. For NBh1, Jawoyn, 3minS and the combination of 3minA plus 3minO are both $\emptyset$. The same applies for NBi, Gungarakanj, just in the non-future; for NBI1, Wagiman, just in the perfective; and for NBI2, Wardaman, just in past realis.

All of the prefixing languages with zero realisation for one or more bound pronouns have different forms for free and bound pronouns, either in all numbers or just in sg or min.

8.5 Categories

Pronouns combine the categories of person and number. We now consider each of these, again looking at the similarities and differences between free and bound pronouns.

8.5.1 Person

In most languages with bound pronouns, these show the same person (and inclusive/exclusive) distinctions as free pronouns. Generally, both sets of pronouns distinguish first, second and third person, and agree as to whether inclusive/exclusive is coded. In U1, Yalalde, there are free pronouns only for first and second person (not for third person) and since pronominal enclitics are reduced forms of the free pronouns, the same restriction applies to them.

There are just a few languages that lack third person in the free pronoun paradigm but do show it in the bound forms – Nc3, Ngiyambaa, NCa2, Nungali, and languages of the Pb, Ta and WJb subgroups. Interestingly, all of these save Nc3 do have zero realisation for 3sg. There are no reports of the opposite situation – third person in the free but not in the bound paradigm.

At the end of §8.2.1, languages that have just a few bound pronouns, for certain person/number combinations, were mentioned. For instance, Bc3, Wik-Mungknh, has bound pronouns for all persons and numbers in AS function but for only 1sg and 3sg in O function.

The prefixing languages have undergone varying degrees of fusion, assimilation, lenition and other phonological changes. Not surprisingly, these have sometimes led to the neutralisation of person distinctions. A clear and well-attested instance concerns the two languages of NCa, the Western Mindi subgroup. The free and bound du and pl forms for NCa1, Djamindjung, are set out in (26).

(26) NCa1, Djamindjung

	free ASO	bound AS	bound O
1du.inc	mind	mind-	mindag-
1du.exc	yi-rri-nji	yinj-	yinjaŋ-
2du	gu-rri-nji	gunj-	wunj-
3du	bu-rri-nji	bunj-	wunj-
1pl.inc	yu-rri	yurr-	yurrag-
1pl.exc	yi-rri	yirr-	yirrag-
2pl	gu-rri	gurr-	wurr-
3pl	bu-rri	burr-	wurr-

Here we get both *b* and *g* leniting to *w* in the O column. Since 2n-sg and 3n-sg were only distinguished by initial *b* versus *g*, lenition results in neutralisation of the distinction between 2du and 3du and between 2pl and 3pl.

A different phonological change has applied in the closely related language NCa2, Nungali – shown in (27) – leading to a different neutralisation.

(27) NCa2, Nungali

	free ASO	bound AS	bound O
1du.inc	bidi-yirram	bidi-	mind-
1du.exc	yin-girram	yinj-	irrinj-
2du	wun-girram	wunj-	(w)unj-
3du	<none>	winj-	winj-
1pl.inc	yu-rru-mulu	yurr-	irri-
1pl.exc	yi-rri-mulu	yirr-	irri-
2pl	wu-rru-mulu	wurr-	(w)urru-
3pl	<none>	wirr-	wirri-

Comparison of the free pronoun columns in (26) and (27) suggests that the n-sg marker was originally *-rri*. It is retained as this in Djamindjung but in Nungali has undergone vowel assimilation, becoming *-rru* after *u* and remaining *-rri* after *i* (see the discussion and reconstruction at (24) in §7.2.1). In Nungali there has been further assimilation in the bound O column. When the first vowel is *u*, it becomes *i* when following *y*, and then the second vowel assimilates to it; finally, initial *y* is dropped from before *i*. Thus for 1pl.inc bound O form we get *yurru* > *yirru* > *yirri* > *irri*, which is identical to 1pl.exc, leading to neutralisation of the inc/exc distinction just in pl number and for O function.

In a fair number of prefixing languages the combined A-plus-O prefix complex provides full person/number information for one of the core arguments (often determined by a hierarchy: non-third > third) but only partial information – perhaps just number specification – for the second argument. This is discussed in §9.5. In connection with this, there are a number of instances of person neutralisation. For instance, in NBb2, Warndarrang, it seems that if first person is A or O, then second and third person are neutralised at the other core argument (the normal third person form being used). Person neutralisations are also found in NBi, Gungarakanj, NB11, Wagiman, and NBf4, Ndjebbana.

Free and bound pronoun systems can also differ with respect to the treatment of ‘me and you’. In (16) of §7.2 we saw that in NBh2, Warray, the free pronouns have a min/n-min system, the bound pronouns in S function have sg/n-sg plus inc/exc, and the bound pronouns in O function have just sg/n-sg with no inc/exc distinction; and, furthermore, 1n-sg and 2n-sg fall together. At (11) in §7.2 it was mentioned that in NBg2, Gunbarlang, free cardinal pronouns simply have a sg/du/pl system but that an extra term, referring to ‘me and you’ is added for the free oblique and bound paradigms.

8.5.2 Number

In many Australian languages the same number distinctions are made in free and bound pronouns, but in others they differ. When they differ we always find fewer number distinctions in bound pronouns, never the other way round.

It appears that for every language in the non-prefixing groups B–Y, WA–WI and WMb, if there are bound pronouns these show the same number distinctions as the free forms – generally sg/du/pl (but min/n-min in Bb). In the non-prefixing groups WJ and WK there is neutralisation of du and pl in certain circumstances; this is detailed under (c) below. And in (b-i) below the straight number neutralisation in the non-prefixing language NAb2 is described.

Prefixing languages show considerable variation. We can identify three types: (a) number distinctions maintained; (b) number distinctions reduced; (c) conditioned neutralisation.

(a) *Bound pronouns have the same number distinctions as free forms.*

(i) NBe, NBg2, NCb1 and WMa have sg/du/pl systems, plus inc/exc, in free and in bound pronouns.

(ii) Some languages just have a two-term number system in free pronouns and this is retained in bound forms – min/n-min in NBi, NB11, NE2, N1b and NL; and sg/n-sg in NHc and NKa.

(iii) As shown at (18) in §7.2, subgroup NF has an unusual pronoun system with one term covering 1du and 1pl.exc and another for 1pl.inc. This is the same in free and bound pronouns.

(iv) In a number of languages free pronouns have a basic sg/n-sg (or min/n-min) system, with du and pl (or ua and aug) suffixes being added to the n-sg (or n-min) forms. The bound pronominal prefixes show just sg/n-sg (or min/n-min) but the du and pl (or ua and aug) increments can be added to the end of the verb, effectively producing discontinuous bound pronouns. This is found in NBc, NHb, NHe and NKb. Groups NG and NHd are similar except that here the number increments as du, pl and also trial/paupal.

(b) *Bound pronouns have fewer number distinctions than free forms.*

(i) A number of languages with a three-term number system in free pronouns have this reduced to a two-term system in the bound paradigm. We find a min/ua/aug system reduced just to min/n-min in NBh, NE1 and N1c. In NBg1 there is a min/ua/aug contrast in free possessive pronouns and in bound S and bound A, but only min/n-min for bound O (free ASO pronouns have a simpler system, sg/n-sg with no inc/exc). In ND there is a sg/du/pl system in free pronouns, but just sg/n-sg in bound forms. The non-prefixing language NAb2, Yukulta, has a sg/du/pl number contrast in its free pronouns but just sg/n-sg for pronominal enclitics (with an inc/exc contrast all through).

(ii) N1a, Umbugarla, appears to have a three-term number system min/ua/aug for free pronouns but just sg/n-sg plus inc/exc for bound pronouns. NBb2, Warndarrang, has a sg/du/pl plus inc/exc system for free pronouns and for S and O pronominal prefixes, but simply a min/n-min system for reference to A in the prefix complex.

(iii) In NBk, Gaagudju, free pronouns show a min/ua/aug number contrast but bound pronouns lack any number distinction and simply mark person.

In (26) and (27) we had the free and bound pronoun paradigms for NCa1, Djamindjung, and NCa2, Nungali, showing how phonological change has led to person and inc/exc neutralisations in the O prefix paradigm. In the related language NCb3, Wambaya, the sg/du/pl and inc/exc contrasts in free pronouns are maintained in the subject prefixes but lost from the O prefix, as shown in (28). (The bound A series

differs from the bound S only in having a gender distinction for 3sg; there is an m form *gini-* and non-m *giyi-*.)

(28) Pronouns in NCb3, Wambaya (Nordlinger 1998: 126, 139)

	free AS	bound S	bound O
1sg	ɲawu(rmidji)	ɲi-	-ɲ-
2sg	njami(rmidji)	ɲji-	-ɲj-
3sg	<none>	gi-	∅
1du.inc	mirndi-yani	mirndi-	-ɲ-
1du.exc	ɲu-rlu-wani	ɲu-rlu-	-ɲ-
2du	gu-rlu-wani	gu-rlu-	-ɲj-
3du	wu-rlu-wani	wu-rlu-	∅
1pl.inc	ɲu-rru-wani	ɲu-rru-	-ɲ-
1pl.exc	ɲi-rri-yani	ɲi-rri-	-ɲ-
2pl	gi-rri-yani	gi-rri-	-ɲj-
3pl	i-rri-yani	i-rri-	∅

Here it appears that 1sg and 2sg were reduced to *-ɲ-* and *-ɲj-* for the O prefixes, and these were then generalised to all numbers, together with ∅ for third person. NCb2, Ngarnga, shows similar neutralisations.

(c) *Conditioned number neutralisations in bound pronouns.*

(i) The most common neutralisation applies in a three-term number system as follows: if both A and O are n-sg (or n-min) then the du/pl (or ua/aug) contrast is neutralised for both A and O, with just the pl (or aug) bound pronominal form being used for both du and pl (or ua and aug) reference. This is found in the clitic pronominals of a number of non-prefixing languages. It is reported for WJa3, Gurindji, and for WJa4, Mudbura (although in the Ngarinman dialect of WJa3, recorded by Capell – noted in McConvell 1980: 56 – only the A bound pronoun undergoes this neutralisation). This neutralisation is also found in WJb1, Warlpiri, and WJb3, Warlmanpa (although Hale 1973b: 330–1 reports that in the western dialect of Warlpiri there is du/pl neutralisation for only one of A and O – that which is lowest on a hierarchy 1 > 2 > 3). Interestingly, the du/pl neutralisation when both A and O are n-sg is also found in WK, Warumungu, which has just one set of pronouns, part way between free and bound; A and O fuse together and can either make up a full NP or be encliticised to the end of the first phrase in the clause.

In NCa2, Nungali and in the Ngaliwuru dialect of NCa1 – which is next to Gurindji – if both A and O are n-sg then just the A pronominal prefix has the du/pl distinction neutralised (with pl form used).

The same type of neutralisation, applying to both A and O (but here for ua/aug) is found in NBf and NBm. Other prefixing languages show variations on this pattern:

- (1) In NBb1, Marra, if A and O are both n-min, then the ua/aug contrast is neutralised for all persons in O and just for third person in A (here the ua form is employed).
- (2) In NBa, Mangarrayi, if O is 3n-min and A is 2n-min or 3n-min then the ua/aug distinction is neutralised for both O and A (with the aug form being used).
- (3) In NBd2, Nunggubuyu, if O is first or second person, then the ua/aug distinction is neutralised for both A and O; and if O is third person and A is first or second person, then the ua/aug distinction is neutralised just if O has human reference (not if non-human).

(ii) NB12, Wardaman, has just a two-term number system, min/n-min. This can undergo neutralisation. If A is 1n-min and O is second person, then no distinction is made between 2min and 2n-min as O. And if A is third person and O is second person, no distinction is made between 3min and 3n-min at A (the 3n-min form is used for both).

(iii) NBd1, Ngandi, has a min/ua/aug system for free pronouns and S pronominal prefixes. However, the prefixes only distinguish two numbers, min and n-min, for both A and O. Furthermore, if A is first person, there is no number distinction for 2 as O (2min and 2n-min falling together) and if A is second person there is no number distinction for 1 as O (1min and 1n-min falling together).

(iv) In NBd3, Anindhilyagwa, there are a number of neutralisations, including: if O is 2sg, no distinction is made between 1sg and 1n-sg at A, and if A is 1n-sg, no distinction is made between 2sg and 2n-sg at O.

8.6 Position

There are a number of parameters to explore here. Whether all bound pronominal forms are gathered together in one place, or are split, appearing at two distinct places in the clause. If they do occur together, what conditions the ordering of A and O (and/or dative) in a transitive clause (and S and dative in an intransitive clause, where this occurs). And finally, where in the clause affix or clitic pronouns may be attached. §§8.6.1–3 discuss these in turn.

8.6.1 Number of positions

In the majority of languages all bound pronominal forms occur together (in NBe, Dalabon, the O pronominal proclitic immediately precedes the A pronominal prefix). There are just a handful of exceptions, some in prefixing and some in non-prefixing languages:

- (a) In NL, Tiwi, all bound pronouns are prefixes but at different places in verb structure. AS (fused with tense) occurs as the first prefix and O or dative is seventh prefix (out of a total of fourteen prefix positions) – see (2) in chapter 9.
 - (b) In NHa, Patitjamalh, S and A-plus-O (fused with tense) occur as prefixes to the verb, while dative or implicative clitics follow the verb.
 - (c) In NHb–e, there is a verbal prefix just marking S or A (fused with tense and reality) while O and/or dative bound pronouns are suffixes or enclitics to the verb. Subgroup NE, areal group NG and NKb, Amurdag, show a similar structure.
 - (d) ND has three affixal elements to the verb which relate to bound pronouns – a prefix combining information about tense with S or A-plus-O, a suffix immediately following the root that provides more information about core arguments, and a later suffix with information about dative, ablative, etc.
 - (e) WGb, Nhanta, has an AS enclitic pronoun onto the first constituent in the clause, and enclitics for O and/or dative attached to the verb.
 - (f) Bc4, Kugu-Muminh, has two separate bound pronominal mechanisms. What must be the older one is a suffix to the verb, fusing information about A or S with tense. The more recently developed mechanism consists of AS and O clitics that generally attach to the last word before the verb (it seems that A and O clitics can occur in either order). These two mechanisms provide complementary information about A and S – see the discussion in §8.8.
 - (g) In Eb1, Yir-Yoront, pronominal clitics can occur together, typically on the first constituent of the clause or on the verb (and they can be repeated within a clause). Alpher (1991: 71) reports that they can also appear separately, attached to different elements of the clause.
 - (h) The materials available on Tb2, Kuurn-Kopan-Noot, are slender but it seems that AS and O enclitics may both attach to the same place (to the verb, or to the first constituent of the clause) or to different places, similar to Yir-Yoront. Wilkinson (1978: 119) notes from Dawson (1881: xc) the following sentence:
- (29) baŋ-ŋayi tamburt-ag-ud
 NOT-1n.sgO find-FUT-3plA
 They will not find us

8.6.2 *Order of transitive arguments*

When A and O bound pronouns occur together, there is normally a principle underlying the order in which they occur. This can depend on syntactic function – A before

O, or O before A. Or it can depend on person – for instance first before second before third. Or on a combination of person and number. If the basic ordering principle is person-based, then syntactic function (A before O, or O before A) will generally be invoked when both A and O are third person.

We now examine these ordering principles in turn (also paying attention to place in order of dative and other pronominal arguments, where these occur).

(i) *By syntactic function, A before O.* This is the most common order, for both pronominal clitics and affixes. It is found in those languages which have pronominal enclitics or suffixes from groups Ee, J, Na, Nd, O, Pb, Ta, V, WAd, WBa and WHc8. And it is found in the prefixing languages NBg2 and NC.

Languages which have either O or dative for the second bound pronominal, place these in the same slot. In languages of Type (i) we may have A followed by O, or A followed by dative (or S followed by dative, in a few cases). Ja2, Biri, may include three enclitic pronouns in a clause and they are always in the order: A, O, dative, as in (11) above.

Perhaps the most complex clitic system is that found in WJa1, Walmatjarri. Here the 'auxiliary constituent' has six components. A modal root is followed by four pronominal enclitic series – the first effectively shows person of S or A, the second shows person of O or dative or accessory, the third number of O or dative or accessory, and the fourth number of subject. The final element, *-rla*, is included to mark that the second bound pronominal argument refers to an accessory, not to O or dative. ('Accessory' was explained at the end of §8.2.2. Full details are in Dixon 1980: 369–72, based on Hudson 1978: 56–76.)

In related languages such as WJa3, Gurindji, and WJb1, Warlpiri, this system has been simplified somewhat, but some AS clitics still have discontinuous form, a 'person' component preceding the O clitic, and a 'number' component following it.

(ii) *By syntactic function, O before A.* This order is less common, but it does occur for pronominal enclitics in Ne, Ya3, Yc and some dialects of WD; and for prefixes in WMa, NBc1, NBk, NG (and probably in NIb1). In Ya3, Ritharngu, an intransitive clause can include oblique plus S pronominal enclitics, in that order. In Yc, the Western Yolngu subgroup, we can get three bound pronouns in a clause but they must appear in different positions – O plus A (in that order) before the verb, and dative after the verb, as in (10) above.

(iii) *By person, first before second before third.* In quite a few languages, the order of bound pronouns follows a hierarchy $1 > 2 > 3$. That is, a first person clitic or affix

(whatever its function) will precede a second or third person form, and a form referring to second person will precede one referring to third person. We then need to ask what the order is if both A and O are third person – is it O before A or A before O? (In some languages it is impossible to analyse an A-plus-O combination to discern an order, when both A and O are third person, because of the occurrence of zeros; and for some this information is not available.)

We find $1 > 2 > 3$ and $A > O$ when both are third person for the clitic combinations in Nc3 and Wlb. The ordering $1 > 2 > 3$ and $O > A$ when both are third person is found for enclitics in WJb3, and in some dialects of WD. Languages in which we have $1 > 2 > 3$ but no statement can be made about the order of O and A when both are third person include W1, Kalkatungu (where there is generally only one bound pronoun, selected according to the person hierarchy), Wb2, Adnjamathanha (data not available), and Nab2, Yukulta (most third person clitics are zero).

Nc3, Ngiyambaa, may code all of A, O and dative, with the $1 > 2 > 3$ hierarchy determining which comes first, and $A > O$ if both are third person. This was illustrated in (12) which has 1sg_{DAT}, followed by third A, and then third O.

Nab2, Yukulta, appears to employ different principles for intransitive and transitive clauses. An intransitive clause can include pronominal enclitics for S and for an oblique argument, and oblique will always precede S. A transitive clause will involve A and O enclitics and here the order is determined by the hierarchy $1 > 2 > 3$, except that 3n-sg will precede 2sg (Keen 1983: 218–19).

(iv) *By person, non-third before third.* In many of the prefixing languages, if one of the transitive core arguments is third person then the order non-third $>$ third is followed, and if both arguments are third then generally $O > A$ (although in a couple of languages we find $A > O$). And some languages extend the hierarchy by 3n-sg $>$ 3sg or 3n-sg $>$ 3sg.animate $>$ 3sg.inanimate. When both arguments are non-third (i.e. A is first and O is second, or vice versa) languages vary in the coding strategies they employ. This is discussed in some detail in §9.5.

(v) *Mixed criteria: first before others, A before O.* A number of languages combine the principles of ordering by person and ordering by syntactic function: first person comes first, otherwise A before O or dative. This appears to hold in Da-c (although the data here are skimpy). For W1a and some languages in WJ the basic principle is A before O, except that 1sg must come first in order. For Eb1, Yir-Yoront, a first person enclitic comes first and the principle for ordering second and third person appears to be phonological – that which is ‘lighter’ will come first (Alpher 1991: 41).

For some languages that have pronominal clitics for both A and O it is not possible to say what their relative order is. In the case of Nc2, Wiradhurri, and Wmb1, Wagaya, for example, there are just not the data available.

Finally, for Bc4, Kugu-Muminh, Smith and Johnson (2000) state that either order is acceptable for A and O enclitics. One can only speculate that the order which is employed in a particular instance may perhaps relate to the organisation of discourse.

8.6.3 *Location in the clause*

Bound pronominal prefixes and suffixes always attach to the verb, as do proclitics in the only language for which they are reported, NBe, Dalabon. Pronominal enclitics have a wider range of possibilities across the languages in which they occur.

(a) *Onto the verb.* Non-prefixing languages in which bound pronouns (some of them enclitics, some suffixes) are always added to the verb include Bc2–3, C, Dc1, Eb2, Ja1–2 (see (9) and (11) above), Nd, Ne, O–S, W, WAd, WB, WH and WIa. In addition, O and dative clitics in WGb, Nhanta, and one set of AS bound pronouns in Bc4, Kugu-Muminh, also attach to the verb.

(b) *Onto the first constituent of the clause.* This position is reported for pronominal enclitics in Nc – see (12) – U1, WD, WGD and WK (and also NCb3 – see discussion at the end of §9.1). And for the AS clitics in WGb, Nhanta. Grammars vary in how they characterise ‘first constituent’. Some say ‘first word’, some ‘first phrase’ and some are vaguer in stating ‘first constituent’ without specifying what type of constituent this is. It is likely that in most instances ‘first constituent’ refers to a phrase. If the clause begins with a multiword NP, pronominal enclitics will attach to the last word of this phrase. However, this is a question which requires study, across the languages in which it occurs.

In some cases there appear to be restrictions on the type of clause-initial element to which bound pronouns may be attached. In Nc1, Gamilaraay, for instance, it may only be an interrogative or a negator.

(c) *After the word that immediately precedes the verb.* In Yc, the Western Yolngu subgroup, S, A and O bound pronouns generally appear immediately before the verb, either as independent words or as enclitics to the preceding word – see (10). In the discussion below, I suggest that it is this type of placement which is the first step towards the development of pronominal prefixes.

In other languages there may be a number of possible positions available for clitic attachment.

Combining (c) and (a). In Bc4, Kugu-Muminh, pronominal enclitics are generally attached to the word immediately preceding the verb but can attach to the verb itself. Bc1, Wik-Ngathan, has these as the main possibilities, but may alternatively attach the clitics to any word in the clause. In Da–b bound pronouns generally follow the verb but can immediately precede it.

Combining (a) and (b). Pronominal clitics may attach either to the verb or to the first constituent of the clause in Na1, V, Ya3 and some languages from group T. There can be restrictions on the type of initial constituent – in southern dialects of V, Baagandji, bound pronouns may only attach to an initial interrogative; in Ta2 and Tb they may follow an initial interrogative or negator.

For just a few languages it is reported that clitic pronouns may follow any word in the clause – Bb, WJa3 and WMb1. For Eb1, Yir-Yoront, Alpher (1991: 41) states: ‘pronominal clitics most typically follow the first constituent of a clause or follow the verb. However, they not uncommonly follow other elements, and they can occur repeated within a single clause. Subject–Object clitic combinations (or full pronoun plus clitic combinations) occur together or separately, in the latter case attaching to separate elements of the clause.’

(d) Onto an auxiliary element. In a number of languages, enclitic pronouns attach to an ‘auxiliary’ element, whose sole function appears to be to host bound pronominal forms. This auxiliary constituent may occur at any of the positions already listed (save that it has not been reported in the rather rare position (c), after the word that immediately precedes the verb).

(i) In Ee, Kukatj, it appears that pronominal clitics may be added to the initial constituent of the clause, or O and A forms may attach to each other, forming one word. Alternatively, the clitics may attach to an auxiliary *nha-* or *(a)k(ə)-*; the meanings of these auxiliaries have not been determined, from the slim materials available on the language. The auxiliary complex may be cliticised to another word, or may stand alone. In (30) the first clause has an S clitic attached to the first word, and the second clause has an auxiliary constituent (including A and O bound pronouns) immediately before the verb (based on Breen 1976c: 157). (Cf. (14) above.)

- (30) ki:l-uk-ew ki:ni-l, kurək-k-əl_A nha-l-aŋ ki:yi-nh
 HERE-ALL-1sgS go-IMPERFECT dog-ERG AUX-3sgA-1sgO bite-PAST
 As soon as I came here, the dog bit me

(ii) In W1b, Mangala, pronominal clitics are added to an auxiliary *ŋa-* (although this can be omitted) with the auxiliary complex then following either the first word of the clause or the verb.

(iii) In WJa1, Walmatjarri, pronominal clitics are added to a modal auxiliary. There are three choices: indicative *pa-* or *ma-*, interrogative *ŋa-* or imperative/hortative *ø*. The auxiliary complex is generally the second element in the clause (it is never found utterance-initially). It may be cliticised to the preceding word or it can be a word in its own right (with its own stress).

Other languages from subgroup WJa have similar grammar. For WJa2, Djaru, *ŋa-* is reported to be the declarative auxiliary, *pa-/wa-* to be the interrogative (note that meanings are reversed between Walmatjarri and Djaru), with imperative again being zero. In WJa4, Mudbura, there is an unmarked auxiliary *pa-* and also *pi(ya)-* ‘possibility with adverse result’ and *nja-* ‘possibility without adverse connotations’. In southern dialects of WJa3, Gurindji, the auxiliaries include unmarked *ŋu-* and complementiser *njamu-* (again with *ø* for imperative). However, in northern dialects of Gurindji there are no auxiliaries, pronominal enclitics being attached directly to the first word of the clause.

(iv) Auxiliaries are also employed in WJb1, Warlpiri, and in WJb3, Warlmanpa, but their forms and meanings again differ. In Warlpiri they include *ka-* ‘present’, *kapi-* ‘future or past counterfactual’, *katjiku-* ‘potential’, *kalaka-* ‘admonitive’, and *kutjaka-* ‘present deictic’ (e.g. ‘there sits X’); note that all but the last commence with *ka-*. In Warlmanpa the auxiliaries include *ŋa(rra)-* ‘future’ and *kari-* ‘conditional’.

Hale (1973b: 313–14) provides an illuminating discussion of the placement of the auxiliary constituent in Warlpiri. It generally follows the first word, but if the clause begins with a multiword NP, it will follow the last word of that NP, e.g.:

- (31) [wawirri njampu]_O kapi-rna-*ø* purra-mi
 kangaroo THIS FUT.AUX-1sgA-3sgO cook-NON.PAST
 I will cook this kangaroo

However, word order is free in Warlpiri and the words of an NP may be distributed through a clause, one coming in clause-initial position and the others in later positions. The auxiliary constituent will then follow the first word of the NP, that which is in clause-initial position.

(v) NAb2, Yukulta, has an auxiliary constituent of a quite different type. It begins with the bound pronouns (following the order 1 > 2 > 3 for a transitive and oblique > S for an intransitive clause), and concludes with an auxiliary element that indicates transitivity, tense and realis/irrealis (see Keen 1983: 219–23). The auxiliary complex is cliticised to the end of the first constituent of the clause. For instance:

- (32) rtanj-irlu=ka-yi-ŋka warra munkupay-inapa
 HERE-ALL=1sg-INTR+PAST-REALIS go/come Burketown-ABL
 I came here from Burketown

8.7 Links with other categories

There are a number of ways in which bound pronouns can interrelate with other grammatical categories. The choice of bound pronouns may carry information about some other category. Or there may be a dependency between bound pronominals and another category (in either direction). Or bound pronouns may simply be linked, in surface realisation, with another category. We discuss these in turn.

In Nc3, Ngiyambaa, the category of definiteness is shown by the use of third person bound pronouns. In this language, free pronouns cover just first and second person; there is a rich set of demonstratives that can be used in place of third person free pronouns. However, the bound pronouns cover first, second and also third person. Now a first or second person pronominal clitic cannot cooccur with the corresponding free pronoun, but a third person pronoun can be used in addition to an NP realising the same core argument. If there is no third person bound pronoun, the reference is indefinite, as in (Donaldson 1980: 128):

- (33) mirri-gu_A burra:y_O gadhiyi
 dog-ERG child+ABS bite+PAST
 The/a dog bit a child/some children

However, if a third person enclitic is included (it is added to the end of the first constituent of the clause in this language) then the reference becomes definite:

- (34) mirri-gu=na burra:y gadhiyi
 dog-ERG=3sgO child+ABS bite+PAST
 The/a dog bit the child

(Note that the pronominal enclitic also specifies that the O has sg number.)

There appears to be little in the way of dependencies between bound pronouns and other grammatical categories. No other category choice depends on whether or not a bound pronoun is included in a clause. However, the use of bound pronouns may depend on mood or clause type.

In WHc9, Nyamal, there is a single paradigm of pronominal enclitics, in AS function. A choice from this system is obligatory in a main clause but a bound pronoun may not be included in a purposive or other subordinate clause. In an imperative clause, reference to second person is coded by a clitic that in non-imperative clauses relates to third person.

In U1, Yarlalde, bound pronouns appear not to be used at all in imperatives. (This relates to the fact that bound pronouns are a recent development in this language, and imperatives often retain archaic structural characteristics.) In W2, Yalannga, bound pronouns are probably being lost and here they are only used in imperatives. In W1, Kalkatungu, bound pronouns also appear to be being lost, and there are here three sets,

one used in 'lest' subordinate clauses, one in purposive clauses and the other just for anaphoric reference in main clauses.

Finally, we can look at languages where there is no grammatical dependency between bound pronouns and another category, but bound pronouns are simply joined to another piece of grammatical information in their realisation. In a certain language the verb may have a tense suffix followed by a bound pronominal suffix and these may – through phonological fusion – cohere into a portmanteau tense/person/number suffix. But such a linking of realisations does not indicate that there is any grammatical association between tense and pronominal categories. In its underlying grammar this language is no different from one in which the verb structure has remained agglutinative, or another in which bound pronominal clitics are added not to the verb but to the first word of the clause.

X2, Garrwa, does not have bound pronouns per se, but O and A free pronouns can be fused together as one word. It is interesting to note that in this language a tense marker can be attached either to the verb or – more frequently – onto a pronominal constituent. Present tense generally has zero marking, although with a couple of pronouns the final vowel is replaced by *-a* (e.g. 1sgAS *ɲayu*, present tense form *ɲaya*). For past tense, *-i* replaces the stem-final vowel (e.g. 1sgAS past *ɲayi*). A clitic *-dja* marks future tense; this is generally enclitic to a pronoun, as in (Furby 1972: 12):

- (35) *mangu* *ɲa-ninjdji=dja*
 hear 1sgO-2sgA-FUT
 You (sg) will hear me

(Note that the full form of pronouns is *ɲana* for 1sgO and *ninjdji* for 2sgA, *ɲana* reducing to *ɲa-* in this pronoun combination.) However, future *dja* is sometimes proclitic to a pronoun. When it is proclitic to 1sg AS form *ɲayu* this reduces to *ɲa-* (as did 1sg O form *ɲana* in (35)). This could well be the stage preliminary to the development of a system of bound pronouns. For instance:

- (36) *yaminga* *djuŋgu* *dja-ɲa* *gamu*
 wide.awake sit FUT=1sgS later.today
 Afterwards, I will stay wide-awake

(Note that word order in Garrwa is free. For instance, a pronoun – whether marked with proclitic or enclitic *dja* – may either precede or follow the verb.) (Breen p.c. reports that a similar phenomenon can be observed in WAb1, Yandruwanhdha, where 1sgA can fuse just with 2sgO or 3sgmO.)

In language Q, from Gippsland in south-east Victoria, it appears that tense and person/number of subject are fused into a portmanteau verbal suffix. The following paradigm, from the Bidhawal dialect on the Victoria/New South Wales border, is from

Mathews (1907: 352) and retains his (non-phonemic) orthography:

(37) Q, Bidhawal dialect – verb ‘to strike or beat’ for sg subject

person	present	past	future
1sg	bundanetch	bundadya	bundinga
2sg	bundadu	bundani	bundinyin
3sg	bunda	bundan	bundin

The fusion of tense with bound pronouns is also found in Bc2–4 and in V; these are discussed in §8.8. In Ja2, Biri, there is just a little fusion between tense and subject enclitic, e.g. future *-li* plus 1sg AS form *-aya* produces *-laya*.

In §8.6.3 it was mentioned that in some languages pronominal clitics are attached to an auxiliary, which generally has a TAM meaning. This constitutes another example of the syntagmatic association between person/number and TAM marking, without any dependency or other grammatical relations being involved.

Many prefixing languages have a TAM prefix followed by the pronominal prefixes (or vice versa). These are often fused into portmanteau forms. In one language a directional prefix (‘hither’ or ‘thither’) is fused with bound pronouns and in another both directional and tense are. These are all discussed in the next chapter.

8.8 Patterns of development

We can now consider the way in which languages gain bound pronouns: they firstly have them as clitics; then further grammaticalise them to be affixes; lose them, through phonological reduction or areal influence from neighbouring languages; and then develop them all over again, following the pattern of cyclic change that characterises so many parameters in the grammars of Australian languages.

§8.4.1 discussed languages which are at Stage I in the development of bound pronouns, when the forms of bound pronouns are closely related to those of free pronouns – sometimes identical to them, other times just omitting the initial C- or CV-. We find a number of examples of low-level genetic groups where bound pronouns have developed independently in some (or all) of the member languages of the subgroup.

Y, the Yolngu subgroup, consists of eight languages, arranged in three lower-level subgroups. Bound pronouns have developed independently in just one language of subgroup Ya (Ya3, Ritharnngu) and in the two languages (Djinang and Djinba) of subgroup Yc. We can illustrate with one sample pronoun:

(38) 1sg in two Yolngu languages

Ya3, Ritharnngu (Heath 1980a: 44)		Yc1, Djinang (Waters 1989: 33, 139)	
free AS	ŋarra	free AS	ŋarri
free O	ŋarra-nha	free O	ŋirri-nji
bound AS	-rra	bound AS	-irr
bound O	-rra-nha	bound O	-irri-nj

In Ritharngu the clitic pronouns are generally added to the first word of the clause (in the order O plus A). In Djinang they are generally added to the word immediately preceding the verb (again in the order O plus A).

The Yolngu subgroup is located in north-east Arnhem Land, entirely surrounded by prefixing languages. Bound pronouns have developed just in Ritharngu, Djinang and Djinba, which are contiguous to prefixing languages; they have not developed in those Yolngu languages which have no common boundary with a prefixing language. Ritharngu, Djinang and Djinba remain non-prefixing, with their bound pronouns being enclitics. However, I shall suggest that the positioning of bound pronouns in the Yc subgroup – as enclitic to the word immediately preceding the verb – is the stage immediately prior to the development of prefixing. It is but a small shift for a bound pronoun to change from being enclitic to the word immediately before the verb to becoming a proclitic (and then a prefix) to the verb.

One of the most interesting genetic subgroups in Australia is WM, since it is geographically discontinuous. WMa, Yanyuwa, is nowadays separated by the languages of subgroup X from its three genetic siblings in WMb. It is clear that proto-WM had no bound pronouns and these are not found in WMb2, Bularnu, or WMb3, Warluwara. They have developed in quite different ways – and obviously independently – in WMa, Yanyuwa, and WMb1, Wagaya. Yanyuwa is situated next to prefixing languages of group NB and has developed obligatory pronominal prefixes that are very close in form to its free pronouns. As in Ya3, Ritharngu, and Yb, the Western Yolngu subgroup, the introduction of bound pronouns must be due to areal pressure, the diffusion of this structural characteristic. Unlike the Y languages, Yanyuwa has accommodated to this diffusional pressure by not only developing bound pronouns, but having them as prefixes. However, none of Wagaya's neighbours has a full paradigm of bound pronouns and here the development is likely to be internally motivated. The bound pronouns in Wagaya are enclitics and can be attached to any word in the clause; they are essentially optional, although a bound pronoun is generally preferred over the corresponding free form.

We can illustrate the forms with one sample pronoun, in (39).

(39) 1pl.inc forms in WMa, Yanyuwa and WMb1, Wagaya

Yanyuwa (Kirton 1970: 826, 828)		Wagaya (Breen 1976d: 591)	
free SO	ŋambala	free AS	ŋambul
free A	<none>	free O	ŋambulinj
prefix SO	gambala-	enclitic AS	=abəl
prefix A	-ŋambala-	enclitic O	=abinj

It will be seen that in Yanyuwa both free and bound pronouns follow an ergative (A/SO) system, like nouns. In fact there is no free pronoun in A function, just a bound form.

The SO prefix precedes the A prefix on the verb and all SO forms commence with *g-*, perhaps a relic of an old auxiliary. In Wagaya both free and bound pronouns maintain an accusative (AS/O) case system.

It appears that – in the majority of instances – when bound pronouns develop, a complete paradigm is formed. That is, we do not get just one bound pronoun, then another a few generations later, and another a few generations down the line, and so on. There do, however, seem to be a few languages with only partial paradigms. In some cases only part of what was a full paradigm may have been collected by the linguist, due to the exigencies of working with semi-speakers in a language death situation. In other cases bound pronouns may be being lost; and it is perhaps more likely that they should be lost gradually than that they should be gained gradually.

Some of the partial paradigms of bound pronouns were mentioned at the end of §8.2.1, e.g. X1, Waanji, has just 1sg AS enclitic *-ŋa*. For WGa1, Watjarri, there appear to be in use just five AS enclitics (1sg, 2sg, 1du, 1pl and 3pl) and only two clitics in O function (1sg and 2sg). Bound pronouns are used rather sparingly in Watjarri (Douglas 1981), suggesting that they may be being lost. In Bc3, Wik-Mungkanh, there is a full set of AS pronominal suffixes that are fused with tense on the verb. There are also bound pronouns in O and peripheral functions, but just for 1sg and 3sg; these may optionally be added to the verb, following the tense/subject suffixes. They have rather different form from the free 1sg and 3sg O and oblique pronouns, suggesting that they are not a recent development. In a check of the occurrences of 1sg in O or peripheral function, in the sentences of Sayers (1976a), there are five examples of 1sg coded by a bound pronoun and seven coded by a free pronoun. It may be that free pronouns in all functions developed into bound forms; the AS enclitics then became suffixes and fused with tense, while the non-subject bound pronouns began to be lost, so that only 1sg and 3sg now remain. But, it must be stressed, this is only a tentative hypothesis.

We can now try to examine the ways in which bound pronouns developed. §8.1 summarised typical differences between free and bound pronouns in terms of function, position and form. Free pronouns are head of an NP (with the possibility of taking modifiers); they generally have free positioning within the clause; and they constitute a full phonological word, almost always consisting of at least two syllables. Bound pronouns are not part of (or all of) an NP and do not take modifiers; they generally have a fairly fixed position (or one of a limited number of possible positions); and they are generally not complete words, being instead either affixes or clitics to some other word. They often consist of just one syllable, or simply one segment (and they can have zero realisation).

There are two kinds of trigger for the evolution of bound pronouns. One is for free pronouns to begin to lose their independent form. The other is for free pronouns to

begin to lose their freedom of positioning. We can perceive each of these tendencies in languages that have not yet developed bound pronouns but are on the threshold of doing so.

In a few languages without bound pronouns, A and O free forms can fuse together as one phonological word – see (35) above from X2, Garrwa. In the material available for Ed1, Kurtjar, there is just one fused pronoun – 2sgO *a:n* plus 1sgA *ŋa:y* combine to form *a:ŋi:y* (with the high central unrounded vowel *i*). In Eb2, Koko Bera, A and O free pronouns can fuse together (the order probably follows the hierarchy non-third > third) and make up one word which typically follows the verb – here we find both loss of individual form for the pronouns and the beginnings of loss of freedom of positioning.

WAa3, Arabana, is geographically close to languages of group WB, which have a well-developed set of bound pronouns. Constituent order in Arabana is basically AOV and SV, but sometimes a pronoun can immediately follow the verb; this happens most often with 1sg and 2sg. When this does happen the final vowel of the verb may elide (in Arabana all pronouns begin with a vowel) and the verb-plus-pronoun constitutes one phonological word with one primary stress. Compare (Hercus 1994: 264 and p.c.):

(40) WAa3, Arabana/Wangkangurru

standard expression		alternative expression
(a) ánhtha	yúka-rnrda	(b) yúka-rnrd-anhtha
1sgS	go-PRES	go-PRES-1sgS
I am going		I'm going

Note that (a) would be used when there is emphasis on the subject, but (b) might be used when there is emphasis on the action (as in answer to a question 'What are you doing?'). There are not (as yet) separate sets of free and bound pronouns in Arabana; but we have the free pronouns (mainly 1sg and 2sg) occasionally being positioned after the verb and merging with it phonologically. This is the first stage before the development of a fully fledged system of bound pronouns.

WIa1, Njangumarta, is near the edge of a geographical area where bound pronouns are found. It shows two clearly distinguishable sets of pronouns. Free pronouns have the plain root in S or O function and add ergative *-lu* for A; they function as head of an NP and have freedom of positioning within the clause. Bound pronouns appear immediately after the verb and are obligatory in main clauses (they may not be used in a type of purposive subordinate clause that is derived by verbal nominalisation). Unlike free pronouns, they follow an accusative (AS/O) case system. The forms of free pronoun roots and of the three series of bound pronouns are (Sharp 1997: 330; 1998: 309, 314–15 and p.c.):

(41) W1a1, Njangumarta pronouns (some dialect variations omitted)

	free	bound		
	SO	AS	O	dative/locative
1sg	ŋatju	-rnV	-njV	-tjV
2sg	njuntu	-n, -npV	-ntV	-ŋu
3sg	palinj	ø	ø	-lV, -lu
1du.inc	ŋali	-li	ŋali-nji	ŋali-ku
1du.exc	ŋalayi	-layi	ŋalayi-nji	ŋalayi-ku
1pl.inc	ŋanjtjurru	-njV	ŋanjtjurri-nji	ŋanjtjurra-ku
1pl.exc	ŋanarna	-yirnV	ŋani-nji	ŋana-ku
2du	njumpala	njumpulu	njumpuli-nji	njumpula-ku
2pl	njurra	njurru	njurri-nji	njurra-ku
3du	pulanj	pulu	puli-nji	pula-ku
3pl	tjana	-yV	tjani-nji	tjana-ku

It will be seen that some of the bound forms – marked with an initial hyphen – are enclitics (or perhaps suffixes) to the preceding verb. These are almost all monosyllabic and bear no independent stress. The remainder are independent phonological words, recognisable as bound pronouns only from their form and position (they must immediately follow the verb). Interestingly all of the AS bound pronouns are clitics except for 2du, 3du and 2pl, but from the O and dative/locative sets only the sg's are clitics.

Njangumarta provides a classic instance of a system of bound pronouns in its early stages. Free pronouns would originally have had an accusative system. Bound pronouns have developed from them, firstly through fixed positioning immediately after the verb. Then they became obligatory in main clauses. Free pronouns are now used sparingly in main clauses, mostly for emphasis, and have shifted to an ergative case system, by analogy with nouns. The last development in the case of this language (although it can be the first for other languages) is the reduction in form of bound pronouns, from free phonological words to be clitics to another word. The paradigm in (41) is also fascinating in showing a typical order of reduction – first sg's, and then 1n-sg's and 3pl, and last of all 2du, 3du and 2pl.

Vowels shown as 'V' in (41) assimilate in quality to the preceding vowel in the word (most vowels in nominal and verbal suffixes assimilate in this way). Note that the other languages in group WI (W1a2, Karatjarri, and W1b, Mangala) have bound pronouns with similar forms, but it appears that all of them are suffixes/enclitics to the verb. In these two languages there is no vowel assimilation.

It has already been mentioned that in a few languages AS and O pronominal clitics have different positionings within the clause; where this happens the two sets of bound pronouns are undoubtedly the result of separate historical developments. In the great majority of languages bound pronouns do cluster together (A with O and perhaps also with peripheral forms; sometimes S with peripheral forms). There are three basic possibilities:

- (a) Pronominal clitics form a unit of their own (this is what is found in most of the non-prefixing languages).
- (b) Pronominal clitics are added after an auxiliary, which generally provides some information about tense and/or aspect and/or modality and/or mood – as in Ee, Wlb and WJ, discussed in §8.6.3.
- (c) Pronominal clitics are followed by an auxiliary, which may indicate TAM and also transitivity, as in the case of NAb2, Yukulta, mentioned in §8.6.3.

In §9.4 we see how these three kinds of pronominal clitic complex relate to the kinds of pronominal prefixes in groups NB–NL and WMa. About twenty of the prefixing languages are of Type (b), with bound pronominal prefixes essentially following (although sometimes fused with) a TAM element. About fifteen are of Type (c) where the pronominal prefixes are followed by (and sometimes fused with) a TAM element. And there are a few languages of Type (a), where the pronominal prefixes are not associated with any TAM prefix.

The three main places in the clause where a pronominal enclitic complex may be located were mentioned in §8.6.3. The most popular is immediately after the verb. Clitics in this position are likely to be further grammaticalised and become suffixes to the verb; they may fuse with the preceding TAM suffixes, as illustrated in (37) for the Bidhawal dialect of Q and in (45–6) below. In quite a number of languages the preferred (or only) position for a pronominal clitic complex (with or without an auxiliary) is after the first constituent of the clause. These are likely to remain as enclitics.

In a handful of languages the pronominal clitic complex typically comes immediately before the verb; in §8.6.3 it was mentioned that this happens in Yc, and that immediately before the verb is also one of the preferred positions in Bc4, Bc1 and Da–b. This type of pronominal enclitic unit is likely to develop into pronominal prefixes to the following verb. In fact, the reason why there are so few examples of a bound pronominal clitic complex occurring immediately before the verb is probably that the others HAVE developed into verbal prefixes.

Subgroup Yc has bound pronouns, quite distinct from the paradigm of free pronouns. They are characterised by their position, generally immediately before the verb; and their form, being always reduced from the corresponding free pronouns. This can be illustrated, in (42), with three typical pronouns.

(42) Sample pronouns in Yc1, Djinang (Waters 1989: 33, 139)

	free			bound		
	AS	O	dative	AS	O	dative
1sg	ŋarri	ŋirri-nji	ŋirr-ki	=irr	irri-nj	irra
1du.inc	ŋili	ŋilitj-nji	ŋilitji-ki	=il	litj-nj(i)	litja
1du.exc	ŋilinji	ŋilinjili-nji	ŋilinjili-ki	linj	linjili-nj	linjila

Waters (1989: 23) points out that only the monosyllabic vowel-initial bound pronouns are cliticised, and then always to the word immediately preceding the verb (whatever that word may be). The consonant-initial and polysyllabic bound pronouns are almost never attached to the preceding word but maintain their own status as a separate phonological word (or A and O pronouns may link together to be a single word, as illustrated in (10) from §8.2.2, where 2sgO *njin* and 1sgA *-irr* make up one word *njirr*).

Like Njangumarta, Djinang (and the closely related Yc2, Djinba) has bound pronouns defined in terms of position and form, but some of them still – at this stage of development – maintain their status as independent words.

Having spent some time discussing how bound pronouns develop (a story that will be continued in the next chapter) we can now briefly consider the ways in which they may be lost, in whole or in part. There are two main kinds of trigger for this loss (and they are similar to the reasons for which bound pronouns develop) – by areal influence or by internal development.

At (22–3) in §8.4.1 we discussed bound pronouns in Ta1, Wemba-Wemba. These have archaic form and it is likely that at an earlier stage all dialects had bound pronouns in AS (and probably also O) functions within a clause, and also for possessive function within an NP. Madhi-Madhi, a dialect on the north-east fringe of Ta1 territory, has lost the AS and O bound forms but retains the possessive bound pronouns. This is very likely to be the result of areal influence from its northerly neighbour U5, Yitha-Yitha, which does not have any bound pronouns.

W1, Kalkatungu, and W2, Yalannga, form a small areal group (but there is no evidence that they are closely genetically related). It is likely that these two languages have been in their present locations – and in contact with each other – for a considerable time, and that other languages have rather recently moved into positions around them; see §13.2. There are indications that the bound pronouns in W1 and W2 are of considerable age. None of the languages that presently border the W group show bound pronouns and it is probably as a result of this areal pressure that they appear to be being lost. All Yalannga has left is a 2pl subject marker on imperatives (recall that imperative constructions typically show archaic characteristics).

Bound pronouns in main clauses in Kalkatungu have undergone a great deal of phonological reduction, as can be seen from a few sample forms:

(43) W1, Kalkatungu (Blake 1979a: 30–6)

	free SO	free A	bound AS	bound O
1sg	ŋay	ŋathu	ø	-ŋi
2sg	njini	njinti	-n	-kin
3sg	lhaa	lhi-yi	ø	?
1du	ŋalhi	ŋalhi-yi	-l	-la
1pl	ŋata	ŋata-yi	-r	-ta

Note that 1sg and 3sg AS forms have fallen together as *ø*. Bound pronouns are not obligatory and are used mostly for anaphoric reference. Working with the last speakers, Blake obtained a full set of nine AS bound forms but was only able to record O forms for four pronouns (those shown in (43)). There are different sets of bound pronouns in purposive and ‘lest’ subordinate clauses; here they are fused with markers of these clause types, which is probably why they have remained obligatory in these contexts.

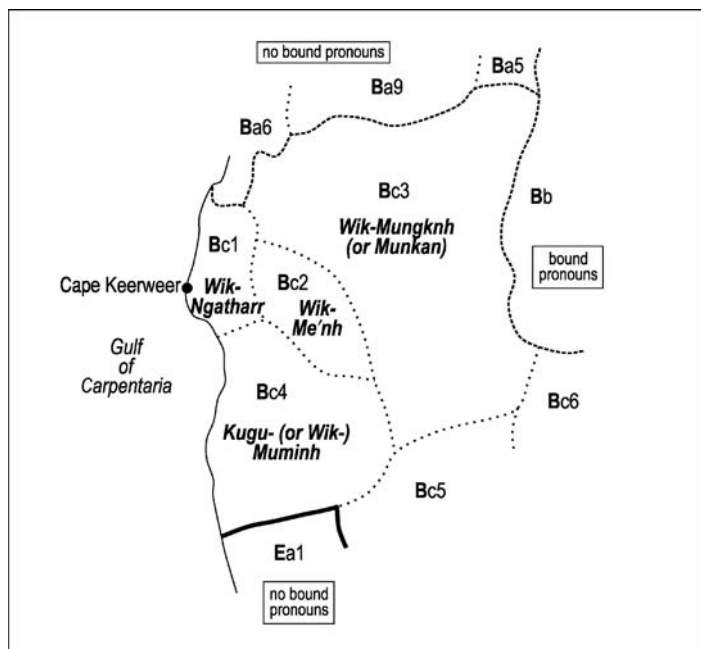
Although – as in many aspects of Australian comparative linguistics – an element of speculation is inevitably involved, it does seem that the bound pronouns in Kalkatungu and in Yalarnnga are of considerable antiquity and are currently being lost. Partly due to areal pressure from neighbours that lack this feature, and partly perhaps the result of internal phonological change. For instance, 1sg and 3sg AS forms have both reduced to zero, with the result that bound pronouns can no longer make this important person distinction.

We have already illustrated the way in which phonological and other changes can lead to the loss of categorical distinctions in systems of bound pronouns. In §8.5.1, the paradigm in (26) shows how the distinction between second and third person was lost in the du and pl for bound pronouns in O function in NCa1, Djamindjung; this was due to lenition of both *b* and *g* to *w*. The paradigm in (27) shows how assimilation leads to loss of the distinction between inc and exc for 1pl O in the related language NCa2, Nungali. And (28) in §8.5.2 demonstrates the loss of number distinction for O bound pronouns in NCb3, Wambaya; note that this is due to analogical remodelling, in addition to phonological reduction.

In summary, free pronouns can reduce to be bound pronominal enclitics and then to be suffixes, becoming obligatory markers of the person and number of core arguments. But then phonological changes may erode forms and lead to various kinds of neutralisation which reduce the referential power of the bound pronouns. Something else is needed. One possibility would be to start using free pronouns rather more than they were at the time when bound pronouns carried a full set of distinctions – this

appears to be what has happened in W1, Kalkatungu. The alternative would be to develop another set of bound pronouns, all over again – a sort of cyclic renewal. This appears to be what has happened in Bc4, Kugu-Muminh. To present the story adequately we need to briefly consider the set of Bc languages. There are six languages which appear to make up a fairly tight genetic subgroup; unfortunately, we only have grammatical information for four of them (and for some it is only partial). Their locations are shown – in schematised fashion – on map 8.2.

All of Bc1–4 have bound pronouns but in each language they have different forms and patterns of behaviour, making it clear that proto-Bc had no bound pronouns. They have developed since the proto-period, by a different path in each language, as an areal phenomenon. We can first examine, in (44), the reconstructed proto-Bc free forms, and then free and bound pronouns in Bc1–3 for a sample of six pronouns (out of a total set of ten). Data on Bc1, Wik-Ngathan, are from Sutton (1978: 244–5); on Bc2, Wik-Me'nh, from Hale (ms., forthcoming); and on Bc3, Wik-Mungknh, from Kilham et al. (1986: 403–7) supplemented by other sources on this language.



Map 8.2 Languages of the Wik subgroup, Bc

(44) Sample pronouns in proto-Bc, and in Bc1, Bc2 and Bc3

		proto-Bc	Bc1, Wik-Ngathan		Bc2, Wik-Me'nh		Bc3, Wik-Mungknh	
		free	free	bound	free	bound	free	bound
1sg	AS	ɣaya	ɣay	-aŋ	ɣay	-ŋ	ɣay	-aŋ
	O	ɣanha	ɣanh	-nh	ɣanj	-nj	ɣanj	-aŋ
2sg	AS	nhintu	nhunt	-nt	nhint	-(i)nt	nhint	-an
	O	nhina	nhin	-nhin	nhin	-((nh)i)n	nhint-aŋ	<none>
3sg	AS	nhula	nhul	∅	nhil	∅	nhil	∅
	O	nhunha	nhin	?	nhin	∅	nhunh	-an
1du.inc	AS	ɣali	ɣal	-al	ɣal	-(ɣa)l	ɣal	-al
	O		ɣalanh	-lnh	ɣaln	-(ɣ)aln	ɣal-aŋ	<none>
1pl.inc	AS	ɣampVla	ɣampal	-mp	ɣamp	-(ɣa)mp	ɣamp	-amp
	O		ɣampanj	?	ɣampn	-(ɣa)mpn	ɣamp-aŋ	<none>
3pl	AS	thana	than	-an	than	-n	than	(-than)
	O		thananh	-nenh	thann	-thann	than-aŋ	<none>

Note that in Bc2 an epenthetic [ə] is pronounced between a final *n* and a preceding consonant, e.g. [ɣaləŋ], [thanəŋ].

In Bc1, Wik-Ngathan, the pronominal enclitics are generally attached to the word immediately preceding the verb, although they can be added to the verb (or to any word in the clause); it appears that there is no fusion with any other morpheme. In Bc2, Wik-Me'nh, the bound pronouns appear to be suffixes that are added to the verb after TAM and indeed partially fuse with TAM (full details are not available since the materials on this language have not yet been fully analysed and written up, although there is some information in Hale forthcoming). In both Bc1 and Bc2 the order of bound pronouns in a transitive clause appears to be A before O.

In Bc3, Wik-Mungknh, there is a full set of AS bound pronouns which are fused with tense/modality as suffixes to the verb. In (44) I tried to roughly segment out the person/number elements (except for 3pl, which is highly irregular). The full paradigm is (taken from Kilham et al., 1986, with tentative morpheme boundaries added and interdentals supplied by reference to other work on this language):

(45) Tense/number/person verbal suffixes in Bc3, Wik-Mungknh

	present	past	future	irrealis	free AS form
1sg	-aŋ	-aŋ(-an)	-a-aŋ	-iŋ	ɣay
2sg	-an-an	-an	-a-an	-(iy-)in	nhint
3sg	-an	∅	-ow	-iy, -iw, -in	nhil
1du.inc	-an-al	-al	-a-al	-il	ɣal
1pl.inc	-an-amp	-amp	-a-amp	-imp	ɣamp

	present	past	future	irrealis	free AS form
1n-sg.exc	-an-an	-an	-a-an	-(iy-)in	ŋan
2du	-an-ip	-uw	-ow	-iw	nhip
2pl	-an-iy	-an	-a-an	-(iy-)in	nhiiy
3du	-an-pul	-pul	-ow-pul	-iy-pul, -iw-pul	pul
3pl	-an-than	-(iy-)in	-ayn	-iy-than, -iw-than	than

Roughly, present tense appears to be *-an-*, past is zero, future is *-a-* and irrealis is *-(i)y-* (with the *-i-* engendering omission of *a* following *-i-*). But it will be seen that there are a number of irregularities in the analysis into tense/modality and person/number components, especially in 1sg, 2du and 3pl and in the irrealis column. We really do get fused forms.

Note also the number of neutralisations: *-an* is used for 3sg in the present column and for all of 2sg, 1n-sg.exc and 2pl in past; *-an-an* covers both 2sg and 1n-sg.exc in present; *-a-an* is used for 2sg, 1n-sg.exc and 2pl in future, and *-(iy-)in* for the same three pronominal choices in irrealis; *-ow* covers both 3sg and 2du in future.

Bc3, Wik-Mungknh, also has bound pronouns in non-subject functions (O, dative/allative, oblique/genitive and comitative) but just for 1sg and 3sg. These are enclitics which are optionally added to the verb after the fused tense/modality-plus-AS-bound-pronoun suffixes. In fact, object pronominal clitics are optional in all of Bc1–3; subject clitics are optional in Bc3 but obligatory in Bc1–2.

Finally, we can consider Bc4, Kugu-Muminh (also known as Wik-Muminh, or Kugu-Nganhcara). We again find a fused tense-plus-AS-pronominal suffix to the verb, but with only four pronominal rows (my analysis, based on data in Smith and Johnson 2000):

(46) Tense/number/person suffixes to the verb in Bc4, Kugu-Muminh

	present	past	irrealis	AS free form
1sg	-ŋ	-aŋ	-aŋ	ŋaya
2sg	-ŋan	-an	-nhun	nhinta
3pl	-yin	-adhan	-nhin	thana
unmarked	ø, -an, -en	-a	-nha	—

The unmarked row is used for all other person/number combinations. The present unmarked suffix is *-an* on most stems ending in *i* or *u*; we then get *ia* → *e*, *ua* → *o*. For most stems ending in *-a* it is zero and then present and past fall together (*a* plus *a* becomes just *a*); but six irregular verbs replace final *a* by *-en*. Note that past and irrealis fall together for 1sg.

In Bc1, bound pronouns distinguish all persons and numbers. In Bc3 they have fused with tense and phonological reduction has led to some person/number neutralisation. In Bc4, Kugu-Muminh, the phonological fusion and reduction have proceeded further so that only 1sg, 2sg and 3pl are distinguished, versus ‘all the rest’. As a response to

this loss of information in its suffixed bound pronouns, Kugu-Muminh has innovated a complete new set of enclitic pronouns, which generally attach to the end of the word immediately preceding the verb, although they can alternatively be attached to the verb. (According to Smith and Johnson, the A and O enclitics can occur in either order.) The full paradigm is given in (47), together with the corresponding free forms.

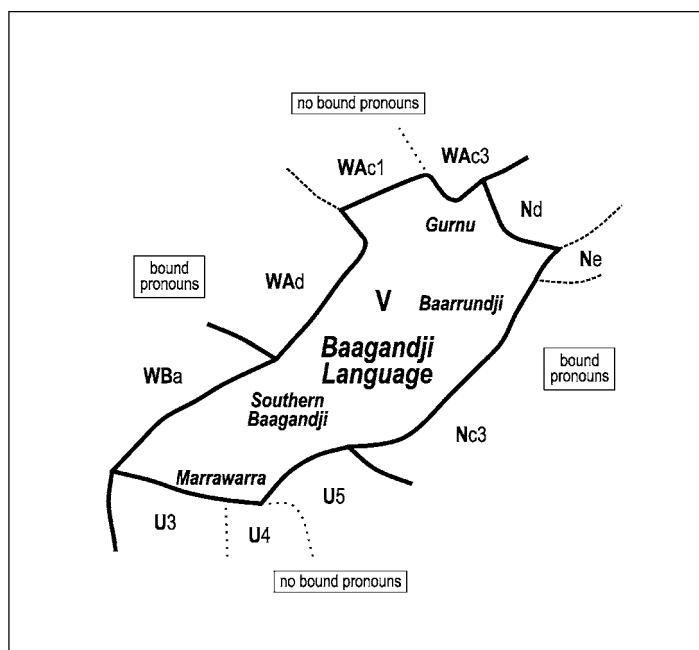
- (47) Free pronouns and bound pronominal enclitics in Kugu Iyanh dialect of Bc4

	free			bound		
	AS	O	dative	AS	O	dative
1sg	ɲaya	ɲanji	ɲathu	<none>	-ɲji	-thu
2sg	nhinta	nina	nhɪŋku	-nta	-na	-ɲku
3sg	nhila	nhunha	nhɪŋu	-la	-nha	-ɲu
1du.inc	ɲale	ɲaliŋ		-le	-lin	
1pl.inc	ɲampa	ɲampaŋ		-mpa	-mpara	
1du.exc	ɲana	ɲanaŋ		-na	-nan	
1pl.exc				-nhtja	-nhtjara	
2du	nhipa	nhipaŋ		-pa	-pan	
2pl	nhiya	nhiyaŋ		-ya	-yara	
3du	pula	pulaŋ -la		-la	-lan	
3pl	thana	thanaŋ		<none>	-ran	

It will be seen that most bound pronouns are derived from the corresponding free form by omitting the initial CV- and replacing a final -ɲ by -n. But there are many irregularities. It is also noteworthy that just the enclitics – not the free pronouns – distinguish du and pl for 1n-sg.exc.

The most interesting feature of the paradigm in (47) is the fact that there are no bound AS forms for 1sg or 3pl. These person/number suffixes are specified through the verb suffixes, shown in (46). 2sg is also specified by the suffixes and here there is also an AS enclitic in (47), the only point of overlap between the two systems of bound pronouns.

In summary, Kugu-Muminh shows an archaic system of bound pronouns; they must have begun as enclitics, become suffixes to the verb, fused with tense/modality, reduced phonologically and lost most of their person/number information. In response to this, the language indulged in cyclic renewal, innovating a new series of bound pronominal enclitics. This development can also be explained partly in terms of areal diffusion from its northern neighbour Bc1, Wik-Ngathan, which has pronominal enclitics which normally attach either to the word immediately preceding the verb or to the verb itself. The two systems of bound pronouns in Kugu-Muminh are almost complementary – 1sg and 3pl in A or S function are referred to by suffixes, not through enclitics (only 2sg features in both systems).



Map 8.3 Baagandji (V), its dialects and neighbours

We can conclude this discussion of the development and loss of bound pronouns in Australia with perhaps the most unusual example of all. This comes from V, Baagandji, which is spoken on both sides of the Darling River in New South Wales (for a distance of about 700 km) – see map 8.3. It has a fair number of dialects which are lexically very close but differ in a number of grammatical features, one of the chief amongst them being bound pronouns. By comparing dialects one can trace the evolution of bound pronouns, their attachment to tense suffixes, and then reanalysis as tense plus bound pronoun as a new set of free pronouns. The story can be told in outline (omitting details that do not affect the major points).

In the Southern Baagandji dialect, verbs show the following system of final inflection:

present $\emptyset$	past -dj
future -d	perfect -ngu

The Marrawarra dialect appears to have had a simpler system, with $\emptyset$ for present and future, and -yi (probably related to -dj in Southern Baagandji) for past and perfect. In both dialects the verb is followed by enclitic bound pronouns – S or A-plus-O. The bound pronouns simply involve the omission of the initial C from the corresponding

free pronoun. Thus:

- (48) V, Southern Baagandji dialect (Hercus 1982: 198)
 ŋi:nga-ŋgu=aba
 sit-PERF=1sgS
 I sat (there, in the past but never sit there now)

The northerly Gurnu dialect could be described as having just free form pronouns. But there are three series, for present, past and future tense, the initial consonant showing these tense choices. Sample forms for free and bound pronouns in Southern Baagandji and Marrawarra, and the free pronouns in Gurnu, are presented in (49). Note that Gurnu generally does not have any tense suffix on the verb (just occasionally it may include past marker *-dji*).

(49) V, Baagandji

	Southern Baagandji and Marrawarra		free pronouns in Gurnu		
	free pronouns	bound pronouns	present	past	future
1sg S	ŋaba	-aba	ŋ-aba	w-aba	g-aba
A	ŋadhu	-adhu	ŋ-adhu	w-adhu	g-adhu
2sg S	ŋimba	-imba	ŋ-imba	w-imba	g-imba
A	ŋinda	-inda	ŋ-inda	w-inda	g-inda
1du AS	ŋali	-ali	ŋ-ali	w-ali	g-ali
3sg AS	ŋadhu	-adhu	ŋ-adhu	w-adhu	g-adhu7

The free pronouns in Gurnu generally follow the verb. When this happens we get, in Gurnu, Verb Tense+Pronoun. This involves the same ordering as Verb-Tense=Pronoun in Southern Baagandji and Marrawarra, with just a difference in grammatical boundary – in Gurnu there is a word boundary between verb root and tense morpheme but in the other dialects an affix boundary.

However, a pronoun in Gurnu does not always follow the verb. There are examples of it following other words and even occurring clause-initially, e.g.:

- (50) V, Gurnu dialect (Hercus 1982: 124)
 w-adhu ga:ndi barlubarlu
 PAST-3sgA carry small.children
 It was him that carried the small children

Note that a pronoun is fronted, as in (50), when it is to be emphasised.

The following scenario explains what has happened:

- (a) Originally there were no bound pronouns, and verbs took tense suffixes.
- (b) Bound pronouns developed, added after the tense suffix on a verb.

(c) In Gurnu,

Verb-tense=bound.pronoun

came to be reanalysed as

Verb Tense-bound.pronoun

with the Tense-bound.pronoun then taking on the status of a separate word which generally follows the verb but does not always do so.

Of the initial tense elements in Gurnu free pronouns, *ŋ-* is the original first segment of free pronouns, corresponding to zero suffix on verbs for present tense in other dialects. Past tense *w-* probably relates to perfect *-ŋgu* in Southern Baagandji. Future tense pronouns in Gurnu begin with *g-* which is quite different from the future tense suffix *-d* in Southern Baagandji. However, as mentioned in chapter 6, in Australia one typically finds related languages or dialects having similar grammatical forms except that verbal inflections show significant differences.

There is a further dialect, Baarrundji, which is geographically and grammatically part-way between Southern Baagandji and Marrawarra, and Gurnu. It appears that Baarrundji has a three-term tense system on verbs – *ø* for present/future, *-dji* for past and *-(w)u* for perfect (this last providing the link between tense suffix *-ŋgu* in Southern Baagandji and pronominal prefix *w-* in Gurnu). Baarrundji can have bound pronominal clitics following its verb (plus tense), as in Southern Baagandji and Marrawarra. And it also has tense-marked free pronouns, as in Gurnu; these have probably diffused from Gurnu into Baarrundji.

In summary, it appears that Gurnu must have developed bound pronouns out of free, linked them with tense on the verb, and released the tense plus pronouns as separate words, which have the status of free pronouns. In doing so it lost bound pronouns. We have a cyclic pattern of gain and then loss.

The changes may all have been due to areal pressure. To the east and west of Baagandji are Nc, WAd and WB which all have bound pronouns; there may have been areal pressure from these directions for the introduction of bound pronouns in Baagandji. Gurnu is spoken in the north-west of the language area, bordering group WAc, which lacks bound pronouns. The reinterpretation of bound pronouns as free forms in Gurnu may have been due to areal diffusion from the north.

This account is based on information in Mathews (1902a), Wurm and Hercus (1976) and Hercus (1982). Note that Hercus suggests a different origin for the tense element on bound pronouns in Gurnu, deriving them instead from deictics and suggesting that reference to space was extended to reference to time.

In §8.4.1 above, a further example was given of the loss of bound pronouns due to diffusional pressure. This concerned the Madhi-Madhi dialect of Ta1; see (22) in §8.4.1.

8.9 Possessive bound pronouns

So far we have discussed bound pronouns which realise a core or peripheral predicate argument. In this final section we look at bound pronouns which are in possessive (or genitive) function within an NP.

Nouns divide into three broad classes in terms of how they may be possessed:

- (a) Body parts (and parts of plants and implements) plus a few other things that may be regarded as inalienably connected with a person or animal, e.g. 'name', 'smell' and sometimes things like 'track' and 'camp'.
- (b) Kinship terms, e.g. 'mother', 'husband'.
- (c) Nouns referring to things that are alienably possessed, e.g. 'axe', 'dog'.

It was mentioned in chapter 3 and in §5.1.3 that the typical situation in an Australian language is to mark (a) just by apposition of possessor and possessed within an NP (literally 'I saw John foot/you foot'); the inalienable possessor is then generally the head of the NP, with the possessed noun functioning effectively as a modifier to it. It was also mentioned that it is normal to use a genitive suffix for (b) and (c) (literally 'I saw John's mother/your mother', 'I saw John's axe/your axe').

In some languages there are possessive (or genitive) bound pronouns, either in addition to or instead of possessive (or genitive) free pronouns. In certain languages either a free or a bound possessive pronoun may be used. For instance, in the Baarrundji dialect of V, Baagandji (mentioned at the end of §8.8), we can have either (51a) or (51b).

- (51) V, Baarrundji dialect (Hercus 1982: 86–7 and p.c.)
- | | | |
|-----------------|----------------|------------------------|
| (a) <i>ɲuma</i> | <i>yabarra</i> | (b) <i>yabarra-ama</i> |
| 2sg+POSS | camp | camp-2sg+POSS |
| your (sg) camp | | your (sg) camp |

In other languages possessive bound pronouns may be obligatory on (a) body parts, and perhaps also on (b) kinship terms. In Ta1, Wemba-Wemba, for instance, any kin term (unless being used to address someone) and any body part generally takes a pronominal suffix indicating the possessor. That is, one must specify who a foot or a father 'belongs' to. The unmarked suffix – used in citation, for instance – is 3sg *-ug*, e.g. *mirn-ug* '[his/her] eye'. A third person possessor can be further specified by a possessor NP, taking genitive case, e.g.

- (52) Ta1, Wemba-Wemba (Hercus 1986: 33)
- | | | |
|---|--------------|------------------|
| <i>wilengidj-gad</i> | <i>ginja</i> | <i>baring-ug</i> |
| possum-GEN | THIS | track-3sg+POSS |
| This is a possum's track (lit. possum's this track-its) | | |

Here the possessor noun 'possum' bears genitive suffix *-gad* and, in addition, the possessed noun 'track' must bear the 3sg possessive pronominal suffix *-ug*.

The criteria for distinguishing between bound and free possessive pronouns are similar to those given in §8.1 for distinguishing between bound and free pronouns marking predicate arguments. A free possessive pronoun is the head of an embedded NP, which may have some freedom of placement within the predicate argument NP; it is always a separate word, usually of at least two syllables. A bound possessive pronoun must be attached to the possessed noun, as clitic or affix; it will lack independent word status and may be monosyllabic (or shorter). As illustrated in (52), in some languages a possessive pronoun is obligatorily included on a body part and/or a kin noun.

It is instructive to compare the occurrence of bound pronouns in possessive function and those in clausal function across the continent. We find all possibilities.

(1) *Bound pronouns in clausal and in possessive functions.* Of the seventy or so non-prefixing languages that have bound pronouns in predicate argument function, about forty also have possessive pronominal enclitics or suffixes. Of the sixty or so languages in groups NB–NL and WMa, all with pronominal prefixes for at least AS function, just over half also have possessive bound pronouns. In some languages these are suffixes, in some prefixes, and a number of languages have suffixes for certain types of possessed noun but prefixes for other types.

After Sets (2–4) have been discussed, we return to more detailed consideration of languages of Set (1).

(2) *Bound pronouns in clausal but not in possessive function.* Languages from non-prefixing groups that do have bound pronouns in predicate argument function but only have free pronouns for possessive function include Bc, Eb, Ja, Na1, Nc1, O2, W, X1, WB, WGa1, WI, WJ, Wmb1 and NAb2. Prefixing languages that appear to lack possessive bound pronouns include NBd2, NBI, NC, ND1, NF and NH.

(3) *Bound pronouns in possessive but not in clausal function.* It was mentioned in §8.4.1 that the Madhi-Madhi dialect of Ta1, Wemba-Wemba, retains a full set of possessive bound pronouns (like other dialects) even though it has lost bound pronouns in clausal function. At the end of §8.8 it was mentioned that the Gurnu dialect of V, Baagandji, has lost bound pronouns in clausal function. It does have possessive pronominal enclitics but these are used very rarely; they may be in the process of being lost (or they may occur in Gurnu as the result of influence from other dialects – Hercus 1982: 86).

Apart from these instances, all the languages of Set (3) have possessive bound pronouns that are used just with kin terms. These include the following languages.

(i) Na1, Awabagal, has bound pronouns just in sg number, for AS and O functions, but it has no bound possessive pronouns. Its neighbour Na2, Gadjang, has no bound

pronouns in predicate function but it does show a single possessive suffix, 1sg *-ŋaŋ*, which is used just on kin terms.

(ii) Languages to the west and north of WL, the Arandic group, have bound pronouns in AS and O but not in possessive function. WL1, Arrernte, and WL2, Kaytetj, have no bound pronouns in clausal function but they have each innovated possessive bound pronouns (a reduction from free pronouns), which are used just with kin terms. The sg forms are (Koch 1996: 257):

(53) Possessive bound pronouns on kin terms in WL

	WL1, Arrernte	WL2, Kaytetj
1sg	-atj ~ -əy	-əy ~ ø
2sg	-aŋk ^w	ŋk-
3sg	-ik ^w	k ^w -

Note that 2sg and 3sg are shown by prefixes in Kaytetj (a language which is otherwise non-prefixing, and is not adjacent to the prefixing area).

(iii) A number of languages from group WH have some possessive pronominal suffixes, used just on kin terms – always 1sg, sometimes also 2sg and/or 3sg and/or 1nsg. Some of these languages (e.g. WHc9, Nyamal, and WHc10, Ngarla) also have bound pronouns in clausal functions, whereas others (e.g. WHc2, Martuthunira, and WHa, Tjiwarli) lack these.

We shall see below that a number of languages from Set (1) either restrict their possessive bound pronouns to kin terms or else have separate marking for kin terms.

In at least one prefixing language, some kinship relations are expressed by transitive verbs (rather than by nouns); these take the regular A-plus-O fused prefixes. In (54) we can compare the same prefixes on a normal verb and on a kinship verb in Iwaydja (and see further discussion of this topic in Evans 2000b):

(54) NKa2, Iwaydja (Pym and Larrimore 1979: 85)

(a) ŋandu-wun	(b) a-bun
3sgA + 1sgO-hit	1sgA + 3sgO-hit
He/she hit me	I hit him/her
(c) ŋandu-wulaŋ	(d) a-bulaŋ
3sgA + 1sgO-be.mother.to	3sgA + 3sgO-be.mother.to
my mother (lit. she mothers me)	my child (lit. I mother him/her)

Like all other Australian tribes, the Iwaydja have a classificatory kinship system and in fact *ŋandu-wulaŋ* in (54c) can refer to 'my mother' or 'my mother's brother', etc.

(4) *No bound pronouns at all, either for clausal or possessive functions.* The remaining non-prefixing languages fall into Set (4). There are perhaps around one hundred

of them (although the limited data available on some languages makes it difficult to give an accurate figure).

We can now look further at languages of Set (1). Full consideration of the morphology, syntax and semantics of possessive bound pronouns in Australian languages would require a book-length study. Here I simply offer a preliminary typology of possessive bound pronouns in terms of their relation to free pronouns and to clausal bound pronouns. We can first survey possessive bound pronouns which are enclitics or suffixes.

Type I. The genitive free pronoun (which is distinct from the dative) can be encliticised (in full or reduced form) to the possessed noun. This appears to occur in U1 and Q, and perhaps also in C and R2 (data on each of these are slim). In V, free pronouns have the same form for O and genitive functions – a bound pronoun (which generally omits the initial segment from the free) can be encliticised to a verb, to mark an object, or to a noun, to mark a possessor, as in (51) (note that here there is a vowel difference between free and bound forms).

Type II. There is a series of free pronouns which combine dative and genitive functions. Bound pronouns derived from these can be encliticised to a verb, to mark the dative argument, or to a noun, to mark the possessor. This appears to hold in Bb, Db1, Dc1, Nc2, Ya3, Yc, WD and WGb (in Bb, Umpila, these clitic pronouns can only be added to a kinship noun). In Ee, Kukatj, dative and genitive fall together for n-sg pronouns but are distinct for sg's. In Nc3, Ngiyambaa, dative, genitive and O forms all fall together.

This type also applies to two languages from the prefixing area. NKb, Amurdag, has verbal prefixes for AS and also uses pronominal enclitics which can mark O or dative on the verb and possessor on some body part terms. In ND2, Miriwung, there are two series of pronominal suffixes to verbs, with dative and benefactive functions. Both series of suffixes can be added to nouns indicating possessor (from the materials available it is not clear what the semantic difference is).

Type III. There is a series of free pronouns that combine dative and genitive functions. They (or reduced forms of them) can be a suffix or enclitic to a noun indicating the possessor. However, they can never be enclitic to a verb.

This type is only encountered in a number of prefixing languages, including NBa, NBc1, NBe, NBg2, NBh1 and NE1. In NBa, Mangarrayi (and probably in others of these languages), case and number marking follow the possessive bound pronoun, suggesting that it should be regarded as a suffix rather than a clitic.

Type IV. There is a series of possessive pronominal suffixes or enclitics which are quite different in form from genitive (and all other) free pronouns. This applies to Pb and for sg pronouns in Nd (the n-sg's are similar to possessive free pronouns).

A number of prefixing languages also show possessive suffixes/enclitics which appear not to be related to any other pronominal forms. This applies to markers of kin possession in NBb1, Marra, and NBd3, Aninhdhilyagwa. The possessive pronominal suffixes (to all types of noun) in NBc2, Ngalakan, are different from other pronouns in that language, but appear to be cognate with the dative free and bound forms in the related language NBc1, Rembarrnga. In NBd1, Ngandi, possessive suffixes show some similarities to – but also some differences from – both free and bound cardinal pronouns. (In this language the number distinction between ua and aug is neutralised in possessive pronominal suffixes.) Languages in subgroup NBf have a variety of possessive constructions; there is a series of pronominal possessive suffixes – added to one set of body part nouns – that are unlike other pronominal forms in the language. (Also see the discussion of NBf2, Gurrioni, in §3.3.7.)

Type V. Possessive pronominal suffixes (or enclitics) on nouns are similar to pronominal suffixes (or enclitics) marking core arguments on verbs. For n-sg number in Pa1, Gundungurra, possessive clitics on nouns are similar to AS clitics on verbs, but in sg number they are rather different. In Ta1, Wemba-Wemba, the n-sg possessive suffixes are basically the AS suffixes plus *-ag* (interestingly, exc marker *-aŋ* follows the *-ag*). It is noteworthy that in this language a possessive suffix follows case.

In Nib1, Limilngan, possessive suffixes to kin nouns have similar form to free cardinal pronouns (for A, S and O functions), and are quite different from the pronominal prefixes to verbs indicating A, S and O functions. In NBm, Alawa, pronominal possessive suffixes to nouns appear to be similar to pronominal prefixes to verbs (in S function).

Types I–V summarise the main kinds of enclitic and suffixal possessive pronouns, which occur in both prefixing and non-prefixing languages. These generally maintain the same categorial distinctions as free pronouns. However, it was mentioned that the ua/aug distinction is neutralised in bound possessive pronouns for NBd1, Ngandi. There is person neutralisation in WGd, Yingkarta, with just two possessive suffixes (to kin terms): *-ŋalja* 'ego possession (first person)' and *-tjura* 'non-ego possession (second and third person)' (Dench 1998: 26). There are also some languages which have a restricted set of bound possessive pronouns; on the data available WAd, Maljangapa, appears to have just 1sg *-nja* and 2sg *-nu*.

We can now consider bound possessive pronouns that are prefixes.

Type VI. Possessive pronominal prefixes to nouns are related to the genitive free pronouns. This applies in the case of many body part nouns in NKa and NKb. In NL the free form genitive pronoun is simply preposed to the body part noun (perhaps the stage before the development of possessive pronominal prefixes).

Type VII. Possessive pronominal prefixes to nouns are similar to the S prefixes on verbs. This applies to the prefixes on body parts in NG3, Wunambal; and to the prefixes on inalienably possessed nouns in NBg1, Gunwinjgu. In NG2, Ungarinjin, the possessive prefixes on body part nouns are similar to the S prefix on verbs in n-sg numbers, but different in sg.

Type VIII. Possessive pronominal prefixes to nouns are unlike any other pronominal forms in the language. This applies to the prefixes on kin terms in NBI2 and NIa and to the prefixes on body part nouns in NE2.

Some languages in the prefixing region have two (or more) ways of marking possession through bound pronouns, depending on the kind of possessed noun that is involved. These include the following languages.

(a) In NBd3, Anindhilyagwa, kin terms take a possessive pronominal suffix while body parts take a possessive pronominal prefix which appears to relate to the corresponding free pronoun, plus a gender marker, plus *-m(w)i-*.

(b) In NKb, Amurdag, some body part terms take an enclitic which is the same as the O/dative clitic to verbs, while others take a prefix which is the first syllable of the corresponding free form genitive pronoun. Compare (Handelsmann 1991: 52):

(55) (a) arrganj=ŋanu	(b) ŋa-mara
back=1sgposs	1sgposs-hand
my back	my hand

In this language there are different forms of kin terms according to the possessor, e.g. *arlimiyi* 'my mother', *arlgadu* 'your mother'.

(c) In NIc, Larrakiya, it appears that some body part terms take a possessive pronominal suffix, and that others take the same suffix plus a pronominal prefix (which is similar to the S prefix on verbs). Thus *maga-ŋgarra* 'your (pl) legs', *gurr-yubirr-ŋarra* 'your (pl) knees' (Capell 1984: 75–6; note that here the suffix has slightly different forms, *-ŋgarra* and *-ŋarra*).

(d) The three languages of NG, the North Kimberley group, all have complex marking of possession. Pronominal suffixes are used on kin terms (these show some formal similarity to dative pronominal enclitics to verbs, especially in NG3, Wunambal).

For most body parts, these languages have a possessive pronominal prefix, which is similar to the S prefix on verbs for n-sg numbers. The remaining body parts and alienably possessed items require a genitive free pronoun. Thus:

(56) NG2, Ungarinjin (Rumsey 1982a: 41–53)

(a) marla-ni	(b) njuŋ-ornarr	(c) yinda	njuŋa-naŋga
daughter-2sgPOSS	2sgPOSS-bone	spear	2sgPOSSESSOR-sgPOSSESSED
your (sg) daughter	your (sg) bone(s)	your (sg) spear	

The free form pronouns combine information about the possessor (person, inc/exc and number) with information about the possessed (number and sometimes also noun class). Thus, for instance, ‘your (sg) two spears’ would be *yinda njuŋa-naŋgarri*, with *-naŋgarri* marking dual possessed of singular possessor (for dual possessed of dual possessor *-agarri* would be used, and so on).

In the NG languages some (but not all) adjectives may take a prefix, which has the same form as the possessive prefix which attaches to some body part nouns, e.g. *njuŋ-arnerr* (2sgPOSS-great) ‘you are great’ in Ungarinjin (Rumsey 1982a: 54).

In §8.8, I described how a language may have two sets of bound pronouns marking clausal functions – one old and the other a recent development. A similar phenomenon is encountered with possessive bound pronouns. Ya3, Ritharngu, has possessive suffixes which are used just with kin terms (Heath 1980a: 24):

-ŋʔ	first (occasionally third) person possessor
-mu or -ŋali	second person possessor
∅	third person possessor

These appear to be ancient forms; they are quite different from other pronominal sets.

As mentioned at the beginning of §8.8, Ritharngu has recently innovated bound pronominal enclitics for clausal functions; these are added to the first word of the clause. They are either identical in form to the corresponding free pronoun or else they omit the initial CV-. Non-kinship possession is marked through a free form genitive/dative pronoun which either precedes or follows the possessed noun. If it follows, it can be encliticised to it, e.g. *wa:ŋa*=[*nhan-ŋu*] (camp=[3sg-GENITIVE/DATIVE]) ‘his camp’.

Thus, in conjunction with (but a little way behind) the evolution of bound pronouns for clausal function, possessive bound pronouns are also coming into being in Ritharngu. There must have been a considerable time gap between the evolution of possessive suffixes to kin terms, and this new development of possessive pronominal enclitics to non-kin terms.

Although the details must vary between languages, the following ordering of diachronic developments can be suggested, as a general trait:

- (i) Bound pronominal enclitics or suffixes to nouns evolved, marking some kinds of possession.
- (ii) Bound pronominal prefixes to verbs developed, marking core arguments.
- (iii) Bound pronominal prefixes to nouns developed, marking other kinds of possession.

It appears that kin terms are most at risk of being accorded bound pronominal possessive markers. Thus in NBd3, Aninhdhilyagwa, for instance, possessive suffixes on kin terms developed at Stage (i), while possessive prefixes on body part terms developed later, at Stage (iii).

Chapter 10 has a detailed account of the development of prefixing on nominals, which appears always to have postdated the development of prefixing on verbs. §10.6.3 includes discussion of complex types of marking for possession, and patterns of agreement.

Prefixing and fusion

About one quarter of the languages of Australia have developed a highly synthetic – in some instances, a polysynthetic – verbal structure, with a number of prefixing positions (always including a pronominal prefix referring to at least one core argument); they also retain verbal suffixes. Some of the prefixing languages (which comprise groups NB–NL and WMa) maintain a fairly agglutinative structure but others have undergone phonological reduction which has led to various kinds of fusion. This chapter will survey the types of information coded onto verbs in prefixing languages, and make some suggestions concerning ways in which the prefixing structures developed.

But, like every other parameter in Australian linguistics, the geographical occurrence of prefixing and of fusion is not a clear-cut matter. That is, we find examples of both in languages from the ‘non-prefixing’ area.

(a) *Prefixing in languages from groups A–Y, WA–WL.*

(i) At the end of §8.8 we saw how in the Gurnu dialect of V, Baagandji, bound pronouns were originally attached to a verb after the tense inflection. Tense plus bound pronoun then broke away to form a new series of free pronouns. As shown in (49) of §8.8, each of these has an initial prefix indicating tense: present *ŋ-*, past *w-* and future *g-*. These are the only prefixes in the language.

(ii) Languages in WL, the Arandic group, lack bound pronouns for clausal functions but they have developed possessive pronominal affixes to kin nouns. As shown at (53) in §8.9, in WL1, Arrernte, the sg possessive markers are all suffixes, but in WL2, Kaytetj, 1sg is a suffix *-əy* ‘my’ while 2sg and 3sg are prefixes *ŋk-* ‘your’ and *kʷ-* ‘his/her’. Again, these are the only prefixes in the language.

(iii) In Teichelmann and Schürmann’s (1840) grammar of WBa, the language spoken around Adelaide, they give ‘ngaityerli, my father, contraction of ngaityo yerli’. The two words ‘my’ and ‘father’ appear to have fused into one (the same appears to have happened with ‘my mother’ and perhaps other possessed kin designations).

Analysis is difficult because of the limited materials on the language, but it seems most likely that 'my' has reduced to become a prefix to some kin terms.

Similarly, in W1, Kalkatungu, a sequence such as *ŋatji kurla* 'my father' may be pronounced as one word with a single stress, on the first syllable, *ŋátjikurla* (Blake p.c.). Further examples of this type are reported by Sutton (p.c.) for languages from the Wik subgroup Bc. They probably also occur in other areas.

(iv) G2, Yidinj, has just one prefix *dja:-* 'in the direction of' (Dixon 1977a: 162–3). It is used with six words, the four compass points plus 'up' and 'down'. For example:

guwa 'west'	dja:-guwa 'westwards'
guŋga:r 'north'	dja:-guŋga:r 'northwards'
waŋgi 'up'	dja:-waŋgi 'upwards'

There is a noun *djava* 'mouth' in a number of neighbouring languages (but not in Yidinj, where 'mouth' is *wari*) and it is likely that this developed into the prefix *dja:-*. The semantic motivation would be the fact that Aborigines typically indicate direction by pointing with pursed lips (in circumstances where Europeans would extend a hand or index finger).

(The prefix *dja:-* occurs in a seventh word. It can optionally be attached to the verb *wurrga-* 'yawn', apparently without any difference in meaning. This supports an etymology in terms of 'mouth'.)

This is a sufficient sample to show that there is a little prefixing in some of the 'non-prefixing' languages, although in none of them does it include pronominal prefixes marking clausal arguments. It seems that a number of Australian languages are on the verge of developing prefixes. At the end of §10.4 below we see how generic nouns in Ea2, Olgolo, are optionally reduced to be single consonants, which are prefixed to a following specific noun. Prefixing has fully developed in the central north, and then diffused across all the languages of a continuous area – groups NB–NL and WMa.

(b) *Fusion in languages from groups A–Y, WA–WL.* Fusion is also attested in parts of the non-prefixing area, although not to the extent that it has applied in many of the prefixing languages.

(i) In chapter 5 we saw how, for ergative and locative case suffixes added to a stem ending in a consonant, the first segment is in many languages a stop homorganic with the preceding consonant, e.g. *-b* after *m*, *-d* after *-n*, *-l* or *-rr*, *-dj* after *nj* (this is then followed by *u* for ergative and *a* for locative). This assimilation across a morpheme boundary is taken one step further, to fusion, in some languages. In H1, Dyirbal, ergative is *-ŋgu* after a disyllabic stem ending in a vowel, *-gu* after a longer vowel-final form, and a homorganic stop plus *u* after a nasal or *y*. For a stem ending in a liquid (*l*, *rr*

or *r*) we get *-ru* replacing the stem-final liquid, e.g:

ABSOLUTIVE (ZERO SUFFIX)	ERGATIVE
guburr ‘native bee’	guburu
nugar ‘green grub’	nugaru
bunul ‘march fly’	bunuru

In the right-hand column, stem plus ergative suffix is fused, so that the forms cannot be satisfactorily segmented into two syntagmatic components.

(ii) In §6.5.2 we discussed phonological changes across a verb–suffix boundary which have led to the development of conjugations. In many instances fusion has occurred which obscures the original boundary between verb root and suffix. For instance, repeating part of (32) from §6.5.2, with the addition of putative earlier forms (before phonological changes applied):

(1) WD, the Western Desert language

	‘give’		‘eat’	
imperative	*yuŋ-ka > yuwa	(yu-wa)	*ŋal-ka > ŋala	(ŋa-l-a)
future	*yuŋ-ku > yuŋku	(yu-ŋ-ku)	*ŋal-ku > ŋalku	(ŋa-l-ku)
past	*yuŋ-nu > yuŋu	(yu-ŋ-u)	*ŋal-nu > ŋarnu	(ŋa-rnu)

Fusion has applied so that it is no longer possible to divide the forms into roots and affixal elements. An ad hoc explanatory device (followed in chapter 6) is to recognise a ‘conjugation marker’ (*-ŋ-* for ‘give’ and *-l-* for ‘eat’ in the forms given here) which appears between just SOME combinations of root plus suffix – as shown in parentheses in (1) – together with multiple allomorphs for the tense/mood suffixes.

(iii) In the last chapter we noted that a number of languages which have not yet developed bound pronouns, do in some circumstances fuse together two free pronouns – see (35) in §8.7, and the reference to Ed1, Kurtjar, and Eb2, Koko-Bera, in §8.8.

(iv) In some languages pronominal suffixes have fused with TAM suffixes to form one portmanteau verbal suffix paradigm. This was illustrated for Q, Bidhawal dialect, at (37) in §8.7; and for Bc3, Wik-Mungkanh, and Bc4, Kugu-Muminh, at (45–6) in §8.8.

Having exemplified the occasional instances of prefixing and of fusion in the ‘non-prefixing’ area, we can now turn our attention to languages in groups NB–NL and WMa (the prefixing area). All of these have obligatory prefixes to the verb and most show a good deal of fusion. This chapter deals exclusively with verb structure. In many languages of groups NB–NL and WMa there are also prefixes to nouns, showing noun class, or noun-class-plus-case; these are discussed in chapter 10.

The number of prefix slots to a verb varies among languages of the prefixing area. The most complex system is found in Tiwi – on Bathurst and Melville Islands,

off the north coast opposite Darwin – where there are fourteen prefix slots and four suffix slots (not all are likely to be filled at once, of course). The schema given in (2) is a simplification; see Lee (1987) for a full account of cooccurrence restrictions.

- (2) Verb structure in NL, Tiwi (Lee 1987: 152–3; see also Osborne 1974)
- | | | |
|----------|----|---|
| prefixes | 1 | pronominal S or A (on a minimal/augmented basis) |
| | 2 | tense (past/non-past) |
| | 3 | locative – ‘distant’ and ‘direction’ |
| | 4 | modal – ‘should’, ‘would/will’, ‘tried and failed’ |
| | 5 | irrealis – for an event that has not actually taken place |
| | 6 | time ‘in the morning’ |
| | 7 | pronominal O or dative |
| | 8 | aspect – durative, habitual, inceptive |
| | 9 | stance – ‘walking along’, ‘away from camp’ (or ‘distant in time’) |
| | 10 | emphatic |
| | 11 | connective |
| | 12 | time ‘in the evening’ (mutually exclusive with slot 6) |
| | 13 | concomitative – indicating an additional predicate argument that is not normally implied by the semantics of the verb |
| | 14 | (one or two) incorporated nominal(s) |
| root | | |
| suffixes | 1 | valency-changing derivations – reflexive, reciprocal, causative; and completive |
| | 2 | locational – ‘movement’, ‘on the way’ |
| | 3 | repetitive (= past habitual) |
| | 4 | locative (in place of ‘distant’ in prefix slot 3, on imperative and hortatory verbs) |

Tiwi is very much a living language but – within the modern-day contact situation with English – younger people speak a simplified version of it, called ‘Modern Tiwi’ by Lee. The verb in Modern Tiwi is still fairly complex, with seven prefix and three suffix slots. Roughly, prefix slots 1 and 2 have merged, while slots 6, 7, 9, 12, 13 and 14 (plus suffix slot 4) have been lost.

At the opposite extreme, we find some languages that have just two prefixes (and these may be fused). NBm, Alawa, simply has a pronominal prefix realising the S argument on an intransitive verb, and a fused A-plus-O prefix on a transitive. This language also has suffixes for reflexive, TAM, direction and aspect.

NHd2, Ngan.gi-tjemmerri, has two prefixes which are sometimes segmentable and sometimes not. One is for the person and the other for the number of the S or A argument. This is followed by a fusion of simple verb root plus TAM; then a single suffix position, for a non-subject pronominal argument (O, dative, etc.). Thus, a sample verb – which can constitute a complete sentence, as in all the prefixing languages – is:

- (3) NHd2, Ngan.gi-tjemmerri (Reid 1990: 105)
 wi-rr-njirri-ŋi
 3+AS-pl+AS-see+PERFECTIVE-1sgO
 they saw me

Most languages fall between these two extremes, most frequently having three, four or five prefix slots. The suffix slots are similar to those in non-prefixing languages with generally an optional derivational suffix (reflexive, etc.) and then an obligatory TAM inflection.

The amount of fusion varies across languages of the prefixing area. As a preliminary to surveying this variation, it will be useful to list the kinds of element which typically fuse.

(i) *Fusion of A and O pronominal prefixes.* Here it can be difficult to distinguish between what used to be separate prefixes and have now been combined into a single portmanteau form, and paradigms that intrinsically involve neutralisation, conditioned by a person hierarchy, etc. This is discussed in §9.5.

(ii) *Fusion of a TAM or directional prefix with a pronominal S or A or O or combined A-plus-O element.* Four types of combination are encountered:

- (a) TAM plus pronominal – found in about twenty languages;
- (b) directional plus pronominal – in NKa2, Iwaydja;
- (c) pronominal plus TAM – in about fifteen languages;
- (d) directional plus pronominal plus TAM – only found in NKb, Amurdag.

(iii) *Fusion between pronominal prefix and root.* Found in NHc/d. In NHb1, Emmi, we get a combination of (ii-a) and (iii), with TAM, pronominal prefix and root all fused together.

(iv) *Fusion of verb root with following TAM suffix.* Found in NHc–e, NF and ND; it was illustrated for ND1, Kitja, at (39) in §6.5.4.

(v) *Fusion of coverb with simple verb.* In some languages the coverb is quite distinct from the inflecting simple verb and may either precede or follow it. In others it has a

fixed position, generally immediately before the simple verb; from that position it may fuse with it.

The status of coverbs was surveyed in §6.3.1. We mentioned that in the non-prefixing subgroup WJa, there can be either 'weak nexus' or 'strong nexus' between coverb and simple verb. Just in WJa2, Djaru, a strong nexus combination may involve the first segment of the simple verb being assimilated in place of articulation to the final segment of an immediately preceding coverb, e.g. *bib man-* > *bib ban-*. About twenty of the prefixing languages have moved one step further than Djaru, and fused coverb with simple verb to form a single root that is no longer synchronically analysable. This will be discussed in §9.1.

Languages do change at variable rates, depending on a variety of factors such as the nature and degree of contact with other languages, speakers' attitudes towards language (e.g. conservative or innovative) and the internal dynamics of the language. Nevertheless, the varying degrees of fusion in different languages do suggest varying time-depths for their adoption of a highly synthetic prefixing structure.

In the western part of the prefixing area, the adjoining (but not closely genetically related) subgroups ND, Kitja/Miriwung, and NF, Southern Kimberley, show a great deal of fusion. ND exhibits (i), (ii-a) and (iv) while NF has all of (i), (ii-a), (iii) and (iv). That is, tense prefix, pronominal prefix, simple verb root, reflexive/reciprocal suffix and TAM suffix are all more-or-less fused into one unit in NF.

To the west of NF is NE, the Fitzroy River subgroup, which just has (ii-a), fusion of TAM with A/S pronominal prefix (the O bound pronominal is a clitic to the verb). To the north of NF and west of ND is NG, the North Kimberley areal group. These languages have fairly agglutinative structure, just showing fusion of type (ii-c). To the north-east of NE is NCa, the Western Mindi subgroup, which shows very little fusion of any sort.

All this suggests that a highly synthetic prefixing structure developed first in NF, soon after in ND, and much more recently in NE, NG and NC.

The Daly River languages, in group NH (note that this is not a genetic subgroup) all show considerable fusion. NHa has (i) and (ii-a), NHb1 has (ii-a) and (iii), NHb2-4 have (ii-a), NHC-d have (iii) and (iv), while NHe has (ii-a) and (iv). This suggests a fair age for the development of highly synthetic structures in this areal group. But note that fusion has developed in different ways in different NH languages.

Within the large NB group we find the most fusion in NBd-e and NBg-j. On the southern periphery there is only a little fusion, of type (i), in NBb, NBc and NBm and virtually none in NBa. The neighbouring WMa, Yanyuwa, also shows virtually no fusion. This suggests that a highly synthetic, prefixing profile began in NBd-e and NBg-j and then spread to the south-east, into NBc, NBb, NBm and WMa.

In the central far north there appears to have been relatively little fusion in NBF and NBk and (from the scanty data available) in NJ. Languages in the North-west Arnhem Land subgroup, NK, also show relatively little fusion. NL, Tiwi, has the most complex verb structure in Australia but it only really has fusion of type (ii-b). Languages in group NI show more fusion – types (i) and (iv) in NIa, Umbugarla (as far as can be ascertained from the slim materials available), and (i), (ii-c) and (v) in NIb and NIc.

From these data we can put forward a speculative hypothesis for historical development. It is possible that prefixing developed independently at more than one place in the present-day prefixing area, and then spread out by diffusion, the several diffusion areas joining up to create the present-day continuous area of languages showing a full prefixing profile. The focuses for prefixing development may well have been: (1) NF or ND; (2) a language in the NH region; (3) a language from NBd-e or NBg-j (these have the most developed fusion).

From focus (1), the structural characteristic of having prefixes diffused west into NE and north-west into NG. Languages to the south of ND and NF belong to the WJ subgroup. These lack prefixes but they do show a number of characteristics that are also found in the prefixing area, e.g. a small number of simple verbs, and du/pl neutralisation in bound pronouns.

From focus (3), prefixing would have spread to the remaining NB languages and to WMa (which has a close genetic relationship with the non-prefixing languages in subgroup WMb), and north to NI, NJ and NK. Prefixing has not yet quite reached the Yolngu subgroup, Y, to the north-east of NB. However, as described in §8.8, Ya3 and Yc – the Yolngu languages closest to NB – have developed bound pronouns and in Yc they are generally placed immediately before the verb, which is likely to be the historical stage that directly precedes the adoption of prefixation.

Subgroup NC is next to ND, NH and NB and could have adopted prefixing under diffusional pressure from any or all of these directions. (In §9.1, I describe how NCb is effectively losing its prefixing character, as the next stage in a cyclic development.)

NH is an areal assemblage consisting of a number of genetic subgroups. Prefixing would have developed at some place within this area and then diffused into the other NH languages. For NHd2, Ngan.gi-tjemerri, there is documentation available from about 1930, from the 1960s/1970s and from the present day. On the basis of this, Reid (ms.) suggests that in 1930 *coverb* and *simple verb* were distinct elements (each comprising a separate phonological word) which could cooccur in either order. During the past seventy years the language has become more synthetic so that *simple verb* and *coverb* are now joined together as one unit (in that order, except in the case of three simple verbs, where the *coverb* must precede them).

In summary, I tentatively suggest a rough scaling, where the poles are:

(a) much fusion, suggesting a considerable time-depth for the development of a highly synthetic verb structure involving prefixes; (b) little fusion, suggesting relatively recent development of a prefixing profile:

(a) much fusion	NF							
	ND	NH	NBd–e, NBg–j					
	NE		NBf, NBI			NI, NK		
	NG		NBb–c, NBm, NBk			NJ		NL
	(b) little fusion	NC	NBa					WMa

Note that all of this discussion has been in terms of the present-day geographical distribution of languages. The relative geographical positioning is likely to have been rather different in the past. (This may eventually be reconstructible, when detailed comparative work is undertaken, but can scarcely be guessed at in the light of present knowledge.) It is possible, for instance, that in the past ND may have had contact with some of the NB languages, and that a prefixing profile diffused from NF into ND and then into NB. Note also that NH probably does geographically abut on ND. It is possible that prefixing developed just once, in one language, and diffused from there over the whole area in which it is currently found. Various hypotheses are possible, and all should be tested.

The status of NL, Tiwi, is difficult to determine. Being spoken on islands it is geographically isolated; and it is the only language to have AS and O pronominal prefixes at positions widely separated within the verb. But it is part of the prefixing area. The polysynthetic character of Tiwi suggests a fair time-depth, but it is difficult to make suggestions as to how this development influenced or was influenced by what happened in languages across on the mainland.

It will be noted that – as at every other place in this volume – no guess is hazarded as to the actual time-depth of the development of prefixes in the various languages. We have no evidence on which to base a guess. Aboriginal people are known to have been in Australia for about fifty thousand years. The first development of obligatory pronominal prefixes to a verb might have been twenty thousand or more years ago, or it might have been two thousand or less years ago. There is no scientifically informed way of telling.

9.1 Verbs, coverbs and pronominal placement

In order to explain the kinds of prefixing structures found in Australian languages, one needs to study two distinct paths of historical change:

- (i) the development of bound pronominal clitics into prefixes;
- (ii) the compounding of coverb plus simple verb into a single unit, as discussed in §6.3.

The available evidence suggests that almost all of the modern-day prefixing languages originally had a limited set of simple verbs (although the number of simple verbs would have varied from as few as ten to as many as a hundred or more). The simple verb took reflexive and other derivational suffixes, plus TAM inflectional suffixes. A simple verb could be used alone, or with one of a set of non-inflecting coverbs – see the examples at (11–15) in §6.3. (The exceptions are NBd3, Aninhd-hilyagwa, WMa, Yanyuwa, and possibly also NKa2, Iwaydja. These languages – Type (g) from §6.3.1 – have a large number of inflecting verbs, with no evidence of development from coverb-plus-simple-verb combinations.)

Thus, verb structure at the earlier stage was:

(coverb) simple.verb-suffixes (coverb)

where a coverb generally came somewhere before the main verb but could follow it.

The coverb then rigidified in position to come immediately before the simple verb. The next step was for coverb plus simple verb to form a single unit which would undergo various phonological changes and semantic shifts so that, as time went by, it would become increasingly difficult to analyse it into the original two components.

Now some languages have undergone change (i) but not (ii), giving:

Type I (coverb) prefixes-simple.verb-suffixes (coverb)

Other languages underwent change (i) and then change (ii), giving:

Type II coverb=prefixes-simple.verb-suffixes *or*
prefixes-simple.verb-suffixes=coverb

A further set of languages underwent change (ii) first, and then (i), giving:

Type III prefixes-coverb+simple.verb-suffixes

Change (i), the development of prefixes, is likely to take place rather quickly while change (ii), the compounding of coverb plus simple verb, is likely to be a more drawn-out affair. Change (i) could apply part-way through change (ii), giving:

Type IV (coverb₂) prefix-coverb₁+simple.verb-suffixes (coverb₂)

That is, coversb₁ have become morphologically linked with simple verbs, so that prefixes are added to the coverb₁-plus-simple-verb compound, while coversb₂ maintain a purely syntactic association with a simple verb (or with a coverb₁-plus-simple-verb).

There is another parameter for variation. In most prefixing languages there are pronominal prefixes for A, S and O arguments, but in some the prefixes only cover A and S, with O being shown by pronominal suffixes or enclitics to the verb.

We can list which of the prefixing languages belong to each of Types I–IV. Almost every language has additional prefixes, beyond the bound pronominals – these are

discussed in §9.2. For the present discussion the abbreviation pnAS will be used for a bound pronominal in A or S function, pnO for one in O function, and pnASO for a pronominal complex covering S or A-plus-O functions. (Whether the complex is segmentable or fused, and in which order A and O appear, is not taken account of here. This is discussed in §9.5.)

Type I: (coverb) pnASO-simple.verb-suffixes (coverb). This is found in NBI2, Wardaman, and NHa, Patjtjamalh. In both languages a coverb most frequently precedes the simple verb but in Wardaman it will occasionally follow any simple verb and in Patjtjamalh a coverb may either precede or follow an intransitive simple verb. Compare the following sentences which occur close together in a text:

(4) NHa, Patjtjamalh (Ford 1990: 148 and p.c.)

(a)	menenj	tjaŋam=	makka=kka		pøtje-pøtjtje	karr-pe=	nj=tjø
	vegetable	kurrajong=	PERFECTIVE=	REALLY	head-carry	3pl+N.FUT-go=	PRES=CONTIN
	The kurrajong they've been carrying on their heads						
(b)	karr-pe=	nj=tjø=	makka		menenj	pøtje-pøtjtje	
	3pl+N.FUT-go=	PRES=CONTIN=	PERFECTIVE	vegetable	head-carry		
	They've been head-carrying the edible vegetables						

Here the simple verb has root *-pe-* 'go', taking pronominal prefix and TAM enclitics. The coverb is *pøtjtje* 'carry' and in these clauses it bears an incorporated noun *pøtje* 'head', i.e. *pøtje-pøtjtje* 'carry on the head'. Note that in (4a) the coverb immediately precedes the simple verb and in (4b) it follows it, the two verbs now being separated by the generic noun *menenj* '(edible) vegetable'. (In these examples '-' indicates an affix boundary and '=' a clitic boundary; *ø* is a high mid front rounded vowel.)

Type II: (a) coverb=pnASO-simple.verb-suffixes; (b) coverb=pnAS-simple.verb-suffixes-pnO; (c) pnAS-simple.verb-suffixes=pnO=coverb. Type IIa, where the coverb immediately precedes the simple verb – which bears prefixes for all of A, S and O – is found in NBb, NB11, NBm, NCa, ND, NF and NG. In NF1, Bunuba, there is phonological cohesion between coverb and the prefix-plus-simple-verb-plus-suffixes fused combination. Compare:

(5) NF1, Bunuba (Rumsey 2000: 78)

(a)	mila=wila	(b)	wu=bila
	see=FUT+1sgA+3sgO+'RA'		cook=FUT+1sgA+3sgO+'RA'
	I'll see him/her/it		I'll cook it

In (5a) the coverb *mila* 'see' is segmentable from the simple verb component (centred on a simple verb with underlying form *-ra-*, which Rumsey characterises as 'atelic,

active'). In (5b) the underlying form of the coverb 'cook' is *wug*: this engenders hardening of the following *w* to *b*, after which the coverb-final *g* drops.

Type IIb is similar to IIa except for the fact that the prefix to the simple verb only refers to A and S arguments, with O being encoded by an enclitic. This occurs in NE, NHc and NHe. For example:

- (6) NHc, Malak-Malak (Birk 1976: 125)
- | | | |
|--------|------|---------------------------------|
| alawar | tatj | yiminj=ɣayi |
| woman | hit | 3sgmA + TR + PUNCTILIAR = 3sgfO |
- He hit(s) the woman

Here the coverb is *tatj* 'hit' and the simple verb involves a fusion of 3sgm A bound pronoun, transitive simple verb root and punctiliar aspect marker. It is followed by a 3sgf O clitic. The fact that A is marked as m and O as f indicates that the noun *alawar* 'woman' must realise the O argument. (Note that Malak-Malak has only six simple verbs. Five are intransitive, two referring to movement and the others to sitting, standing and lying, while the sixth – employed here – is used in all transitive clauses.)

Type IIc is the same as IIb except that here the coverb follows the simple verb constituent (with AS prefix and O suffix or enclitic). This occurs in NHb and NHd. In (3) we had an example of the simple verb 'see' used alone in NHd2. In (7a) it is followed by coverb *yilil* 'recognise' and in (7b) by coverb *tisit* 'be jealous of'.

- (7) NHd2, Ngan.gi-tjemerri (Reid 1990: 246)
- | | | | |
|-----|--------------------------|------------------------|-----------|
| (a) | ɣayi | jinjingin-ni | =yilil |
| | 1sg | 2sgA + see + PRES-1sgO | recognise |
| | Do you recognise me? | | |
| (b) | dinjingin-nji | =tisit | |
| | 3sgA + see + PRES-2sgO | be.jealous.of | |
| | He/she is jealous of you | | |

Type III: pnASO-coverb + simple.verb-suffixes. This is found in NBc, NBe-i, NIb1 and NIc. There are a large number of verbs, taking pronominal prefixes and TAM etc. suffixes, but most of these verbs have one of a small number of final syllables, plainly related to recurrent simple verbs across the languages of the continent. For instance, in NBg1, Gunwinngu, we find the following verbs (Evans 1991: 173–4; Carroll 1976: 705; Oates 1964: 36–40):

-bu- 'hit, kill'	-ma- 'get'
-dulubu- 'shoot'	-durrkma- 'pull up'
-danjbu- 'spear'	-djidma- 'steal'
-dilebu- 'piss'	-djalkma- 'split'
-bidbu- 'climb up'	-larlma- 'divide up, separate'
-djonjbu- 'dress'	-bunjma- 'kiss'

The polysyllabic verbs in each column look like atrophied compounds of erstwhile coverbs plus *-bu-* or *-ma-*. The meanings of the longer verbs sometimes clearly relate to the meaning of the included simple verb *-bu-* ‘hit’ or *-ma-* ‘get’, and other times seem rather different from it, as we find in coverb-plus-simple-verb combinations in languages of Types I and II. (See the discussion in chapter 6 – for instance, the Yawuru combinations in (11) and (15) of §6.3.) Pronominal prefix and TAM suffix with a complex verb stem is illustrated in (8) (compare with the paradigm in (34) in §6.5.2).

- (8) NBg1, Mayali dialect of Gunwinjgu (Evans, 1991 and p.c.)

ɲaban-dulubu-n

IminA+3augO-shoot-NON.PAST

I am shooting them

Type IV: (a) coverb₂ pnASO-coverb₁+simple.verb-suffixes; (b) pnASO-coverb₁+simple.verb-suffixes coverb₂. Here some original coverbs have compounded with the simple verb, with prefixes and suffixes going onto the compound, but there are also a number of simple verbs that remain outside this inflected constituent. Subtype IVa, where coverb₂ precedes the main verbal constituent, is found in NBa, NBd1/2 and NL. Subtype IVb, where the coverb follows, is in NBk and NKa1.

In NBk, Gaagudju, for instance, the verb *-bu-* ‘hit’ can be used alone or it can be used in a compound such as *-gardá-bu-* ‘be tired’ (where *gardá-* is taken to be a coverb₁), or it can be syntactically associated with a coverb₂, as in *-bu- ɲaláambirr* ‘to cough’ (Harvey 1992: 244, 248).

The types given here relate to the rather different typology of coverb-plus-verb combinations given in §6.3.1. Type IV is (e) from §6.3.1, Type III is (d), Type II relates to (a), (b) and some languages from (c), while Type I covers the remaining languages from (c).

There are some prefixing languages that were not included in the survey above simply because insufficient information is available on their verbs; in each of NBj, NIa, Nib2 and NKb only a few verbs have been recorded. All of these have pnASO as a prefix to the verb, except NKb which has pnAS as a prefix and pnO as a suffix or enclitic to the verb.

It is instructive to relate the way in which changes (i) and (ii) have applied to putative genetic subgrouping among prefixing languages. There are some putative lower-level subgroups all of whose languages are of the same type, with respect to coverbs and pronominal prefixes, suggesting that the changes may have applied at the stage of their shared proto-languages, e.g. ND, NE, NF, NBc and NBf. But beyond this it is clear that if other groups of languages are genetically related, then both the development of prefixing, and the compounding of coverb with simple verbs must have taken place well after the proto-language stage, and must have happened independently in each individual language.

Our NB and NH groups are established on an areal basis but each has previously been put forward as a genetic subgroup (see, for instance, Tryon 1974 on NH). As has been shown, languages within these groups vary as to the position of pronominal prefixes with respect to coverb, and so on. In §9.5 we discuss the different strategies for ordering A and O bound pronouns (A before O, O before A, or the ordering being determined by a hierarchy such as $n-3 > 3$) which also differ widely across the NB languages, for instance.

At the beginning of §6.3 we discussed complex verb structures, consisting of one or more coverbs and one inflecting simple verb, and the semantic contribution which each part makes to the meaning of the whole. We found variation – in some instances both coverb and simple verb make a contribution (the meaning of the complex verbs is, roughly, the meaning of its parts), as in (4) and (7a) above. Other times it is the coverb which appears to supply most of the lexical meaning, with the simple verb effectively functioning just as a carrier for pronominal and TAM affixes, as in (6).

It is in those languages with a very small number of simple verbs, and many coverbs, that the simple verb appears to have at most a very general sense, with the coverb supplying almost all the meaning. We mentioned that in NHC, Malak-Malak, there are just six simple verbs; five are intransitive (indicating sitting, standing, lying and two sorts of movement) while the sixth is used in every transitive clause, as in (6). In NF1, Bunuba, there are about a dozen simple verbs for which Rumsey (2000: 77) provides very general glosses such as ‘telic: impact upon’, ‘telic: transfer’ and ‘atelic: active or stative’. For languages of this kind, linguists typically call the coverbs ‘verbs’ and the simple verbs ‘auxiliaries’. (I here retain the terms ‘coverb’ and ‘simple verb’, for ease of comparison across the languages of the continent.)

There has been a most interesting development in NCb, with pronominal prefixes moving full cycle and taking on the new status of pronominal enclitics. Note that NC, the Mindi subgroup, has two discontinuous geographical divisions, NCa, West Mindi, and NCb, East Mindi. These languages are plainly genetically related, having similar case and noun class marking and similar bound and free pronouns – see the paradigms in (26–8) in §8.5, and discussion under (11) in §13.1. However, they differ markedly in their verbal organisation. The NCa languages are of Type IIa. There are (depending on language and dialect) between fifteen and twenty-two simple verbs taking pronominal prefixes and TAM suffixes. Thus, to say ‘die’ one uses a coverb *digiridj* followed by a simple verb with underlying root *-ga-* (used alone this means ‘go’):

- (9) NCa1, Ngaliwuru dialect (Bolt, Hoddinott and Kofod 1971a: 126, 95)
- | | |
|----------------|--------------------|
| digiridj | gaydganj |
| die | 3sgS + ‘GO’ + PAST |
| He/she/it died | |

The eastern block of Mindi languages, NCb, maintains the same basic structure with lexical-verb-plus-simple-verb constituent. But the number of simple verbs has effectively been reduced to three – one indicating ‘going’, one indicating ‘coming’ and a neutral verb used in all other circumstances. What is more, the three roots have fused with tense suffixes. We thus get a ‘simple verb’ constituent (perhaps now better called an ‘auxiliary’ constituent) which effectively consists of a pronominal prefix (cognate with the prefixes in NCa languages) and a direction/tense suffix. For example:

(10) NCb1, Djingulu (Pensalfini 1997: 330)

ladja=[ŋa-rdu] kidjurlurlu
 carry=[1sgS-GOING+PRES] stone
 I’m carrying a stone

In Djingulu the auxiliary is encliticised to the verb (the original coverb). Thus the original pronominal prefix to a simple verb is now perhaps best described as a prefix to a zero auxiliary root, the whole auxiliary constituent functioning as enclitic to a lexical verb. (It may be argued the *ŋa-* in (10) is no longer really a prefix and, as a consequence, the NCb languages should not be described as prefixing. This is simply a question of terminology.)

Among the simple verbs in NCa are *-ga-* ‘go’ and *-ru(m)-* ‘come’. It is interesting to examine the fused directional/tense suffixes in NCb languages to see if it is possible to discern any traces of these erstwhile simple verbs. Thus (from Pensalfini 1997: 328–33; and Nordlinger 1998: 146–51):

	NCb1, Djingulu			NCb3, Wambaya		
	‘going’	‘coming’	neutral	‘going’	‘coming’	neutral
present	-(a)rdu	-djiyimi	-dju	-(g)uba	-ulama	{ ∅
future	-wa	-ŋgu	-yi			{ -u
past	-rrugu	-migi	-nu	-(g)anj	-amanj	-a

There is just a trace of similarity for ‘going’. The initial *-(g)u* and *-(g)a* in Wambaya, and the future *-wa-* and the final *-gu-* on past in Djingulu, may possibly relate to an original root *-ga-*. Or, these forms may be unrelated. In the case of ‘coming’ there are no putative reflexes of *-ru(m)-*. (Note that, as happens all over the continent, the NC languages have very similar pronouns and nominal suffixes, but the verbal suffixes differ markedly from language to language.)

NC languages are on the fringe of the prefixing area. The NCb subgroup in particular, has non-prefixing languages to the west, south and east. There would be expected to be diffusional pressure from these non-prefixing neighbours. In fact, the auxiliary component in NCb is rather like a pronominal enclitic complex, as typically found in non-prefixing languages.

There has been a further development in NCb3, Wambaya. Here the auxiliary constituent does not immediately follow the verb, as it does in NCa and NCb1 – illustrated in (9) and (10) – but instead follows the first word or phrase in the clause (this is often a verb but need not be). (It appears that NCb2, Ngarnga, behaves in a similar way to NCb3.) Thus:

- (12) NCb3, Wambaya (Nordlinger 1998: 250)
- | | | | |
|----------|--------------------|--------------|----------|
| igima | g-amanj | yarru-Ø | nanga |
| THAT.ONE | 3sgS-‘COMING’+PAST | MOVE-NON-FUT | 3sgm+OBL |
- That one came to him

In Wambaya, a monosyllabic auxiliary is an enclitic to the preceding word, while a polysyllabic auxiliary – as in (12) – constitutes a separate word, and bears its own stress.

Wambaya’s neighbour to the south is WK, Warumungu, which places its clitic complex after the first word of the clause. It is very likely that this structural pattern in Warumungu has influenced the movement of the auxiliary in Wambaya – from following the verb, to following the first constituent of the clause. Verbs (the original coverbs) in Wambaya have developed some TAM suffixes – future is *-ba* or *-wa*, while non-future has zero marking (as in (12)).

We thus have a further example of cyclic development. Bound pronouns would have begun as clitics; then developed into prefixes to a simple verb. The simple verb came to immediately follow the coverb, as in NCa. At the next stage the simple verb was lost, save for ‘going’, ‘coming’ and a neutral stem, which fused with TAM and could no longer be regarded as a root – this describes NCb1, Djingulu. In NCb3, Wambaya, the bound-pronoun-plus-directional/TAM constituent follows the first word or phrase of the clause, and the verbal element (erstwhile coverb) is starting to develop TAM suffixes. Once these developments have progressed a little further, Wambaya would have the profile of a typical non-prefixing language with pronominal enclitics. However, its pronominal forms (and other grammatical elements) clearly demonstrate its genetic link with the NCa subgroup, and its prefixing antecedents.

(Most Australian languages mark reflexive/reciprocal by a derivational suffix to the verb. However, Wambaya uses a reflexive/reciprocal bound pronoun, *-ng-*, in the O slot in the auxiliary – see (93) in §7.6.)

9.2 Structure of the verb in prefixing languages

In some languages of Types I, II and III, where coverbs occur outside the prefixes-simple-verb-plus-suffixes complex, a coverb takes neither affixes nor clitics. In others it can have a few morphological impedimenta. NBb1, Marra, and NBb2,

Warndarrang are unusual in allowing two prefixes to a coverb, negative and benefactive applicative. Both are illustrated in:

- (13) NBb2, Warndarrang (Heath 1980b: 60)
- | | |
|-----------------|---|
| gu-ma-gi= | ya-ŋarra-gi |
| NEG-BENEF-take= | HITHER-3sgA + 1sgO-take + PAST.IRREALIS |
- He did not bring [it] for me

Here the benefactive prefix to the coverb indicates that the non-subject bound pronoun refers to the indirect object ('me') rather than to the O. Note that here the coverb *gi* 'take' is cognate with the simple verb, whose root is *-ga-* 'take'.

In NHc, Malak-Malak, a coverb can take one of a number of adverbial-type prefixes (*parr-* 'elsewhere', *lup-* 'together' or *taŋ-* 'still') and one of a number of suffixes, e.g. *-nō* 'intensive', *-ma* 'continuative' and *-telk* or *-puk* 'possibility'. Thus:

- (14) NHc, Malak-Malak (Birk 1976: 89)
- | | | | |
|------|------------------|---------------|------------------|
| [te | ma] _O | ey-puk | atoma |
| meat | wallaby | kill-POSSIBLE | 1sgA + TR + PURP |
- I might kill wallaby

As in (6) above, the transitive simple verb is used in (14); no object clitic is included here (the O argument is fully specified by an NP).

In NHd2, Ngan.gi-tjemerri, the coverb generally follows the inflected simple verb. In this language the coverb can take a prefix *gen-* 'in the middle' (e.g. 'chop it in the middle') and an applicative prefix that increases valency. Thus, the intransitive coverb *wap* 'sit' becomes transitive when the applicative prefix *mi-* is added to it, as in:

- (15) NHd2, Ngan.gi-tjemerri (Reid 1990: 140)
- | | |
|-------------------------------|-------------|
| ŋaganinj-nji | =mi-wap |
| 1sgA + 'GO' + PERFECTIVE-2sgO | =APPLIC-sit |
- I sat down with you

In this language the A/S pronoun, the simple verb root and TAM are all fused in one unit. An O bound pronoun is added after this, followed by the coverb constituent *mi-wap*.

Other languages allow just enclitics or suffixes to a coverb. The two languages in NE, the South Kimberley subgroup, both allow an aspect marker ('accomplished' or 'progressive') and a modal qualifier (e.g. 'repetitive'). As indicated above – see (12) – in NCb3, Wambaya, the original coverb marks future/non-future, and also purposive and 'simultaneous same subject' in a subordinate clause.

NHb2, Marrithiyel, and NHd1, Murrinh-patha, are like NHd2, Ngan.gi-tjemerri, in having the coverb follow the inflected simple verb. In Marrithiyel the coverb takes a

suffix indicating number of the S/A argument and then another suffix marking TAM. Murrinh-patha has the same types of suffixes but in the opposite order.

In NB11, Wagiman, a coverb is in one of four aspectual forms – sequential (marked by suffix *-wi*), punctual (zero marking), unmarked (suffix *-ma*) or purposive (suffix *-gu*) (Cook 1987: 235; see also Wilson 1999: 50–9). The related NB12, Wardaman, has no aspect marking on coverbs but there is a suffix *-ma* or *-ba* which is generally added to a coverb ending in a consonant; this is probably cognate with the unmarked aspect suffix in Wagiman (Merlan 1994: 263–4).

Coverbs have a few affixes in some prefixing languages, none at all in others. Simple verbs have the possibility of between one and fourteen prefixes. They also have TAM final inflection and generally a number of derivational suffixes that come between root and inflection.

About half of the prefixing languages have a reflexive and/or reciprocal derivational suffix; in most languages this relates to **-dharri-*, which also recurs in non-prefixing languages (see §7.6). In NBd we also find a causative suffix, which can come immediately before reflexive/reciprocal.

There is a directional suffix in a number of languages – it precedes TAM in NB11, Wagiman, but follows it in NBm, Alawa, Nib1, Limilngan, and Nic, Larrakiya. NBc2, Ngalakan, has a negative suffix following TAM (and sometimes fused with it). A suffix indicating the number of a core argument can be added to the end of the verb in a fair number of prefixing languages – see §9.2.3.

Types of verbal prefix that are found (other than TAM and bound pronouns, which are discussed in §§9.4–5) are:

- (a) valency-changing prefixes – applicative and reflexive/reciprocal;
- (b) directional prefixes (chiefly ‘hither’ and ‘thither’);
- (c) negation and number.

These are discussed – together with suffixes that have similar function or meaning – in §§9.2.1–3. Then §9.3 examines another feature of some of the prefixing languages – the incorporation of a nominal root into the verbal word.

9.2.1 Valency-changing affixes

In a number of the prefixing languages, a reflexive or reciprocal construction involves a substitution of the simple verb accompanying a given coverb; some languages have a special set of reflexive simple verbs. Languages which do not employ this technique generally have a reflexive suffix to simple verbs. As mentioned under (1) in §7.6, there are just two examples of a reflexive/reciprocal prefix. ND1, Kitja, has *ŋirri- ~ mi- ~ me-* (in this language, reflexive/reciprocal can also be marked by changing the final nasal of a verb root to *-tj*, which may be a relic of **-dharri-*). In NE, the Fitzroy River subgroup, a simple verb is made reflexive/reciprocal by a combination

of prefix *ma-* and suffix *-njdji*. Thus:

- (16) NE1, Yawuru (Hosokawa 1991: 129)
 marlu wal-ma-balu-njdji
 DON'T 2sg+FUT-REFL/RECIP₁-hit-REFL/RECIP₂
 don't hit yourself!

Just a few languages have one or more derivational prefixes that increase valency. Most typical is a benefactive applicative, which moves a benefactive argument into the O slot. A benefactive applicative prefix *-pak-* or *-bak-* or *-wa:g-* occurs in NBc and NBd1/2; it was illustrated for NBc1, Rembarrnga, at (29) in §6.4.2. NBg2, Gunbarlang, has a benefactive applicative prefix *-marnanj-* and NBg1, Mayali, has *-marne-*, as in:

- (17) NBg1, Mayali (Evans 1991: 210)
 gan-marne-bu-n gunj a-ŋu-n
 2sgA+1sgO-APPLIC-kill-NON.PAST kangaroo 1sgA+3sgO-eat-NON.PAST
 you will kill the kangaroo for me, so I can eat it

Some languages also have a comitative variety of applicative prefix '(do) with'. This has the form *-yi-* in Mayali and *-ri-* in NBd1, Ngandi. For instance:

- (18) NBd1, Ngandi (Heath 1978b: 83)
 rmini-ri-bolk+dh-i
 3sgA+3sgO-APPLIC-come.out-PAST.PUNCTUAL
 he (the policeman) came out with him (the apprehended culprit)

Note that this clause involves fusion of coverb (*bolk*) plus simple verb (*dhu*). Past punctual inflection replaces the stem-final *u* by *i*.

9.2.2 Directional markers

Quite a few of the prefixing languages can include a 'directional' element in their verbal structure. Its position varies – it may precede TAM-plus-pronominal prefix; it may come between pronominal prefix and the verb root; it may come between verb and TAM suffixes; or it may follow the TAM suffixes. Most languages have two affixes: 'hither' (towards speaker or point of origin) and 'thither' (away from speaker, etc.) but some have only one non-zero form. Table 9.1 surveys the forms and their positioning.

In NBf4, Ndjebbana, the 'hither' prefix is related to the free verb *-balo-* 'come this way'; it is clear that this verb has recently been grammaticalised, as a directional suffix within the verb.

There are a number of similarities between forms in the 'hither' and 'thither' columns of table 9.1, but these are all within a low-level subgroup and/or between languages that are geographically contiguous. No generalisations seem possible, about forms or about place in word structure.

Table 9.1 *Directional affixes to verbs*

	'hither'	'thither'
Prefix, before TAM+pronominal prefixes		
NBb1, Marra	-ŋa-, -ya-	ø
NBb2, Warndarrang – see (13)	-ya-	ø
Prefix, fused with following pronominal prefix		
NKa2, Iwaydja – see (39)	-nja-, -yu-	-dja-, -ya-
NKb, Amurdag	-ya-, -yu-	-dja-
Prefix, after A/S but before O pronominal prefix		
NL, Tiwi	-(wu)ni-	} -pi(ŋi)-
Prefix, between pronominal prefixes and verb root		
NL, Tiwi		
NBf1–3	-na-	
NBf4, Ndjebbana	-baló-	
NBg1, Gunwinjgu	-m-	-bal-
NBg2, Gunbarlang	-ŋanj-	-mun-
NBk, Gaagudju	-ga-	-ba-
Suffix, between root and TAM suffixes		
NB11, Wagiman (only with verb 'go')	ø	-ŋga-
Suffix, after TAM suffixes		
NBm, Alawa (only with 'come' and 'bring')	-kunu-	ø
Nlb1, Limilngan	-idji-	ø
Nlc, Larrakiya	-(ä)rrg-, -g-	-uwa-

Note that NBg2, Gunbarlang, has a third directional prefix, *-man-* 'downwards'. In addition, languages in areal group NH each have a postverbal clitic indicating direction.

'Associated motion' derivational suffixes, found in a number of languages in the non-prefixing region, were mentioned in §6.4. These code 'hither' and 'thither' and also such notions as 'arriving' and 'returning'. The general comment we can put forward is that as Australian languages move towards a more synthetic verbal profile (whether involving just suffixes, or both suffixes and prefixes) there is a recurrent tendency to grammaticalise verbs of motion, locational adverbs, etc. as verbal suffixes indicating direction and type of motion.

9.2.3 *Negation and number*

As mentioned in §3.3.11, in most Australian languages negation is marked by a non-inflecting particle which will typically come immediately before the verb. One might expect that those languages which developed extensive prefixing should include a negative element among their array of prefixes. However, this has happened rather rarely. For Nlc, Larrakiya, Capell (1984: 79) mentions a negative prefix (between pronominal-plus-tense and verb root) but gives no details.

In WMa, Yanyuwa, the first prefix (that prefix furthest from the root) is *barni*- ‘not, don’t’ (Kirtton 1978: 15; Kirtton and Charlie 1996: 142–3). In NBi, Gungarakanj, Parish (1983) mentions a prefix *pu*- which may originally have had an irrealis meaning, relating to actions which did not, or will not, take place. It may be used together with a negative particle *moronj*, or without it, being then the only marker of negation in the clause:

- (19) NBi, Gungarakanj (Parish 1983: 38)
 arr-pu-tjim-ere
 IminS+NON.FUT-NEG-come-POT
 I was going to come (but didn’t come)

Parish also quotes *arr-pu-pini* ‘I didn’t do it’, where the dummy verb *-pini*- can be used anaphorically to refer to some action which has already been established in the discourse.

The two languages of subgroup NBc represent different stages in the development of affixal negation. In NBc1, Rembarrnga, there is a negative particle *məlak*; this precedes the verb, which must be in relative clause form. While a positive clause has five basic tense/aspect choices (realised as suffixes), a negative clause has just three. Present and future are maintained, but the distinction between the three past tenses (past continuous, past punctilinear and past counterfactual) is neutralised in the negative, with just the past counterfactual ending being used (McKay 1975: 130, 237, 363–4).

The closely related language NBc2, Ngalakan, also has more tense–aspect possibilities in the positive than in the negative. Here there is no particle ‘not’, and negation is marked by fused TAM/negative suffixes. A sample verb paradigm is given at (20).

- (20) NBc2, Ngalakan – forms of verb ‘get, pick up’ (Merlan 1983: 93–111 and p.c.)

	positive	negative
past punctual	-meʔme	-maŋi + ʔmolɔk
past continuous	-maŋinj	
present	-maʔma	-maŋi + koro
imperative		-ma + ʔtji-
future	-maŋa-	
potential	-maŋi	
‘lest’	-ma	wanjba <i>plus</i> -ma + ʔtji-

The verb shown in (20) is one of the five monosyllabics that distinguish present from 'lest'; for other verbs these fall together. Note that there is no distinct imperative in the positive – either present or future ending is used, an imperative meaning being inferable from intonation and/or discourse context.

There are just three negative forms. Negative past and negative present involve the addition of *-ʔmolk* and *-koro* respectively to the positive potential, while negative future involves *-ʔtji-* added to the 'lest' form. The past punctual/past continuous distinction is neutralised in the negative. It appears that negative future is also used for negative potential and negative imperative. The negative 'lest' (as in, for example, 'talk loud lest they not hear us') involves negative future inflection on the verb, plus preverbal particle *wanjba*. There is said to be a similar type of neutralisation of TAM choices in the negative for NBe, Dalabon (F. Merlan, p.c.); however, full details have not yet been made available.

We can now look at number marking in the verb, where this is separate from bound pronominal prefixes. In quite a few languages a suffix or enclitic can be added to the end of the verb (after TAM suffixes), specifying the number of some core argument. Under (a-iv) in §8.5.2, it was mentioned that in some languages (including NBc, NG, NHa-b, NHD-e and NKb) free pronouns have a basic sg/n-sg (or min/n-min) distinction, with number suffixes (du and pl, and sometimes also trial/paucal; or ua and aug) added to these. The pronominal prefixes to verbs have just sg/n-sg or min/n-min forms, with the number suffixes being added at the end of the verb; these effectively constitute discontinuous bound pronouns.

In ND1, Kitja, there is a du/pl distinction in free but not in bound pronouns. To augment the information supplied by pronominal prefixes, a verb can have a final suffix indicating that some core argument is du or pl (these suffixes are quite different in form from those on free pronouns). As shown at (18) in §7.2, subgroup NF has a single term – in both free and bound pronouns – covering 1du.inc, 1du.exc and 1pl.exc; to fully specify number, a du or pl clitic can be added to the end of the verb.

Number suffixes or enclitics to the verb are generally optional. Many of them relate to the lexeme 'two' and sometimes to other lexical numbers, suggesting that they have developed into grammatical markers fairly recently.

There are only a couple of examples of number prefixes, distinct from pronominal prefixes. For, NBd2, Nunggubuyu, Heath (1984: 383–5) reports that there are two prefixes which come between pronominal prefix and root: *-garra(g)-* 'S referent (normally human) has multiple reference' and *-warra-* 'S or O referent (normally inanimate or non-volitional) has multiple reference'.

Just one language is known for which there is both a prefix slot and a suffix slot for number markers. In NBd3, Aninhdhilyagwa, there are two optional number

prefixes, *-lhirrakwi-* for du and *-wirrak(w)i-* or *-mwirntakwi-* for trial/pl; and an optional number suffix, *-aya-* or *-atja*, with n-sg reference. Both affixes are well integrated into the verb, the prefix coming between pronominal prefix and root, and the suffix coming between root and TAM inflection. Both refer to the number of an S argument in an intransitive and of an O argument in a transitive clause (unlike some other languages, in which a number affix can refer to S or A or O, with the possibility of ambiguity). It is even possible to have both a number prefix and a number suffix in the same word, e.g.:

- (21) NBd3, Aninhdhilyagwa (Leeding 1989: 449)
 ɲarra-ø-wirra^{ki}-tharrpwikw-atja-ni
 1n.sg.incA-3sgO-trial/pl+O-shorten-n.sg+O-TENSE
 we (three or more) put the things together

In this language, free pronouns distinguish sg, du, trial and pl, while bound pronouns have just sg and n-sg forms. The number prefixes and suffix allow a du specification to be added, for S or O.

9.3 Nominal incorporation

About twenty of the prefixing languages can incorporate a noun into the verb; this generally refers to a core argument in S or O function. For example:

- (22) NBg1, Mayali (Evans 1996: 65)
- | | | | |
|-----|-------------------------------------|---------------------------|---------------|
| (a) | bamurru | a-bom | gun-godj |
| | magpie.goose | 1sg-shoot+PAST.PERFECTIVE | CLASS.IV-head |
| | I shot the magpie goose in the head | | |
(b)	bamurru	a-godj-bom
	magpie.goose	1sg-head-shoot+PAST.PERFECTIVE
	I shot the magpie goose in the head	

In (22a) the O argument is a discontinuous NP, outside the verb; it consists of a head noun *bamurru* ‘magpie goose’ in apposition with a body part noun *godj* ‘head’, which bears the prefix *gun-*, showing that it relates to something of noun class IV. (Recall that in Australian languages genitive marking is generally reserved for alienable possession, with part-whole relationship being indicated just by apposition.) In (22b) the body part noun is incorporated into the verb, between pronominal prefix and root, but the head noun ‘magpie goose’ remains as an NP. In this example the incorporation of the body part noun is optional with (22a) and (22b) having essentially the same meaning. Their use is conditioned by discourse considerations. The incorporated variant, (22b), is the unmarked alternative, with a non-incorporated construction likely to be used when the body part is being focussed on.

In (22b) a body part term is incorporated into the verb, while the head noun to which it relates is retained in the extra-verbal NP. Example (23), also from Mayali, shows a different kind of incorporation – the verb incorporates a generic noun *-rrulk-* ‘tree’, relating to the specific noun *-bernberrn* ‘ghost gum’.

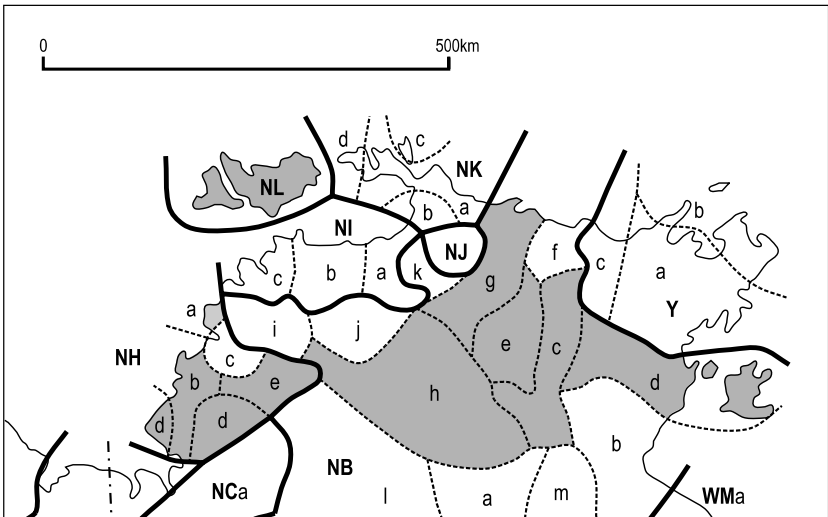
- (23) NBg1, Mayali (Evans 1996: 77)
- | | |
|---|---------------------|
| ga-rrulk-di | an-berrnberrn |
| 3min + NON.PAST-tree-stand + NON.PAST | CLASS.III-ghost.gum |
| A ghostgum tree is there (lit. is standing there) | |

We now survey (a) the geographical occurrence of nominal incorporation; (b) its position in the word; (c) criteria for recognising it; (d) syntactic functions coded; (e) types of nominal incorporated; (f) the forms of incorporated nominals; (g) conditions for the use of verbs bearing incorporated nominals.

(a) *Occurrence.* Languages showing nominal incorporation make up three geographical blocks, shown on map 9.1:

- (i) In NBc, NBd, NBe, NBg and NBh (one continuous area);
- (ii) NHa, NHb, NHd and NHe (a small continuous area);
- (iii) NL (spoken on Melville and Bathurst Islands, off the north coast).

Note that area (ii) just touches area (i).



Map 9.1 Languages showing nominal incorporation

(b) *Position in the word.* In groups NHb and NHd, the typical verbal structure is:

simple verb constituent (TAM and pronominal prefixes plus verb root,
often fused)
O pronominal enclitic
incorporated nominal
coverb plus affixes

For example:

- (24) NHd2, Ngan.gi-tjemerri (Reid 1990: 190)
 ɲerinj=nji =mi=ta
 1sgA+use.hands+PERFECTIVE=2sgO =eye=open
 I opened your eye

Here the O argument is expressed through (i) the 2sgO pronominal enclitic to the simple verb constituent, and (ii) the incorporated noun *-mi-* ‘eye’ (placed just before coverb *-ta* ‘open’). There are variations on this basic pattern. For instance, in NHb1, Emmi, incorporated nominals can either precede or follow the coverb constituent.

In NHa, Patjtjamalh, an incorporated noun is a proclitic to the simple verb constituent. That is, it precedes pronominal prefixes, as in:

- (25) NHa, Patjtjamalh (Ford 1990: 159)
 pik=karr-ipe-makka
 rope=NON.FUT+3plA+3sgmO-hold-PERFECTIVE
 they gaoled him

Here the combination of simple verb ‘hold’ and incorporated noun ‘rope’ has the meaning ‘put in gaol’ (lit. ‘hold with rope’). Patjtjamalh is the only language reported in which an incorporated noun is occasionally linked not to the simple verb but to its coverb; this is illustrated in (4) above.

In all other languages the incorporated noun comes between pronominal prefixes and the verb. In most it is immediately before the verb. In just two languages (of those for which there is detailed information) other prefixes may intrude between the incorporated noun and the root. In NBg1, Mayali, there can be a quantifying prefix *-mirnde-* ‘many’ and/or a comitative applicative derivational prefix *-yi-*. In NBc1, Rembarrnga, there can be either of two applicative prefixes: *-re-*, which makes an intransitive root transitive, and *-partra-*, which makes a transitive root ditransitive. For instance:

- (26) NBc1, Rembarrnga (McKay 1975: 151)
 par-ku?-re-kaw?-mərŋ
 3minO+3augA-dead-APPLIC-yell-PAST.CONTIN
 they were yelling over their dead [mother]

This exemplifies the third kind of incorporated nominal (in addition to body part terms and generic nouns) – the adjective-like form *-ku?* ‘dead’.

(c) *Criteria*. All Australian languages have a number of noun–verb compounds; for example, in H1, Dyirbal, there is *gayga+budi-* (lit. ‘eye+carry.in.hand’) ‘lead, show the way’, and *buggu+bana-* (lit. ‘knee+break’) ‘fold over’. This can be called lexical incorporation (or compounding) of a noun with a verb.

In languages that also show nominal incorporation as a syntactic process, it is important to provide criteria for distinguishing this from lexical incorporation or compounding. Criteria vary a little from language to language but are always likely to include the following:

- (1) Syntactic incorporation is productive; that is, a syntactically incorporated nominal can appear with any semantically compatible verb. In contrast, each instance of lexical incorporation is an ad hoc affair.
- (2) Syntactic incorporation is optional – the nominal can either be incorporated, as in (22b), or not, as in (22a). Lexical incorporation has no alternative construction in which the incorporated nominal appears outside the verb.

Evans (1996: 73–6) discusses these and other criteria for NBg1, Mayali. He also observes that in Mayali a lexically incorporated nominal must be immediately before the verb, whereas a syntactically incorporated nominal need not be – as noted under (b), a quantifying prefix and/or an applicative prefix can intervene.

(d) *Syntactic functions coded*. The normal situation in any language (see Mithun 1984, 1986) is that the incorporated nominal should relate to a predicate argument in S function in an intransitive clause and in O function in a transitive clause. This holds true for every incorporating language in Australia – incorporation of S is illustrated in (23), (29) and (30), and of O in (22b), (24), (26), (28) and (31).

In a transitive clause the O argument can be marked both with a bound pronoun and with an incorporated nominal, as in (24). But with a ditransitive verb such as ‘give’, these two possibilities may be divided up between the non-subject arguments. In NBg1, Mayali, and in NBg2, Gunbarlang, if one says ‘I gave the meat to the boy’, it is the Gift argument (‘meat’) that can be incorporated, and the Recipient argument (‘the boy’) which is marked by a bound pronoun. In essence, it seems that there is a preference for bound pronouns to have human reference, and non-body-part incorporated nominals to predominantly have non-human reference.

Generally, an incorporated noun cannot relate to A function. There are a few putative exceptions, all involving inanimate A’s. For instance, in NBd2, Nunggubuyu, ‘headache’ can be incorporated into a verb ‘afflict’, and ‘lightning’ into ‘strike’

(Heath 1984: 473; but note that Heath does not provide criteria for distinguishing between syntactic and lexical incorporation; these examples may turn out to be just lexical incorporation, or compounding).

A nominal in a peripheral function, such as instrumental or locative, may be incorporated in some languages, including NBh2, Warray, NHa, Patitjamalh, NHb1, Emmi, and NL, Tiwi. Instrumental incorporation is illustrated in (25) and (31), and locative incorporation in:

(27) NBh2, Warray (Harvey 1996: 144)

an-mewel at-windi at-mirral-lagi-nj
 CLASS.III-clothes 1sg+COMPLETIVE-hang.out 1sg+COMPLETIVE-sun-put-PAST.PERF
 I hung out the clothes in the sun (lit. hung out the clothes, putting them in the sun)

(e) *Types of incorporated nominals.* An NP will typically have a noun with specific reference as head. It may also include a body part noun (in apposition with the head), one or more adjectives, a demonstrative, a possessive phrase and – in many languages – a generic noun such as ‘tree’, ‘animal’ or ‘vegetable food’. Of these constituents, a body part noun is most typically incorporable into the verb, a generic noun often is, and an adjective occasionally is. Note that an incorporated nominal is not usually also included in the corresponding NP, but sometimes it may be.

Body parts can be incorporated in every Australian incorporating language; in some languages body parts are the only kind of nominal that can be incorporated. NBg1, Mayali, is unusual in that apparently every body part term is incorporable, even compounded ones such as *-godj-mud-* ‘head hair’, as in (compare with the incorporation of just *-godj-* ‘head’ in (22b)):

(28) NBg1, Mayali (Evans 1996: 77)

ŋa-[godj-mud]-djobge-rre-n
 1sg-[head-hair]-cut-REFL/RECIP-NON.PAST
 I’m going to cut my hair

However, in most languages only a limited set of body part nouns can be incorporated (there are generally a few dozen of them). Sometimes there can be a one-to-many correspondence between incorporated and non-incorporated nouns. For instance, in NHd2, Ngan.gi-tjemerri, when *-guru-* ‘penis’ is incorporated it can refer to the genitalia of either sex, and *-muy-* ‘eye’ is extended to also include the face (Reid 1990: 199).

There is incorporation of generic nouns in at least NBc1, NBd2, NBg and NL. In most of these a generic noun that can appear in an NP may also be incorporated into the verb, as in (23). But in NL, Tiwi, it seems that there are generic terms which only occur incorporated. Osborne (1974: 48) reports ‘for example, there are about fourteen

words referring to different types of wild honey, but there is only one incorporated form referring to honey, and this has generic meaning – i.e., it does not discriminate between the different types. In this way a relatively small number of incorporated forms can cover the same semantic area as a much larger number of free forms, but fine distinctions are lost as a result.

Other nouns that are typically incorporable are those referring to geographical and cultural features, e.g. ‘sun’ in (27). Occasionally there can be a number of verb-like forms. Tiwi has ‘run’, ‘dance’, ‘be frightened’, ‘swim’, ‘talk’, ‘work’ and ‘sleep’, as in:

- (29) NL, Tiwi (Lee 1987: 163)
 mu-ri-ki-ngirlimpangi-rrangurlimayi
 1+2minS-CONNECTIVE-IN.EVENING-sleep+S-walk
 you and I walk in our sleep

In some languages just a few adjectival or participial nominals may be incorporated; this applies for NBd3, Anindhilyagwa (see Waddy 1988, Vol 1: 169; Leeding 1989: 358–67), and for NBc1, Rembarrnga – see ‘dead’ in (26).

In most languages, nominals that are incorporated have much the same meaning as when they are used within an NP. But in the NH region incorporated body part terms often have notable metaphorical extensions. For instance, in NHd2, Ngan.gi-tjemerri, incorporated *dirr* ‘teeth’ can refer to any edge, *-pi-* ‘head’ to raised, rounded shapes, and *-mentji-* ‘neck’ to tracks and pathways (Reid 1990: 200). In NHb1, Emmi, there are also emotive extensions, e.g. ‘back’ becomes ‘seat of laughter’, ‘ear’ becomes ‘seat of understanding’, and ‘nose’ takes on the meaning of ‘hate’ (Ford 1998: 243). See also Walsh (1996) on NHd1, Murrinh-patha.

The total number of nominals that may be incorporated is a closed class, ranging in size from thirty to forty to more than a hundred (it is probably never as many as two hundred).

(f) *Form*. Some of the languages that allow incorporation have noun classes, and when a nominal is used in an NP it may require a noun class prefix; this is illustrated in (22a), (23) and (27). The prefix is always omitted when the nominal is incorporated into a verb, as in (22b).

Generally an incorporated noun is in root form, with no affixes. However, there is an exception. In NBc1, Rembarrnga, an incorporated noun can bring with it the comitative suffix *-yi(nta)-* ‘with’, as in:

- (30) NBc1, Rembarrnga (McKay 1975: 171)
 ŋa-[porti-yinta]-rtuŋ?-minj
 1minS-[spear-COMIT]-fall-PAST.PUNCTUAL
 I fell with a spear (sticking out of me)

In most of the languages, incorporated nominals have essentially the same form as the corresponding free nominals. There may, of course, be certain processes that apply to a form when it becomes a prefix, e.g. in NBg1, Mayali, initial *d-* becomes *rr-* under certain conditions. There may sometimes be just one or two suppletive pairs, e.g. in Mayali ‘water’ is *gukku* as a free noun but *-bo-* as a bound noun.

In just a few languages most of the incorporated nominals have a form that is significantly different from the corresponding free form. This applies in NBd3, An-inhdilyagwa (see Leeding 1996: 198–202), in NL, Tiwi (see Osborne 1974: 48–50), and in NHd1, Murrinh-patha. We can illustrate from Murrinh-patha (Walsh 1996: 339):

	free form	incorporated form	
(i)	me	-me-	‘foot’
(ii)	the	-ye-	‘ear’
(iii)	lamala	-mala-	‘shoulder’
(iv)	kamarl	-ŋka-	‘eye, face’

(i) exemplifies identical forms, (ii) an incorporated form with initial lenition, (iii) a shortened form and (iv) a suppletive form.

Where there is a fair degree of formal difference and suppletion (in NBd3, NHd1 and NL) this suggests that the incorporation developed at considerable time-depth. In the languages where free and incorporated nominals have essentially the same form, the grammatical process of incorporation may have developed rather recently.

(g) *Use.* Nominal incorporation is always optional. Most grammars say little about the conditions under which it is used. In some languages a body part will normally be incorporated, unless it is being focussed on or is being compared to some other body parts (e.g. ‘he hit my hand and my foot and my belly’). A non-body-part noun may be incorporated for anaphoric purposes. At first mention a full NP is likely to be used; this can be referred back to – later in the discourse – by an incorporated nominal.

It is perfectly possible to get two nominals incorporated in a single verb, with different syntactic functions. Thus in (31) ‘chest’ refers to the O argument of the predicate, and ‘stick’ to the instrument.

- (31) NL, Tiwi (Lee 1987: 164)
 ŋa-mpi-ø-rri-kitji-maripi-rrituwa
 1 + 2augA + NON.PAST-NON.PAST-3sgfO-CONNECTIVE-stick-chest-slit.open
 we slit the chest (of the goose (f)) with a stick

9.4 Pronominal prefixes and TAM

In all save about four of the prefixing languages, the prefixes include some information about TAM. Almost every language also has suffixes that convey information about

TAM. Specification of tense and/or aspect and/or modality and/or mood thus involves a combination of prefix plus suffix.

In a few languages the suffix furnishes full specification, with the information provided by prefixes correlating with that from the suffixes (that is, the TAM specification in prefixes is essentially redundant). In NBg1, Mayali, for instance, there are past and non-past forms for the third person pronominal prefixes in S function and for certain combinations of A-and-O prefix when A is 3min. And there are tense/aspect suffixes for non-past, past perfective, past imperfective and past irrealis. The possible combinations are given in (32) (Evans 1991: 182–90, 197).

(32) PREFIX	SUFFIX
non-past	non-past
past	$\left\{ \begin{array}{l} \text{past perfective} \\ \text{past imperfective} \\ \text{past irrealis} \end{array} \right.$

(The past prefix is also used with the imperative suffix for third person hortatives.) It will be seen that the TAM choice in the prefix is predictable from the choice of suffix.

In other languages there is no such predictability; that is, a given TAM suffix may cooccur with more than one TAM prefix. In NB12, Wardaman, for instance, there is a three-term system of TAM prefixes and a five-term system of TAM suffixes, as set out in (33) (Merlan 1994: 125–36, 175–83).

(33) PREFIXES
realis, basically $\emptyset$ (for third A plus 3n-sg O, <i>ya-</i> replaces first syllable of pronominal prefix)
irrealis, basically <i>yi-</i> before pronominal prefix and <i>-gaygba</i> after it, but with several irregularities
habitual, basically <i>ma-</i> before pronominal prefixes
SUFFIXES
present: <i>-n</i> , $\emptyset$
past: <i>-rri</i> , <i>-ndi</i>
future: <i>-wa</i>
potential: <i>-yan</i>
zero suffix

Combinations of prefix plus suffix provide TAM specifications for the clause as a whole as shown in (34).

(34)	PREFIX	+	SUFFIX		PREFIX	+	SUFFIX
	realis		present		irrealis		present ('ought to')
	realis		past		irrealis		past ('ought to have')
	realis		future		irrealis		zero ('may, might; lest')
	realis		potential		habitual		present ('always doing')
	realis		zero = positive imperative				

Similar systems of TAM prefixes and TAM suffixes are clearly described for NF1, Bunuba, by Rumsey (2000: 89), and for NBg2, Gunbarlang, by Coleman (1982).

We will provide one further illustration, from NHb2, Marrithiyel. There is fusion of the first prefix – showing realis (basically *ka-*) / irrealis (zero) – with the following AS pronominal prefix and with the simple verb. This is followed by an object/indirect object clitic, an incorporated noun, a coverb and finally one of five TAM suffixes. I. Green (1989: 147) lists seven combinations of the five suffix and two prefix choices, set out in (35).

(35)	SUFFIX	PREFIX	MEANING OF COMBINATION
	∅	{ realis irrealis	present indicative present irrealis; imperative; hortative; permissive
	-(y)a	{ realis irrealis	past indicative past irrealis (non obligative)
	-nina	irrealis	past irrealis (obligative, e.g. 'should have')
	-wa	irrealis	future
	-fang	realis	'lest'

As in the non-prefixing languages, TAM suffixes vary considerably both in the meanings they express and in the forms used – between groups and between languages. We will say nothing more about them here. (But see Alpher, Evans and Harvey ms., for a comparison of some verbal inflections across a number of NB languages, and a reconstruction of putative proto-forms.) The remainder of this section surveys TAM prefixes and their positioning with respect to (and fusion with) pronominal prefixes to the verb.

In §8.6.3 and §8.8 the occurrences of pronominal enclitics in non-prefixing languages were described. In a number of languages the pronominal clitics are added to an auxiliary element, which generally carries information about TAM. In NAb2, Yukulta, the auxiliary follows the clitics. In other languages the pronominal clitics are not associated with any TAM auxiliary. Now we saw that the clitic complex (with or without an auxiliary) may follow the first constituent of the clause; or it may follow the verb; or it may immediately precede the verb (being encliticised to the word

immediately preceding the verb). A clitic complex in preverbal position is likely to develop into a prefixing structure.

Corresponding to the three types of clitic complex, we encounter three kinds of prefixing profile. The likely schemes of development are:

- (i) TAM auxiliary + pronominal enclitics > TAM prefix + pronominal prefixes . . .
- (ii) Pronominal enclitics + TAM auxiliary > Pronominal prefixes + TAM prefix . . .
- (iii) Pronominal clitics > Pronominal prefixes . . .

(In two languages – NKa2, Iwaydja, and NKb, Amurdag – directional prefixes are fused with following pronominal prefixes; see §8.2.1 and (39) below.)

Both prefixing and non-prefixing languages have TAM suffixes to the verb. In languages of Types (i) and (ii) – whether with clitics and auxiliary, on the left hand side, or with prefixes, on the right hand side – the full TAM specification of a clause is inferred from combination of TAM auxiliary/prefix and TAM suffix.

There are very few prefixing languages of Type (iii), where prefixes encode no information at all about TAM; perhaps just NBc1, Rembarrnga, NBd1, Ngandi, Nbf1, Burarra, and Nbm, Alawa. We find about twenty languages of Type (i), where the TAM prefix precedes the pronominal prefix(es); and about fifteen of Type (ii), where TAM follows the pronominal prefixes. There are about half-a-dozen languages where some TAM prefixes precede the pronominal prefixes and others follow them. And finally a handful of languages where TAM and pronominal prefixes are so fused that it is difficult to assign any order to the components.

These various types will now be illustrated, in turn. Firstly Type (i), where TAM prefixes precede pronominal prefixes. NBa, Mangarrayi, is basically agglutinative, so that TAM and pronominal prefixes may be clearly segmented. This is illustrated in (36), with a selection of S prefixes:

- (36) NBa, Mangarrayi – realis prefix plus S prefix (Merlan 1982a: 143, 160)

realis + 1sg	ga-ŋa-	irrealis + 1sg	wa-ŋa-
" 2sg	ga-nja-	" 2sg	wa-nja-
" 3sg	dja-ø-	" 3sg	ya-ø-
" 2du	ga-rnurr-	" 2du	wa-rnurr-
" 3du	dja-wurr-	" 3du	ya-wurr-

The realis prefix has allomorphs *dja-* before a third person prefix and *ga-* elsewhere, while irrealis has corresponding allomorphs *ya-* and *wa-*.

WMa, Yanyula, has a similarly agglutinative set of forms, but here the meanings of the TAM prefixes are more complex. There is a prefix *ga-* used for past

non-recurrentive and present recurrentive, and a prefix *dja-* used for past recurrentive and present non-recurrentive. (And more complications besides – see Kirton 1978: 13–15.)

Most prefixing languages show at least a degree of fusion between TAM and pronominal prefixes. In NHa, Patjijamalh, first person S prefixes have the same form in future and non-future clauses; however tense is marked on second and third person in S function (and for some A-plus-O combinations). This is illustrated in (37).

(37) NHa, Patjijamalh – second and third person S prefixes (Ford 1990: 121)

	future	non-future
2sg	njV-	kanjV-
3sgm	yV-	ka-
3sgf	yVnj-, yVtj-	kanj-
2pl	njerr-	kan̄ka-
3pl	parr-	karr-

(The value of V is determined by morphophonological rules.) The non-future forms all begin with *ka-* but it is difficult to justify a segmentation of them since the remainder of the non-future forms bear varying relationships to the future forms. Through diachronic change, TAM and bound pronouns are thoroughly fused.

We can now exemplify a language of Type (ii), where a TAM prefix follows the pronominal prefix within the verb. NBf4, Ndjebbana, has a two-term TAM prefix system. This is illustrated in (38) for a selection of TAM-plus-S prefixes (with one class of verbs):

(38) NBf4, Ndjebbana – selection of S prefixes (McKay 2000: 209, 240)

	realis	irrealis
1min	ŋa-	ŋaya-
2min	ŋana-	djaka-
1 + 2min	ka-	yiyi-
1ua	nji-rri-	nji-yi-
2ua	ni-rri-	ni-yi-
1aug	nja-rra-	nja-ka-
2aug	na-rra-	na-ka-

The n-min forms are segmentable with realis/irrealis *-rri-/yi-* applying to all ua and *-rra-/ka-* to all aug S prefixes. However, the min prefixes are not segmentable, and represent full fusion of pronominal and TAM.

Just one language is known which has directional prefixes before the pronominal prefixes (there is fusion between them); the paradigm is given in (39).

- (39) NKa2, Iwaydja – directional/S prefixes (Pym and Larrimore 1979: 93)

	unmarked	'hither'	'thither'
1sg	ŋa-	<u>nja-</u>	<u>dja-</u>
2sg	aŋ-	<u>yuwu-</u>	yaŋ-
3sg	ø	a-	ya-
1pl	ŋarru-	<u>njaru-</u>	<u>djaru-</u>
2pl	gurru-	<u>yuwurru-</u>	yungurru-
3pl	a-	<u>ayuwu-</u>	idjb-/–V, idjuwu-/C–
1+2		arru-	yarru-

The 'hither' column shows recurrent initial parts *nja-* (for first person) and *-yuwu-* (for second person and 3pl), while the 'thither' column has *dja-* (for first person) and initial *y-* (for most other rows). These recurrent sections are underlined in (39); they are likely to be relics of an earlier agglutinative pattern of S-prefix-plus-directional-prefix, from which the present-day fused forms have developed.

Iwaydja's close genetic neighbour, NKa1, Mawung, lacks directional prefixes but does have TAM markers. These illustrate a further kind of prefixing profile, where some TAM prefixes precede the pronominal prefixes and others follow them, as shown in (40).

- (40) NKa1, Mawung, – a selection of TAM/S prefixes (Capell and Hinch 1970: 73)

	past	present	future
1sg		ŋa-	ŋa-na-
1pl.exc		ŋarr-	ŋad- <u>ba</u> -
2pl		gurr-	gud- <u>ba</u> -
2sg	an-	ga(n)-	an- <u>ba</u> -
1pl.inc	arrg-	garr(g)-	arrg- <u>ba</u> -

We see here present prepronominal prefix *g-*, just on 2sg and 1pl.inc, and future post-pronominal prefix *-ba-* (or *-na-* on 1sg); these are underlined in (40).

This suggests that prefixing was a relatively recent development in NKa, and that the fusion of pronominal prefixes with directionals in NKa2, Iwaydja, and with TAM in NKa1, Mawung, took place rather recently. From the slight materials available on NKb, Amurdag, another language of the same subgroup, it appears that Amurdag has prepronominal directional prefixes like Iwaydja (including *dju-/dja-* 'thither' and *yu-* 'hither') plus postpronominal tense suffixes like Mawung (including past *-ba* and non-past *-(a)n*). See Handelsmann (1991).

Another language which, like Mawung, has some TAM information before the pronominal prefixes and some after is NCa1, Ngaliwuru. Again, just a sample of its S prefixes is presented, in (41).

- (41) NCa1, Ngaliwuru – sample TAM/S prefixes (Bolt, Hoddinott and Kofod 1971a: 98)

	present/past	future desiderative	irrealis
1sg	<u>ŋa</u> -	<u>ŋa</u> -w-w	ya-ŋ-
2sg	<u>na</u> -	<u>na</u> -w-	ya-ndji-
3sg	<u>ga</u> -	<u>ga</u> -w-	ya-
1du.inc	mind-	<u>mind</u> i-w	ya- <u>mind</u> i-
1du.exc	<u>yinj</u> -	yin-b-	ya-rinj-
2du	<u>gunj</u> -	gun-b-	ya-winj-
3du	<u>bunj</u> -	bun-b-	ya-wunj-
1pl	yir-	<u>yiri</u> -w-	ya-r-
2pl	gur-	<u>guru</u> -w-	ya-wur-
3pl	bur-	<u>buru</u> -w-	ya-wur-

We can take the underlined forms as the roots. Future desiderative then adds *-w* after a vowel and *-b* after a consonant, with *nj* > *n* /-*b*. Present/past simply loses the final vowel from a disyllabic root. Irrealis appears to involve a prefix *ya-* before the bound pronoun, with lenition *b* > *w*, *g* > *w*, plus final vowel omission. But this still does not explain all forms in the final column.

It is interesting to compare forms in Mawung and Ngaliwuru:

TAM₁ prefix – pronominal prefix – TAM₂ prefix

NKa1, Mawung	g-, present	-ba-, -na-, future
NCa1, Ngaliwuru	ya-, irrealis	-b-, -w-, future desiderative

In each language one chooses either a form from TAM₁ or one from TAM₂, but not both. The similarity between future prefix forms (*-ba-* and *-b-*) is suggestive; further detailed work would be required to tell whether this is evidence of some sort of genetic linkage, or whether the similarity of forms is coincidental.

There are some languages where TAM and pronominal prefixes appear to occur in variable order for different person/number choices. Consider the prefixes in (42).

- (42) NBD3, Aninhdhilyagwa – S prefixes (Leeding 1989: 389)

	actual (realis)	potential (irrealis)
1min	niŋi-	<u>ki</u> -
2min	niŋk(w)i-	
1n-min	yirri-	yiki-
2n-min	k(w)irri-	
1+2min	yi-	yaki-
1+2n-min	ŋarri-	aki-
3min class 2	yŋi-	kiŋi-
class 3	ni-	kini-, kani-
class 4	na- /-C, niwi- /-V	ka- /-C, kiwi- /-V

For noun classes 2 and 4 of 3min, potential appears to involve *k-* replacing the first segment of the actual form. For *yiki*, *aki* and *yaki*, potential appears to involve a final *-ki*. For 1min and 2min, potential is just *ki*. Plainly, extensive phonological changes have applied, over a fair period of time, leading to considerable fusion, and also neutralisation – in potential aspect – of the distinction between first and second person.

Perhaps the most pervasive example of irregular combination of TAM plus pronominal prefixes occurs in NBd2, Nunggubuyu. A sample, in (43), will illustrate the complexities involved.

(43) Nbd2, Nunggubuyu – S prefixes (Heath 1984: 348)

	realis	irrealis
1min	ŋa-	ŋan-
1ua	ni:-	na:-
1aug	nuru-	na:mbu-
2min	nun-	ba-

The differences between realis/irrealis are: final *ø/n* for 1min, vowels *i:/a:* for 1ua, and everything except the initial *n-* for 1aug. There is total suppletion for 2min.

We can now briefly consider the forms of TAM prefixes. There are in fact considerable differences from language to language. Perhaps the most likely candidate for a recurrent form–meaning correspondence is *ga-* as a prepronominal prefix. Its occurrences are surveyed in table 9.2. The variations in meaning of the eight prefixes *ga-* (or *ka-* or just *g-*) in table 9.2 are considerable. Add to this the fact that only two segments are involved (one of them *a*, the most commonly occurring vowel) and it is unlikely that all of these instances of *ga-* are cognate, although it is quite possible that some of them are. The puzzle is to separate out the accidental similarities from the true genetic relatives.

(Note also prefix *wa-* with present meaning in NBB; *wa-* with irrealis meaning in NBh1, Jawoyn; *gi-* with irrealis meaning in NF; and *gu-* for present positive, future

Table 9.2 TAM prefix *ga-* before pronominal prefixes

NBa, Mangarrayi	realis <i>ga-</i> (before non-third), <i>dja-</i> (before third); see (36)
NHb, Western Daly	realis <i>ka-</i> , <i>ki-</i>
NBg1, Mayali	non-past <i>ga-</i>
NKa1, Mawung	present <i>g-</i> ; see (40)
NHa, Patjtjamalh	non-future <i>ka-</i> ; see (37)
NB11, Wagiman	imperfective <i>g(a)-</i>
NBh2, Warray	potential <i>ga-</i>
WMa, Yanyuwa	past non-recurrent and present recurrent, potential, negative <i>ga-</i>

positive and present negative in NBc2, Ngalakan. In NIc, Larrakiya, a future prefix *-ga-* follows the pronominal prefixes.)

In §8.6.3 we surveyed the forms of auxiliaries (to which bound pronominal enclitics are added) in non-prefixing languages, and noted great variation in their forms and meanings. But in WJb1, Warlpiri, auxiliary *ka-* has present meaning and several other auxiliaries begin with *ka-*, e.g. *kapi-*, future or past counterfactual; *katjiku-*, potential; *kalaka-*, admonitive. This *ka-* may well relate to some of the prepronominal prefixes *ga-* or *ka-* in prefixing languages, in particular those with present or potential meanings.

There is little more in the way of recurrent form–meaning correspondences for TAM prefixes. There is a postpronominal-prefix form *-n* for irrealis in NBk, Gaagudju; *-nV* for irrealis in NG3, Wunambal; and *-in* for future in NIb1, Limilngan. As shown in (40) and (43), future is marked by *-na* after 1sg in NKa1, Mawung, and irrealis by *-n* after 1min in NBd2, Nunggubuyu. But it would be speculative to suggest a connection between all or some of these forms on the basis of a single shared segment, *n*.

We should also mention a prefix marking imperative mood (which sometimes precedes and sometimes replaces the pronominal prefixes). This has the form *ba-* in NCa2, Nungali, and NG2, Ungarinjin; *bi-* in NBf2, Gurrgoni; and *be-* (here replacing the pronominal prefix) in ND1, Kitja. Some of these may be related.

9.5 Pronominal prefixes to transitive verbs

In this section we discuss the various mechanisms in prefixing languages for using bound pronouns to mark A and O arguments. It is useful to recognise three types of language:

- (a) A and O bound pronouns are not contiguous;
- (b) A and O bound pronouns are contiguous but occur in a fixed order and are segmentable;
- (c) There is a prefixal unit that makes pronominal reference to A and/or O. However, when it does include reference to both A and O it may not be segmentable into A and O elements.

Languages of Type (c) make a crucial distinction between third person and non-third person (i.e. first and second person) arguments. Where at least one of A and O is third person, then both arguments are coded within the prefixal unit. In almost all languages the ordering is non-third before third (just two languages have O before A). When both A and O are non-third, the languages vary greatly in their coding strategy. Some code just one of A and O (but the principle for choosing which varies from language to language). A number of languages code some instances of second-person-A plus first-person-O and/or some instances of first-person-A plus second-person-O by a prefix similar in form to the 1+2 prefix in S function. Many simply have irregular forms.

The analysis of pronominal prefixes in languages of Type (c) is one of the most difficult topics in Australian linguistics. In most languages many of the forms can

roughly be segmented but there is a fair degree of fusion, so that to generate the occurring prefixes from underlying A and O bound pronominal forms would require many ad hoc phonological rules. Nevertheless, a general schema can be recognised, reflecting a structure that is likely to have been fully segmentable at an earlier historical stage.

As mentioned in §8.5, some of the prefixing languages (like a number of non-prefixing languages) show neutralisation of number and/or person in their bound pronominal forms. In one group of languages, the distinction between *ua* and *aug*, or between *du* and *pl*, is neutralised; for instance, if both A and O are *n-min*, or *n-sg*. In some languages the distinction between second and third person may be neutralised in certain environments (with third person forms being used for reference to both persons).

We now deal with each type in turn. Types (a) and (b) have relatively few members and are rather straightforward. Type (c) presents many complications, which require extensive discussion.

Type (a). A and O bound pronouns are not contiguous.

- Subtype (a-i). AS by prefix to verb, O by enclitic or suffix to verb.
Found in NE, NHB-e and NKb. See examples (7–8) in chapter 8, and (3), (6) and (7) in this chapter.
- Subtype (a-ii). AS by first prefix, O by seventh prefix – in NL, Tiwi.
See chart of prefixes in (2) and example sentence at (31) above.

Note that in all languages of Type (a), A and S are coded in the same way.

Type (b). A and O bound pronouns are contiguous, but occur in a fixed order and are clearly segmentable. Languages of this type vary as to whether S is coded by the same set of prefixes as A, or by the same set as O.

- Subtype (b-i). Prefix coding A (and S) followed by prefix coding O.
Found in NC (where A and S prefixes differ just in the third person), and in NBg2, Gunbarlang – see (5) in chapter 8.
- Subtype (b-ii). Prefix coding O (and S), followed by prefix coding A – in WMa, Yanyuwa.
- Subtype (b-iii). Prefix coding O, followed by prefix coding A (and S) – in NG, North Kimberley languages. In NBe, Dalabon, there is a proclitic coding O, which precedes the AS prefix.

Type (c). A pronominal prefixal unit that includes reference to A and/or O but is not always segmentable into A element and O element. When both O and A are referred to, the two pronominal elements are clearly segmentable in some languages

(e.g. NBa) but fully fused in others (e.g. NF). Unlike for languages of Types (a) and (b) it is often not possible to identify the S pronominal prefix to an intransitive verb with either the A or the O element (where these can be distinguished) to a transitive verb.

In Type (c) languages the number of arguments that are referred to (both A and O, or just one of these), and the way these are referred to, depend on whether an argument is third person or non-third, according to the following rules:

- (i) If both A and O are third person, then both will be coded in the pronominal prefix, in such a way that the prefix will be roughly segmentable into O plus A, or A plus O, elements.
- (ii) If neither A nor O is third person (i.e. A is first person and O is second person or vice versa) then the pronominal prefix will generally not be segmentable into A and O elements. There are various possibilities found among languages of Type (c), which are surveyed below.

The transitive pronominal prefixes of NBc2, Ngalakan, are given in (44), as an example of a Type (c) language. In fact Ngalakan has four noun classes, referred to by Merlan (1983) as the 'masculine', 'feminine', 'GU' and 'MA' classes. In (44) 3min covers the masculine and feminine classes, which are not distinguished in verbal prefixes. The GU and MA classes take different prefixes which have been omitted from (44) simply to avoid excessive detail; they follow the same principles as other third person forms.

(44) NBc2, Ngalakan – transitive pronominal prefixes (Merlan 1983: 87–8)

A	O							
	1min	1+2min	2min	3min	1aug	1+2aug	2aug	3aug
1min			ŋinj-	ŋu-			rnugu-	ŋu-bu-
1+2min				yi-				yi-bi-
2min	djun-			dju-	yini-			dju-bu-
3min	ŋun-	yin-	rnun-	ø	yirrim-	gurrurn-	rnurn-	burrurn-
1aug			yirri-	yirr-			yirri-	yirr-bi-
1+2aug				gurr-				gurr-bu-
2aug	yini-			rnu-	yini-			rnu-bu-
3aug	ŋun-bu-	yin-bi-	rnun-bu-	burr-	yirrim-bi-	gurrurn-bu-	rnurn-bu-	burrurn-bu-, bunbu-

Considering the rows and column in (44), where at least one of A and O is third person, we can recognise the A and O prefix forms set out in (45). The pronominal arguments referring to the S arguments of an intransitive verb are added for comparison.

(45) NBc2, Ngalakan – segmented pronominal prefixes

	S	A	O
1min	ɲu-	ɲu-	ɲu-n-
1+2min	yi-	yi-	yi-n-
2min	ɲinj-	dju-	rnu-n-
3min	ø	ø	ø
1aug	yi-rri-	yi-rr-	yi-rri-rn-
1+2aug	ɲu-rru-	ɲu-rr-	ɲu-rru-rn-
2aug	rnu-rru-	rnu-	rnu-rn-
3aug	bu-rru-	bu(-rr)-	bu-rru-rn-

If both A and O are third person, O precedes A. If one of A and O is non-third, this precedes the third person prefix. That is, if A is non-third we get A before O, and if O is non-third we get O before A.

The following points can be made concerning the forms in (45):

- (1) For all except 2min, the O form is the S form plus *-n* for min's and *-rn* for aug's. 3aug *burrurn-* reduces to *bu-* when following another form.
- (2) For all except second person, the A form is the S form, omitting the final vowel from aug's. 3aug A form *bu(-rr)-* omits the final *rr* when following a non-zero form.
- (3) 2aug *rnu-* takes *-rru* in the S but not in the A and O columns.
- (4) 2min has different forms in all three columns: *ɲinj-* for S, *dju-* for A and *rnu-n-* for O. Note that in the O column 2min *rnu-n-* and 2aug *rnu-rn-* are distinguished solely by the quality of the final nasal.

There is also vowel assimilation. The final syllable of the aug increment, *-rrV-*, ends in a vowel that repeats the previous vowel. In addition, 3aug *-bu-* becomes *-bi-* after 1+2min forms *yi(n)-* and 1aug forms *yirr(irn)-*, showing the same kind of assimilation. And the 3aug O plus 3aug A form *burrurnbu-* can be shortened to *bunbu-*.

The reader should note that this is one of the most straightforward pronominal paradigms for languages of Type (c). In most languages there is more fusion and less easy segmentability.

We can now consider the forms in (44) where neither of the arguments is third person, as set out in (46).

(46)	A	O	form	identified as
(a)	1min	<u>2min</u>	ɲinj-	2min S
(b)	<u>2min</u>	1min	djun-	2min A plus -n
(c)	<u>1aug</u>	2min	yirri-	1aug S (similar to 1aug A)
(d)	<u>1aug</u>	2aug		

	A	O	form	identified as
(e)	2min	1aug	} yini-	could be based on 1+2min yi- (or related to 1aug yi-rri-)
(f)	2aug	1min		
(g)	2aug	1aug		
(h)	1min	<u>2aug</u>	rnugu-	2aug (initial part of A, S and O forms) plus -gu (a syllable that cannot be explained)

In (46a–d) and (46h) the argument that is coded is underlined. This is the A argument in (46b–d) and the O argument in (46a) and (46h). Note that it is the S prefix which is used to code the O argument in (46a) (here S and O prefixes are totally different) and the S prefix which codes the A argument in (46c–d) (here the S and A prefixes differ only in the final segment). In (46e–g) the prefix *yini-* could be related to 1aug *yirri-* (but with the *-rri-* omitted) or else to 1+2min *yi-*. We show below that in other languages a combination of first-person-O plus second-person-A (and/or vice versa) is coded by a 1+2 S form, lending plausibility to this analysis here.

In summary, the paradigm in (44) shows that if at least one of A and O is third person, the prefixal unit can be segmented into A and O portions, with non-third preceding third or, if both are third, O preceding A. This much is pretty regular. But if neither of A or O is third person, we get an irregular technique for marking A and O. Essentially, only one prefix is used, and it can refer to first person, or to second person, or to 1+2 (or use an irregular form based on 2aug, as in line (h)). Although each language of Type (c) is different, (44) provides a typical illustration of the kind of marking encountered when A is first person and O second person (or vice versa).

We now discuss parameters of variation for languages of Type (c). Firstly, when at least one of A and O is third person, and both A and O are coded, we need to enquire concerning the order in which A and O appear. Following on from this, we discuss the element *-n-*, which has been identified as an accusative marker in some languages and as an inverse marker in others. Finally, languages are classified according to how they deal with the situation in which neither A nor O is third person.

Order of A and O if at least one is third person. We find here two basic patterns.

(i) If one or both of A and O is third person, then O precedes A. This is found in NBc1, Rembarrnga, and in NBk, Gaagudju. It is interesting to note that Rembarrnga is closely genetically related to NBc2, Ngalakan, presented in (44–6). Pronominal prefixes are very similar between the two languages. Where O is non-third and A is third, the combination of prefixes is similar, with O before A. For example, 1augO plus 3augA is *yirri-rn-bi* in Ngalakan and *yarra-n-ba* in Rembarrnga (McKay 1975: 143). But if A is non-third and O is third then Ngalakan shows order A before O, whereas

Rembarrnga maintains O before A. For instance, Ngalakan has 1aug A plus 3aug O *yirr-bi*, whereas Rembarrnga has 3aug O plus 1augA *ba-yarr*. (Of the combinations of non-third A with non-third O about half of those in Rembarrnga are cognate with those in Ngalakan, shown in (46), with the others being different.)

In both Rembarrnga and Gaagudju the pronominal prefix to an intransitive verb is similar to what we can segment out as the O series to a transitive verb. We can thus say that the order of pronominal prefixes is S or O, followed by A.

(ii) Languages other than Rembarrnga and Gaagudju are like Ngalakan, exemplified above. That is, if one of the core transitive arguments is third person and the other is non-third, then the order is:

non-third before third

that is:

non-third A before third O
and non-third O before third A

In most languages, if both A and O are third person, then O precedes A. There are just a couple of exceptions – it appears that third person A precedes third person O in NBb1, Marra, and in NBf3, Nakkara.

In a few languages, if one of A and O is 3min or 3sg and the other is 3n-min or 3n-sg then the rule is that 3n-min/3n-sg precedes 3min/3sg. This is found in at least NBd, the Far east Arnhem Land group, NBf4, Ndjebbana, and NB12, Wardaman. In NBd2, Nunggubuyu, the order of third person A and O arguments is determined by a hierarchy 3n-sg > 3sg animate > 3sg inanimate, while in NBd3, Aninhdhilyagwa, 3sg is divided into five noun classes which follow 3n-sg in the hierarchy; the noun class of A and O determines their relative ordering (with a number of neutralisations).

Accusative marker -n-. Most non-prefixing languages have one set of free pronouns for A and S functions and another set for O function. The O forms typically involve the addition of accusative suffix *-nha* (or *-nja* in a single-laminal language) to the AS form. In some eastern languages the accusative suffix is *-na* (almost certainly a development from *-nha*) and in some it is *-ŋa(n)* (probably an unrelated form). See §5.4.2 and §7.5.

Most prefixing languages have a single set of ‘cardinal’ free pronouns, used in A, S and O functions; that is, there is no separate accusative form. But there is, in many languages, a distinct paradigm of O pronominal prefixes and – as in (45) – it typically involves the addition of *-n-* to AS forms. This accusative marker *-n-*, on bound pronominal prefixes, may well be related to the accusative suffix *-nha* (~ *-na*) found on free pronouns in languages from other parts of the continent. We noted under (2) in §4.3.1 that there are other examples of correspondence *n : nh* in syllable-initial position, which applies between languages in the prefixing region and those outside this region (with some exceptions).

Prefixing languages fall roughly into two sets with respect to the occurrence of *-n* after an O bound pronoun. In one set, *-n* follows most or all occurrences of O; in the other, *-n* follows O only when O precedes A. Thus:

Set 1: A-O-*n*-, O-*n*-A-

This is found in (at least) NBa, NBh1, NBi, NB12, NF.

Set 2: A-O-, O-*n*-A-

This is found in (at least) NBc2, NBd2 and NBm.

Recall that in these languages the order of O and A is determined by the hierarchy non-third > third. Thus, the prefixing structure in Set 2 can be stated more explicitly as:

non-third A – third O-, non-third O -*n*- third A-

Heath (1976, 1987, 1997) has described *-n* in languages of Set 2 as an ‘inverse marker’, along the lines of the inverse marker in Athapaskan and Algonquian languages (for a summary of this see Dixon and Aikhenvald 1997: 99–100). That is, the inclusion of *-n* marks that A is below O on the hierarchy non-third > third. Note, though, that this is already shown by the order of A and O in the pronominal prefix cluster, whereas in Algonquian languages, for instance, the inverse marker is the only indicator of, say, third > non-third. In view of this, and the fact that the occurrence of *-n* is often irregular, it is debatable whether ‘inverse marker’ is an appropriate label here.

Other languages have some instance of accusative marker *-n*-, but in a less systematic manner. In a number of languages there is an apparent accusative marker *-gu-* (which has become an apparent ‘inverse marker’ in NBd1, Ngandi). Heath (1976, 1997) suggests that, just as *-n* may relate to the accusative marker *-nha* on free form pronouns and proper names, so *-gu-* may relate to the dative marker *-gu* on nouns (and, in many languages, also on free form pronouns).

Coding of A and O when neither is third person. In languages of Type (c), when one or both of A and O are third person, then both core arguments are coded in the pronominal prefix. When neither is third person there are a number of strategies that may be followed. Two recurrent patterns are: (i) just one of A and O is copied and (ii) a 1+2 S form is used to code first A and second O (or vice versa). We discuss these in turn.

(i) *Code just one of A and O.* This happens in NBa, NBb, NBf3, NBi, NHa and NKa1; a single transitive core argument is coded. However, the decision as to WHICH of A and O is coded varies from language to language. We can begin by illustrating what happens in NBa, Mangarrayi. The basic pronominal prefixes for 1min, 2min, 1ua

and 2ua (for S function, and in A or O function in combination with a third person argument in O or A function) are set out in (47).

(47) NBa, Mangarrayi – sample pronominal prefixes (Merlan 1982a: 160)

	AS	O	AS	O
1min	ŋa-	ŋa-n-	1ua	ŋirr-
2min	nja-	nja-n-	2ua	rnurr-
				rnurra-n-

Combinations of these pronouns as A and O are given in (48).

(48)	A	O	form	what is coded
	1min	<u>2min</u>	ŋa-n-	2min O
	1min	<u>2ua</u>	rnurra-n-	2ua O
	<u>1ua</u>	2min	ŋirr-	1ua A
	1ua	<u>2ua</u>	rnurra-n-	2ua O
	2min	<u>1min</u>	ŋa-n-	1min O
	2min	<u>1ua</u>	ŋirra-n-	1ua O

In this language the contrast between 2n-min and 3n-min in A function is neutralised when O is first person, with the 3n-min form being used. Thus, for instance, 2ua A plus 1min O is coded as 1min O + 3ua A, i.e. *ŋa-n-burr*.

It will be seen that in Mangarrayi the single argument which is coded when both A and O are non-third is the O argument, except when A is 1ua and O is 2min, in which case it is the A argument. In NKa1, Mawung, and NBf3, Nakkara, it appears always to be the O argument that is coded.

Some languages operate with a hierarchy, and code that argument (of A and O) which comes first on the hierarchy. For example:

NBb1, Marra	1 > 2, except 2sg O > 1sg A
NBi, Gungarakanj	1min > 2 min > 1aug > 2aug

There are a few languages which code full person and number information of one argument, and occasionally a little information (for example, number) of the other core argument. This happens in NF, the South Kimberley subgroup, where the main argument to be coded is chosen according to the hierarchy 1 > 2 (except that 2pl O > 1sg A), and in NBf4, Ndjebbana. It is rare for A and O both to be fully coded, if neither is third person, but this is found in NBI2, Wardaman (where the order of arguments is basically determined by the hierarchy 1 > 2, but with some irregularities).

In NHa, Patitjamalh, A and O pronominal prefixes are roughly recognisable when at least one is third person, but if neither is third person the forms used are quite irregular, so that it is impracticable to recognise A and O components. Other languages have irregular and unanalysable forms for just some first and second person combinations. In these

languages it is POSSIBLE to state rules for generating the fused forms but when, say, one requires seven rules to generate six forms, the exercise does not seem worthwhile.

(ii) *Use 1+2 S to code first A and second O (or vice versa).* The fact that when both A and O are non-third there is a tendency to code just one argument, suggests that the participants in the activity (first and second person) are viewed as a group – with just one member of the group being selected for reference, by a bound pronominal prefix – rather than as an agent acting on a patient.

In keeping with this ‘collective’ view of A and O (when both are non-third) there are about ten languages that code some combination(s) of first A and second O and/or first O and second A, not by a first or second person A or O bound pronoun but instead by an S pronominal prefix which, with an intransitive verb, refers to BOTH first AND second person as a group, i.e. 1+2 in a min-aug system or 1du.inc in a sg/du/pl system.

We can illustrate with a selection of first and second person combinations from NBf2, Gurrigoni, shown in (49).

(49) NBf2, Gurrigoni (R. Green 1995: 162–82)

A	O	form	identification
<u>1min</u>	2min	ɲiy-	1min A ɲu- plus -y > ɲiy-
2 min	<u>1min</u>	ɲuna-	1min O
1min	2n-min	arru-	1+2min S
2n-min	1min	bubu-	neither first nor second person form

Gurrigoni is typical of languages that show this property in that not all first and second person combinations are coded by a 1+2 S pronominal prefix, simply indicating the COLLECTION of participants involved (speaker plus addressee); here just one (1min A plus 2n-min O) is. In two of the combinations given in (49), the 1min participant appears to be coded (in A function in one instance, and in O in the other). And in the last line we find a form that relates to third person prefixes, through a process of neutralisation.

In Gurrigoni, 1+2 is the only pronominal prefix beginning with *arru-*. We saw in (44–6) that the prefix *yini-* in Ngalakan could possibly be related to 1aug *yirri-* (although one would have to explain why the *-rri* had been dropped) or, more plausibly, to 1+2min S prefix *yi-*. The fact that in quite a few other languages a transitive combination of first and second person as A and O (in either order) is coded by a 1+2 S prefix, supports the interpretation of *yini-* in Ngalakan in terms of 1+2 S. The other languages showing this phenomenon are like Gurrigoni in that 1+2min (or 1+2n-min or 1du.inc) has a different form from other pronouns, so that there is no plausible alternative analysis.

Languages differ as to which combinations of first and second person (as A and O, or vice versa) are coded by 1+2, and what 1+2 form is used. Full details of known instances are provided in table 9.3. This gives the underlying form for each of the first and second

Table 9.3 *First and second person transitive combinations coded by a 1+2 intransitive prefix*

	A	O	coded as	similar to
NBc2, Ngalakan	2min (dju-) 2aug (rnu-) 2aug (rnu-)	1aug (yirrim-) 1aug (yirrim-) 1min (ḡun-)	yini-	1 + 2min S, yi-
NBd1, Ngandi	2min (nu-) 2aug (na-) 2aug (na-)	1aug (njarr-) 1aug (njarr-) 1min (ḡa-)	njana-	1 + 2min S, nja-
NBd2, Nunggubuyu (realis)	2n-min (nV-) 2n-min (nV-)	1min (ḡa-) 1n-min (na-)	ḡirri-	1 + 2aug S, ḡV:rru-
NBd3, Aninhdhilyagwa (actual)	1min (niḡa-) 1aug (yirra-) 1min (niḡa-) 1aug (yirra-) 2min (niḡkwi-) 2min (niḡkwi-) 2aug (kwirra-) 2aug (kwirra-)	2aug (kwirra-) 2aug (kwirra-) 2min (ḡa-) 2min (ḡa-) 1min (ḡa-) 1aug (yirra-) 1min (ḡa-) 1aug (yirra-)	ḡarra- yirra- yi- yirri-	1 + 2min S, ḡarri- 1 + 2aug S, yi-
NBf2, Gurrgoni	1min (ḡu-)	2n-min (nji-)	arru-	1 + 2min S, arru-
NBh1, Jawoyn (realis)	2min (ḡinj-) 2aug (nu-) 2aug (nu-)	1aug (njirrin-) 1min (njirrin-) 1min (ḡan-)	njanu-	1 + 2n-min S, nja-
NBm, Alawa	2min (yi-) 2aug (wul-)	1aug (ḡun-) 1aug (ḡun-)	njun- njunurr-	1 + 2aug S, njul-
ND2, Miriwung (non-future)	2sg (dje-) 2sg (dje-)	1sg (ḡana-) 1pl (ḡana-)	yini-	1du.inc S, yV-

Note NBf1, Burarra, is similar to NBf2, Gurrgoni; and ND1, Kitja, is similar to ND2, Miriwung.

person arguments (when combined with a third person argument), then the coding of the combination, and finally which 1+2 S prefix is identical or similar to it in form. As in a great deal of the analysis of paradigms on which the discussion in this section is based, the recognition of formal similarities is in some instances approximate, because of the fusion (and remodelling of paradigms) which has taken place in most languages.

It will be seen from table 9.3 that only in Aninhdhilyagwa does it appear that every combination of first and second person (as A and O) is coded through a prefix similar to a 1+2 S form. In the other languages the remaining first and second person combinations involve just one of A and O being coded – as exemplified in (46) and (49) – or are irregular (that is, non-explainable) forms. (There is good discussion of this matter in Heath 1976, 1991 and Harvey ms.-a.)

Other languages. There are three further languages that provide a residue set in that they do not fit easily into any of the Types (a), (b), (c).

- In N1b1, Limilngan, if O is third person, pronominal prefixes code O+A; if A is third person, they code just O. (Working with the last speaker, Harvey (2001) was unable to elicit verbs where neither A nor O is third person.)
- In NBg1, Mayali, if O is third person, A+O is coded; if A is third person, the pronominal prefix sometimes refers to A, sometimes to O and sometimes to both; if neither A nor O is third person, the prefixes used are irregular (see Evans 1991, forthcoming).
- From the scanty material available on N1c, Larrakiya (Capell 1984) it appears that in most instances just one of A and O is coded, according to the hierarchy non-third > third, and by the hierarchy O > A if both are non-third or both are third (but there are irregularities).

9.6 **Implications**

The remarks in §9.5 are exploratory, and will doubtless need to be refined as the structures of more individual languages come to be carefully analysed and compared, and when serious attempts are made at historical reconstruction (in the limited cases where this is appropriate).

Dench (1994) has demonstrated the ways in which paradigms of free pronouns in non-prefixing languages are continually being restructured. In similar manner, Heath (1997) and Harvey (ms.-a) have demonstrated how paradigms of bound pronominal prefixes are continually being analogically remodelled, renewed and 'repaired'. Just as individual free pronouns may be borrowed from one language into another (but seldom or never a complete pronoun paradigm) so a bound pronominal form may be borrowed, integrated into the system, and the system restructured as a consequence.

But one thing which is clear is that it makes little sense to suppose that the prefixing languages form one genetic group, with prefixing being a feature of genetic linkage. (That is, it makes little sense to talk of 'proto-prefixing' or 'proto-non-Pama-Nyungan' as Heath 1997: 200 does.) We have shown that there are recurrent features, each found in a fair number of the prefixing languages, but each isogloss is distinct from the others so that criteria for establishing a family tree do not emerge.

Further, the languages within a small genetic subgroup can differ in the organisation of their prefixing structure. NBc1, Rembarnga, and NBc2, Ngalakan, have similar forms and it is likely that it will be possible to prove them to constitute a genetic subgroup. But, as described above, they employ different strategies for combining pronominal prefixes. This suggests that prefixing reached its present level of complexity relatively recently, after proto-NBc had split into the two modern languages.

It has been demonstrated that some languages have pronominal prefixes coding both O and A – but these may be on the pattern AS+O or SO+A or O+AS. Other languages only fully code A and O if at least one of these is third person; and then the order of prefixes can be O+A or non-third+third. In languages of this type we have seen a tendency to code some combinations of first and second person (as transitive arguments) as a collection of participants rather than as Agent and Patient – effectively saying something like ‘you and I were engaged in an activity of seeing’ instead of saying ‘I saw you’ or ‘you saw me’. But which combinations of first and second person are treated in this way – and whether coded in a similar manner to 1+2_{min} or to 1+2_{aug} – appears to vary haphazardly from language to language.

What we can infer is that there has been diffusion of categories, of structural patterns, and of analytic techniques (and, much less often, of actual forms). In the typical diffusion situation found in Australia, a language will tend to accommodate to become more like its neighbours. Consider NBe, Dalabon, for example. It has bound pronominal prefixes to the verb coding the S and A arguments. Preceding these comes a pronominal proclitic marking the O argument; this is recognisable as a proclitic rather than a prefix in terms of stress assignment and possibility for pause. All of Dalabon’s neighbours have prefixes marking A and O. The evidence suggests that Dalabon originally had just an AS prefix (like NKb, NHb-e and NE, languages which are at present geographically distant from Dalabon), and it would then have developed O proclitics to become more like its immediate neighbours. In time, the proclitics will be likely to develop into prefixes, and then fuse with the following A prefixes.

Under (IV) in §13.2 below, we examine the one important difference between dialects of NHa. The Patjtjamalh dialect has pronominal prefixes for AS and for O functions, with verbal enclitics marking indirect objects. In contrast, the Pungu-Pungu dialect has a pronominal prefix just for A and S, with O marked by a pronominal enclitic to the verb. In this, Pungu-Pungu is like its southerly neighbours within the Daly linguistic area, NH, and appears to represent diffusion of a structure feature concerning the organisation of bound pronouns within the verb.

Generic nouns, classifiers, genders and noun classes

Each language has, within the semantic structure of its lexicon, a number of generic-specific relationships. Thus, in English, *animal* is a superordinate term with many hyponyms, including *pig* and *possum*. One might hear *What animal is that? Oh, it's a pig* or *A pig is the one sort of animal I can't abide*. However, this generic-specific relationship is entirely within the lexicon; it is not, in English, exploited within the syntax of the language. That is, one would not say **I saw an animal pig*, where the generic and specific lexemes occur in syntagmatic association, nor **I shot a pig, which animal had been rooting around in the vegetable garden*, where the generic term acts as an anaphoric replacement for the specific item.

In some languages, including many from Australia, there is a syntactic association between a word like 'animal' and words like 'pig' and 'possum'. This can be manifested in one of two ways: using generic noun plus specifier, or using specific noun plus classifier.

(a) *Generic noun and specifier*. Speakers prefer to use a generic noun, such as 'animal', but will add a specifier, such as 'pig', when communicatively appropriate. For instance, a story might begin 'there was this animal pig' but then refer to it, at later mentions, just by the generic noun 'animal'. Or else a story could begin 'there was this animal' where it was clear to the hearers, from the context of the speech act, what kind of animal was being referred to. The specifier 'pig' might be employed later in the discourse, perhaps to distinguish between this and another kind of animal. (See the examples given under (a) in §3.1.3.)

(b) *Specific noun and classifier*. In this kind of system, reference will normally be through a specific noun; a story will begin 'there was this pig' and 'pig' will be used for further reference to the creature. But there will be a number of classifiers, such as 'animal', each of which corresponds to a set of specific nouns. In certain syntactic environments a classifier can be – or perhaps must be – used with a specific noun. A common type of classifier is numeral classifier. Here a classifier must be included when

counting – one has to say ‘three animal(s) pig(s)’ rather than just ‘*three pig(s)’.

The two constructions are rather similar:

(a) GENERIC NOUN (SPECIFIER)	(b) (CLASSIFIER) SPECIFIC NOUN
‘animal’	(‘pig’) (‘animal’) ‘pig’

They have, in fact, seldom been distinguished in the literature. The difference is that in (a) the generic noun is the prime term (and can probably be regarded as head of the noun phrase), to which a specifier may be added, whereas in (b) the specific noun is the prime term (and is head of the noun phrase), to which a classifier can be added.

The difference is a subtle one, since generic nouns and classifiers have very similar properties. They are each semantically based, and are in syntactic combination with the specifier/specific noun. Generic nouns and classifiers generally make up a fair-sized set – with anything from around a score to several hundred members. And neither of these sets is likely to cover the entire lexicon. In a Type (b) language, not every specific noun may take a classifier, and in a language of Type (a), generic nouns relate to only some of the things that may be talked about; there will be a number of nouns (perhaps including ‘sun’ and ‘road’) which lie outside the generic noun/specifier system.

My hypothesis is that Australian languages originally had a generic noun/specifier system, and this is maintained in some languages. But in others it has developed into a classifier system. And this in turn has in some areas given rise to a system of noun classes, something which is grammatically quite different from classifiers but fulfils the same sort of semantic and pragmatic role in the language.

Noun classes comprise a closed grammatical system, generally with between two and about five members (exceptionally, one may encounter ten or twelve noun classes in a language). In contrast, generic nouns and classifiers comprise a semi-open class; it is often impossible to be certain that one has assembled a complete list of classifiers.

Whereas only some nouns come under the scope of a classifier, every noun belongs to a noun class. Typically, a noun may be able to occur with several classifiers, depending on which aspect of the object is being focussed on (one may say ‘tree orange’, referring to the timber, or ‘fruit orange’ referring to the fruit, for instance). In contrast, the great majority of nouns belong to just one noun class.

The defining criterion for noun classes is agreement within the same clause. The class of a noun may or may not be marked on the noun itself (by prefix or suffix) but it must be marked on some other constituent – on some modifier in the noun phrase and sometimes also on the verb of the clause. For instance, NBc2, Ngalakan, has four noun classes, marked by prefixes on the noun itself, and on adjectives and demon-

stratives within the same noun phrase:

	PREFIX	SEMANTIC CONTENT OF NOUN CLASS
1	<i>mu(gu)-</i>	male humans and higher animals; most other animals; etc.
2	<i>dju(gu)-</i>	female humans and higher animals
3	<i>mu(ngu)-</i>	most edible (and some inedible) plants; some implements; seasons; etc.
4	<i>gu(ngu)-</i>	most body parts; most implements; many plants, topographical terms; etc.

There is also agreement on the verb but here classes 1 and 2 fall together, with zero marking, while classes 3 and 4 are shown by prefixes *mu-* and *gu-* respectively. For example:

- (1) NBc2, Ngalakan (Merlan 1983: 84)
- | | | |
|--------------------|-------------|--------------------|
| [mungu-yimili? | mu-ŋolko] | gu-mu-rabona |
| CLASS.3-wet.season | CLASS.3-big | 3sg-CLASS.3-go+FUT |
- A big wet season will be coming on

Note that the noun class prefix *mu(ngu)-* is on the head noun, on the adjective which modifies it and also on the verb for which 'a big wet season' is S argument.

Classifiers are generally separate words (sometimes clitics) that may occur in syntactic combination with a specific noun. In contrast, noun classes make up a morphological system, generally realised as affixes. For each noun, a choice must be made from this system, and it must be marked outside the noun itself.

Classifiers and generic nouns always have a straightforward semantic basis. In contrast, noun classes always have some semantic basis, but the extent of this varies from language to language. There are always some unexplainable assignments (which speakers just have to learn as exceptions). For instance, in Ngalakan most edible plants are in class 3 but there are a few in class 4, and most implements are in class 4 but half-a-dozen are placed in class 3.

Classifiers/generic nouns and noun classes are grammatically quite different but they perform similar semantic and pragmatic tasks within a language. Each systematises knowledge about the world, providing a categorisation of objects and of cultural ideas concerning them. And each plays an important role in the organisation of discourse. Once an object has been introduced, and identified through a specific noun, it can be tracked through a section of discourse simply by using a generic noun or a classifier, or by including the appropriate noun class marker on adjectives or demonstratives or verbs. (See Merlan, Roberts and Rumsey 1997 and Heath 1983.)

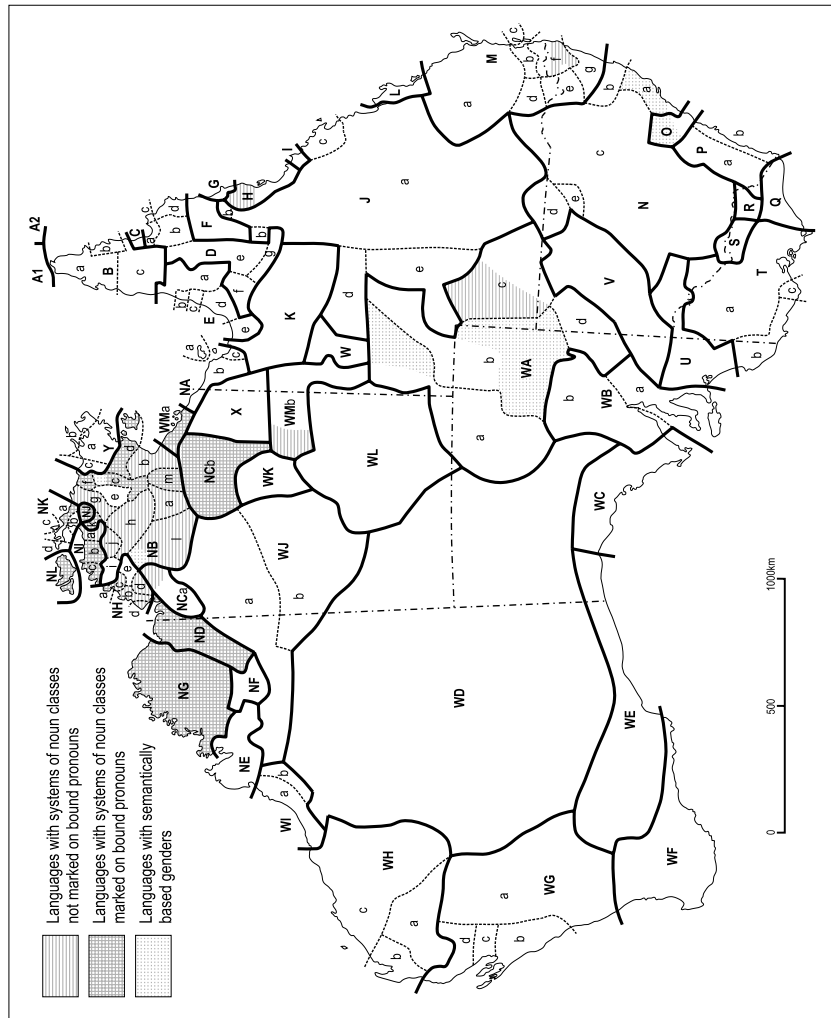
Some languages have a distinction between masculine and feminine (or masculine, feminine and neuter) just in third person pronouns; for instance *he*, *she* and *it* in English. This is entirely semantically based, *he* being used for reference to males, *she* for females and *it* for all else (if things are personified they may be referred to by *he* or *she*). We will here use the term 'gender' for this phenomenon. Gender is distinct from a noun class system in that there is no agreement within the clause. One simply says *The big man came*, or *He came*, not **He-the he-big man (he-) came*, as one would in a noun class language.

The term 'gender' was traditionally used both for small systems of noun classes as in French or German (where adjectives and demonstratives agree with the head noun) and for semantically based gender in third person pronouns as in English. Later, as larger systems of agreement classes were described (for instance, in Bantu languages), the term 'noun classes' came into use, in the way that it is employed here. Corbett (1991) uses the term 'gender' for what are more usually called 'noun classes'. In discussing Australian languages it is convenient to contrast 'noun classes', marked by intra-clausal agreement, with 'genders', which just involve a number of semantically based forms of the third person pronoun.

§10.1 discusses generic nouns and classifiers. §10.2 describes the feminine suffix *-gan*, found in some languages of eastern Australia. §10.3 deals with gender in 3sg pronouns, and then §10.4 describes the evolution of noun class systems in a number of non-prefixing languages.

The remainder of the chapter focusses on prefixing languages. §10.5 considers the general matter of prefixing on nominals in the prefixing languages. Then §10.6 surveys noun classes in prefixing languages (some are marked just by prefixes and others by a combination of prefixes and suffixes) dealing with their number, occurrence, meaning, markedness, forms and likely paths of evolution (partly from gender-based 3sg pronouns, partly from classifiers, among other sources) and loss. §10.7 considers the relationship between noun classes and case, and the loss of ergative marking on NPs in languages whose verbs have bound pronominal affixes which include reference to noun class. §10.8 is a summary of the results of the chapter.

Map 10.1 shows those languages with grammatical systems of noun classes, and also those languages with semantically based genders (but no noun classes).



Map 10.1 Languages with noun classes or genders

10.1 Generic nouns and classifiers

In §3.1.3, I made the point that speakers of Australian languages typically begin with a generic concept, providing further specification of it as required. This applies in the class of verbs – many languages have a small set of inflecting verbs (which I called ‘simple verbs’ in chapter 6), each with a generic meaning, e.g. ‘move’, ‘pay attention to’, ‘do with the hands’. If it is clear from the context what actual action is being referred to, then a generic verb may be used alone. If further specification is needed for adequate communication, then a coverb may be added – something like ‘jump’ or ‘hear’ or ‘squeeze’.

Nouns may be used in a similar way. As exemplified in §3.1.3, just a generic noun can be employed (e.g. ‘edible animal’) when the participants in the speech act understand what the specific reference is, e.g. in a story about hunting a kangaroo, ‘edible animal’ will be taken to refer to the kangaroo. A specific noun will be added to the generic term when required for unambiguous reference.

We have been describing a generic noun/specifier system (e.g. ‘edible animal, kangaroo’) where the generic term (‘edible animal’) can be taken as head of the NP, and the specifier (‘kangaroo’) as a kind of modifier. This is parallel to the whole–part construction for inalienable possession (e.g. ‘boy foot’) where the term for the whole (‘boy’) is NP head with the part noun (‘foot’) being a kind of modifier. (Harvey 1986: 68 makes this point with respect to NBh2, Warray.)

It is sometimes not easy to distinguish between the two alternatives outlined at the beginning of this chapter, the ‘generic-noun-plus-specifier’ and the ‘classifier-plus-specific-noun’ interpretations of something like ‘animal kangaroo’. One interpretation may be appropriate for some Australian languages and the alternative for others. (The situation is made more difficult by the fact that some Australianists have used the terms ‘generic’ and ‘classifier’ interchangeably – including the present writer, before he had properly thought through the distinction.)

It is likely that the great majority of Australian languages (other than those with a system of noun classes) have or had a set of generic nouns/classifiers. However, it seems that this phenomenon was more developed in some areas than in others. It is particularly evident in some languages from the Cape York Peninsula region, in the Daly River area, and in Central Australia. The use of generic nouns/classifiers appears to have been less important for languages from the far west – non-prefixing groups WG–WI and prefixing groups NE–NF. However, it is difficult to get a full impression of the use of generic nouns/classifiers since so many languages are represented by partial grammars, either gathered from the last speakers or semi-speakers or else based on elicitation. The use of generic nouns/classifiers can only be fully perceived through study of texts provided by fluent speakers.

A number of languages do appear to have generic nouns (rather than classifiers). In Bc4, Kugu-Muminh, the appropriate generic noun is usually included with a

specific noun at its first mention in a text, or when it is being cited (Smith and Johnson 2000: 420). Thomson (1945: 165) reports a similar practice in Bc3, Wik-Mungknh. In Ea1, Kuuk Thaayorre, a specific noun never occurs alone, without the appropriate generic. At first mention in a text we find *minh* ('edible animal': GENERIC NOUN) *kothon* ('wallaby': SPECIFIER) but at later mentions the wallaby is referred to just by *minh* (Hall 1972: 70–1). For NHb1, Emmi, Ford (1998: 100–2) states 'when first introduced into discourse . . . a noun denoting edible flesh or an edible plant is always preceded by a generic noun.' Later mentions may just use the generic. In (2) 'magpie goose' is referred to by *awa tjulvorr* in the first clause, but just by *awa* in the second (I employ the convention of glossing generic nouns and classifiers in small caps).

(2) NHb1, Emmi (Ford 1998: 102)

kandu	gana=yi	[awa	tjulvorr]
man	3minS.REALIS+walk=PERFECTIVE	EDIBLE.ANIMAL	magpie.geese
yene miriwuda,	[awa	dawal]	gulanya=than
LOC swamp	EDIBLE.ANIMAL	many	3augA+REALIS+chop=shoot
A man went out for magpie geese in the swamp, where they shoot many			
[magpie geese]			

It may be that in some languages the 'classifier-plus-specific-noun' interpretation is more appropriate – see Wilkins (1989: 105) on WL1, Arrernte.

Associated with the generic-noun/classifier distinction is the question of what is NP head. This matter is discussed by Dench (1995: 195) who concludes that the generic noun is head in WHc2, Martuthunira; and by Evans (1995a: 244) who concludes that it is impossible to find criteria to decide which noun is head for an NP such as *wanku* ('ELASMOBRANCH FISH') *kulkiji* ('shark') in NAb1, Kayardild.

The number of generic nouns (or classifiers) in a language varies. About twenty are reported for each of Ea1, Eb1, G2 and WL1; between seven and thirteen for Bc3, Bc4, Eb2, WAb2, WD, WIa1 and NAb1. For F, Kuku-Yalanji, and WHc2, Martuthunira, only two classifiers are said to be used extensively; the complete set comprises just three terms in NHa, Patjtjamalh, and two in NHb1, Emmi, and NHe, the Eastern Daly subgroup.

Every set of generic nouns/classifiers includes a term for 'edible animal' and every language save NAb1, Kayardild (where most food comes from the sea), has 'vegetable food'. The other generics vary from language to language; recurring meanings include 'fish', 'tree' and 'spear' (see the discussion of semantics in §10.1.1).

The vegetable food generic is *mayi* or some reflex of this (such as *meyi*, *miyi* or *may*) in well over half the languages with generic nouns/classifiers; it was mentioned in §4.2.1 that *mayi* is found in seventeen of the thirty-eight non-prefixing groups and

in six of the twelve prefixing groups. Just a few languages have different ‘vegetable food’ forms, e.g. *thanuwa* in WHc2, Martuthunira, *puka* in WAb2, Diyari, and *merne* in WL1, Arrernte.

The term for ‘flesh food, game, edible animal’ shows great variation. There is *minha* or *minja* in North Queensland (groups B–G and Jd – see (5) in §7.7), but apart from this almost every language shows a different form. For instance:

- (3) A sample of forms for the generic ‘flesh food, game, edible animal’
- | | |
|--|----------------------------------|
| Ya1, Djapu, <i>ḡatha</i> | WIa1, Njangumarta, <i>kuyi</i> |
| WAb2, Diyari, <i>ḡanthi</i> | NHa, Patjtjamalh, <i>metjem</i> |
| WD, Western Desert language, <i>kuka</i> | NHb1, Emmi, <i>awa</i> – see (2) |
| WHc2, Martuthunira, <i>murla</i> | NHe1, Matngele, <i>pinja</i> |

10.1.1 *Semantics*

There are basically two varieties of generic noun (or classifier) in Australian languages. The first relates to the inherent nature of a noun – there may be terms for ‘bird’, ‘frog’, ‘ant’, ‘tree’, ‘anything made of stone’ (e.g. ‘pebble’, ‘hill’, ‘cave’, ‘heated stone used in ground oven cooking’), ‘anything to do with fire’ (e.g. ‘flame’, ‘spark’, ‘hot ashes’).

A subtype of inherent nature generics relates to type of humans. For WD, Yankun-tjatjarra dialect, Goddard (1985: 93–6) recognises three generics which describe social status – ‘initiated man’, ‘woman’ and ‘child’. This subtype is also recognised for WL1, Arrernte (Wilkins 1989: 105–8) and for WIa1, Njangumarta (Sharp 1998: 407–9). In Yidinj there is a hierarchy of generics with human reference – *bama* ‘person’, *wagudja* ‘male person, man’ and *bunja* ‘female person, woman’. One might typically refer to a young girl as *bama* (‘PERSON’) *bunja* (‘FEMALE’) *gumba* (‘prepubescent girl’). (See Dixon 1977a: 480–96; 1982a: 185–205.)

The second variety of generic nouns/classifiers relates to the function or use of the referent of a specific noun. This includes ‘edible animal, game, flesh food’ and ‘edible plant, non-flesh food’ plus other notions such as ‘drinkable’, ‘consumable sweet substance, e.g. honey’ or ‘purposeful noise’.

There can be overlap between the two sets so that a specific noun may occur with either of two generics, or with both at once. In Yidinj, all birds are considered edible and so may occur either with generic *minja* ‘flesh food’ or with generic *djarruy* ‘bird’ or with both of these. However, although all ants are covered by the inherent nature generic *munjimunji* and all frogs covered by the inherent nature generic *mangum*, only some ants and some frogs are considered edible and may cooccur with *minja*. The specific noun *burray* ‘cave’ can occur with the inherent nature generic *walba* ‘stone’ and/or with the function/use generic *bulmba* ‘habitable place’.

In some languages a specific noun lexeme can take on different meanings depending on the generic it occurs with. For example, in Ea1, Kuuk Thaayorre, we get (Hall 1972: 70):

(4)	(a)	yak ɲompor SNAKE 'brown snake'	(b)	ru:rr ɲompor INSECT 'centipede'
(5)	(a)	may kirmpul NON-FLESH FOOD 'large white berry'	(b)	minh kirmpul FLESH FOOD 'white cockatoo'

A generic noun will most frequently precede a specific noun in an NP although most Australian languages have fair freedom of word order so that the alternative sequence is likely to be possible. Either order is reported for WIa1, Njangumarta (Sharp 1998: 407), and for NAb1, Kayardild (Evans 1995a: 245). For NHd1, Murrinh-patha, Walsh (1997: 264) reports that a generic must precede a specific noun.

When generics of the two varieties cooccur, it seems that the order is invariably: function/use generic then inherent nature term. For example:

- (6) WL1, Arrernte (Wilkins 1989: 108; Breen, p.c.)
- | | | | |
|-----|---|-----|--|
| (a) | kere thiye njinje | (b) | arne pwerte athere |
| | FLESH.FOOD BIRD zebra.finch | | ARTEFACT STONE grinding.stone |
| | 'zebra finch' | | 'grinding stone' |

The semantics of generics does, of course, vary. Many languages in North Queensland have a generic with one of the cognate forms *djugi*, *djugu*, *yugu*, *yug* (see under (1-i) in §4.2.5 above); its central meaning is always 'tree, wood, stick' – as in (8) below – but this can be expanded in individual languages. In Bc4, Kugu-Muminh, *yugu* covers all inedible flora, most artefacts made from plants (e.g. bark canoe, woven bag), and also inedible fauna (including most insects) and moving natural phenomena such as lightning, whirlwind and falling star (but not, for instance, sun) (Smith and Johnson 2000: 447). In NAb1, Kayardild, there are two generics that have specialised metaphoric senses. The central meaning of *yarbuda* is 'edible non-marine creature' but it can also be used to refer to harmful insects such as spiders and scorpions, and to cyclones. The central meaning of *thungalda* is 'inanimate thing, e.g. stone' but it has a secondary use for referring to domesticated animals (Evans 1995a: 244–7).

Generic nouns can be particularly useful for dealing with loan concepts. A story told in Yidinj concerning the first plane seen in those parts referred to it simply by the generic noun *wirra* 'moveable object'. Similarly, there is in Yidinj no specific name for the cane toad (something introduced after tribal life had been disrupted), and the last speakers referred to it just by *mangum*, the generic which covers all frogs. 'Sugar'

is referred to as *mayi gulgi*, employing *mayi*, the generic term for non-flesh food plus *gulgi*, the specific noun ‘sand’ (which is what sugar looks like) – literally ‘edible sand’ (Dixon 1977a: 495). In Diyari there is a loan word *wilpara* (from English *wheelbarrow*) referring to any type of wheeled vehicle. A train is referred to as *thudu wilpara*, preposing the generic noun *thudu* ‘associated with fire’ – that is, ‘wheeled vehicle associated with fire’ (Austin 1981a: 38–9).

In Kugu-Muminh, a new generic has evolved in response to the contact situation. Smith and Johnson (2000: 448) state that *ku?a*, which was previously a specific noun meaning ‘dog, dingo’, appears now to be a generic noun covering all domesticated animals, e.g. *ku?a othogo* ‘cat’.

10.1.2 Grammar

In many languages there are a number of lexemes which either can be used alone, as a specific noun (e.g. ‘fresh water’, ‘meat’) or can be followed by another noun and then function as a generic/classifier (e.g. ‘liquid’, ‘game animal’). It may, in fact, be difficult to decide what is a generic/classifier and what is a specific noun. Discussing Ya1, Djapu, Morphy (1983: 83) suggested that for that language there is no strict division but rather a continuum ranging from more generic to more specific. Other Australianists would not support this position. But, plainly, some explicit criteria are needed in order to decide on the status of a given noun.

Only one such criterion has been suggested. Yidinj has two interrogatives roughly glossed as ‘what’ – *wanji* means ‘what generic does it come under?’ whereas *wanjirra* is ‘generic being known, what species is it?’ Thus a conversation might go (Dixon 1982a: 191; 1977a: 184):

(7) person A	wanji	gali-ŋ	
	WHAT+GENERIC	go-PRES	
	What is that going (along there)?		
person B	minja	gali-ŋ	
	EDIBLE.ANIMAL	go-PRES	
	It’s an animal going (along)		
person A	[wanjirra	minja]	djunga-ŋ
	WHAT+SPECIES	EDIBLE.ANIMAL	run-PRES
	What sort of animal is running (along there)?		
person B	[minja	ganguul]	warri-ŋ
	EDIBLE.ANIMAL	grey.wallaby	jump-PRES
	It’s a grey wallaby jumping along		

In Yidinj the criterion for recognising a noun as generic is that it may cooccur with the interrogative *wanjirra*, as does *minja* in the third part of (7).

(It is of course important to distinguish generic-noun-plus-specifier and classifier-plus-specific-noun syntactic combinations from compounds. The former are productive combinations while compounds are, as a rule, ad hoc and idiomatic.)

In Australian languages adjectives generally show the same morphology as nouns and, in addition, similar syntactic properties (for instance, an NP may consist of just a noun, or just an adjective). In languages with noun classes these provide a criterion for distinguishing between the two word classes – a noun is generally restricted to one noun class whereas an adjective will be able to modify nouns from most or all classes, and will take an appropriate range of agreement markers. A similar criterion applies in languages with generic nouns (or classifiers). Some specific nouns cannot occur with any generic, others are associated with just one generic, and a few may be able to relate to any of several generics. In contrast, many adjectives (for example ‘good’) can occur with all generics, while others may be used with a fair selection of them (for example, ‘clever’ may be appropriate just with generics referring to humans and higher animals).

Generic nouns (and classifiers) do have grammatical functions, although this is scarcely mentioned in the literature. One clear function is anaphoric reference – using just a generic noun to refer back to a specific noun – as illustrated in (2); there are further examples in Wilkins (1989: 108) for WL1, Arrernte, and in Hall (1972: 70) for Ea1, Kuuk Thaayorre.

In G2, Yidinj, normal conversational style is for a response to a question or a comment on a statement to comprise a full clause – that is, a verb with its core arguments (rather than just saying ‘yes’ or ‘no’ or providing a single noun as answer). However, the response or comment should not just repeat the words of the original utterance; it is good style to vary the lexemes employed, using synonyms, semi-synonyms or hyponyms. Thus in (7) the first two clauses employ the verb *gali-* ‘go’ to describe the wallaby’s motion but the third substitutes *djunga-* ‘run’ and the final clause uses *warri-* ‘jump’. One way of achieving this stylistic effect is to alternate a specific noun and its generic (in either order). Thus, a man may say ‘I’m going out to hunt possums’ (with a specific noun) and his wife could reply ‘Go on, you go and hunt animals’ (using the appropriate generic noun). (See (78–9) in Dixon 1977a: 113, repeated as (3–4) in Dixon 1982a: 187.)

There is in Yidinj a type of subordinate clause which must have an argument in common with the main clause to which it is attached. This common argument may be stated entirely within the main clause or entirely within the subordinate clause or partly in each. Typically, there may be a specific noun in the main clause and the

corresponding generic noun in the subordinate clause (or vice versa). For example (Dixon 1991a: 60):

- (8) η ayu [dundun] wawa-al, [djugi] djana-njunda
 1sgA java.cedar see-PAST tree stand-SUBORDINATE
 I saw the java cedar trees, which were standing [there]
 (lit. I saw the java cedars, which trees were standing [there])

Here the common argument is expressed discontinuously – by the specific noun *dundun* ‘java cedar’ in the main clause and by the corresponding generic noun *djugi* ‘tree’ in the subordinate clause. This illustrates a further, anaphoric-type, use of generics.

§9.3 discussed nominal incorporation in some of the prefixing languages. This always includes some body part nouns, and in some languages (NBc1, NBd2, NBg and NL, at the least) there is also the possibility of incorporating a generic noun into a verb. (For NBd3, Anindhilyagwa, Leeding 1989: 146–9, 357 reports that a small class of what she calls ‘shape adjectives’ may be incorporated into the verb or into a general adjective. These bear some relationship to classifiers referring to shape in languages from other continents – see Aikhenvald 2000.)

10.2 Feminine suffix *-gan*

There is an f suffix *-gan* which is found in languages down the east coast, in groups H, L, Ma, Mb, Mf and Na, also extending inland in subgroup Ja. In §10.4 we discuss Mf, Bandjalang, in which *-gan* has been adopted as the marker of one noun class. Aside from this, the suffix appears not to be productive in any language, but to be added to between half-a-dozen and a dozen nouns. These typically include names for sections, as illustrated for Warrgamay in (9).

- (9) H2, Warrgamay (Dixon 1981a: 5)
- | | | |
|---|-------------------|---------------------|
| | male section name | female section name |
| 1 | wungu | wungu-rrayn-gan |
| 2 | gurguru | gurgur-ayn-gan |
| 3 | gurrigila | gurrigil-ayn-gan |
| 4 | wudjurru | wudjurr-ayn-gan |

(A man from section 1/2/3/4 should marry a woman from section 2/1/4/3 with their children belonging to section 3/4/1/2 respectively.)

Each language has a few other nouns taking *-gan*, generally some kin terms, some age group terms, and the like. These are illustrated in table 10.1.

Table 10.1 *Examples of -gan in some eastern languages*

(a)	yalngay 'single man (beyond usual marrying age)' yalngay-gan 'single woman (beyond usual marrying age)'	H1, Dyirbal (Dixon 1972: 319)
(b)	gilanj 'old man' gilanj-gan 'old woman' murrigin 'eldest brother' murrigin-gan 'eldest sister'	H3, Nyawaygi (Dixon 1983: 460)
(c)	muga 'blind (person)' muga-gan 'blind woman'	Ja1, Bidjara (Breen 1973: 138)
(d)	gani 'son' gani-gan 'daughter'	Ma3, Gabi-Gabi (Mathew 1910: 266)
(e)	njowam 'husband' njowam-gan 'wife'	Ma4, Duungidjawu (Kite 2000: 61)

Note that Capell (1979: 221–2) relates *-gan* to the *f* form of a suffix *-gali* 'member of a tribe'; this etymology is unlikely, and requires further investigation.

10.3 Gender in free pronouns

About fifty Australian languages have distinct *f* and *m* forms of the 3sg pronoun – just over a dozen in group A–Y, WA–WM (which include in all about 190 languages) and about three dozen in groups NA–NL (which include in all about sixty languages).

(a) *masculine* nhu(wa)- and *feminine* nha:n-. *M* and *f* forms of the 3sg pronoun are only found in languages from the eastern part of the non-prefixing region. The full list is in table 10.2. For the languages in group WA we simply give the underlying/original forms – these have undergone minor changes in the individual languages, as set out in Table 7.5.

Rows (a–f) in table 10.2 suggest an original form **nhu-* for 3sgm. This is cognate with the sole 3sg form in languages which lack a gender distinction – see the discussion under (iii) in §7.5.1. The data on 3sgf are slimmer but rows (a), (b) and

Table 10.2 *m and f forms of 3sg in eastern non-prefixing languages*

	3sgm	3sgf	
(a)	nhu(wa)	nhan-	WAa1, WAb1/2, WAc1
(b)	nju(la)	nja:n-gan	Mf, Bandjalang
(c)	nju(wa)	njunh-	Na2, Gadjang
(d)	nju(wa)	nun-duwa	O2, Darkinjung
(e)	*yu(wa)	*yan-	proto-WM subgroup
(f)	njuwa	buwanduwa	Na1, Awabagal
(g)	ŋangula	ŋangula-wan	Mg2, Yaygirr
(h)	nuy	nan	A1, West Torres

(e) suggest an original form **nha:n-*. Data in rows (c) and (d) come from not fully reliable sources – the initial segment in Darkinjung could well have been *nh*; the ‘u’ in *njunh-* and *nun-* may be due to assimilation to the following vowel, or it could be an error of transcription, or it could be evidence that the forms are non-cognate. The forms in row (h), from A1, West Torres, may conceivably be related to **nhu* and **nha:n* through *nh > n* (but note that West Torres does have a lamino-dental series). It will be seen that in Bandjalang the *f* suffix *-gan* is added to *nha:n-*; and the *-wan* in Yaygirr is presumably a further reflex of *-gan*.

(b) *masculine na- and feminine ŋa(l)-*. This pair of pronominal forms is attested in a number of languages from groups NB–ND, NH, NJ–NK, all within the prefixing area. NBc1, Rembarrnga, lacks noun classes, and the only manifestation of m/f is in the free pronouns. In some languages of group NH, gender on free pronouns is extended also to apply just to some clitic bound pronouns. 3sg free pronouns in these languages include:

3sgm	3sgf	
na-wə	ŋa-wə	NBc1, Rembarrnga
na	ŋa	NHb1, Emmi
naŋ	ŋiya	NHb2, Marrihiyel
naŋ	ŋye	NHb3, Marri Ngarr

Other languages have gender in 3sg pronouns and they have noun classes, with the noun classes having quite different markings. These include:

3sgm	3sgf	
naŋga-yi	ŋa-yi	NBb1, Marra
na:wu	ŋa:yu	NBk, Gaagudju
na(ke)	ŋaya	NBf3, Nakkara

In a further set of languages it appears that the m/f marking in 3sg pronouns has been incorporated into the system of noun class markers. For instance:

free pronouns		noun class prefixes		
3sgm	3sgf	m class	f class	
ni-ga	ŋi-ga	na-	ŋarra-	NBd2, Nunggubuyu

Note that in the free pronouns we here have an unexplained change *a > i*.

In other languages the *na-/ŋa(l)-* gender forms are manifested in other ways. NBa, Mangarrayi, has no third person free pronouns but m and f noun classes are shown by prefixes *na-* and *ŋa-*. NB11, Wagiman, has no noun classes or genders on pronouns but some kin terms do take a gender prefix, *na-* for m and *ŋa-* for f. In NBh1, Jawoyn, prefixes for m and f noun classes are *na-* and *ŋa-* but the 3sg free pronoun lacks any gender distinction, being just *ŋayu*.

In NCb2/3 the 3sg pronouns are m *nha-* and f *ɲaya*. The form *nha-* may be cognate with the *na-* illustrated above. We noted under (2) in §4.3.1 that an initial *n* or *d* from languages in groups NA–NL sometimes corresponds to initial *nh* or *dh* in languages from other regions. (Note that NCb1/2 are on the fringe of the NA–NL area.)

In summary, we have two sets of recurrent m/f forms for 3sg pronouns. The *nhu-/nha:n*-forms are found in just over a dozen languages spread over a large area in the south-east and east-central part of the continent. They are in Mf, Mg, Na and O on the south-east coast, in WA towards the centre, and in WM further north. A gender distinction in 3sg is not found in the intervening languages – not in groups Nc, V or W, for instance. Just one of these languages has developed prefixing – WMa, Yanyuwa – and its 3sgm/f free pronouns have developed into one set of markers for noun classes – see (b) in §10.6.6.

The *na-/ɲa(l)-* forms are found in just six of the prefixing groups – note that they do not occur in NE–NG, NI and NL. They have sometimes become the basis for noun class markers and, in a number of languages where this has happened, *na-* and *ɲa(l)-* have dropped out of use as free pronouns. This will be discussed in some detail in §§10.6.5–6.

10.4 Noun classes in non-prefixing languages

Four of the non-prefixing languages which have an m/f distinction in the 3sg free pronoun have also developed gender-sensitive marking on nouns and/or adjectives. For each of them we can investigate whether agreement has evolved, which would indicate a system of noun classes.

(i) WMb1, Wagaya, in its western dialect, has semantically based genders shown in the unmarked (absolutive) form of a noun or adjective and in the ergative/locative/instrumental case suffix. The most frequent pattern is for n-m's to end in *i* and the corresponding m (if there is one) to end in *u*, e.g. *berdi:bi/berdi:bu* 'big', or for the n-m to end in *rr* and the m to simply omit this segment, e.g. *weraw/wera* 'dog/bitch'. Many adjectives, body part, kin and age-group nouns exist in both gender forms. The ergative/locative/instrumental case ends in *-l* after a final *a* or *u* (i.e. after m) and *-g* after a final *i* with *-əg* after *rr* (i.e. after n-m).

The forms of n-m/m marking on nouns do not seem related to the forms of n-m/m pronouns in Wagaya – these are *yuwu/yamb* in S, *yuwəl/yand* in A, and *yuwinj/yani* in O function.

The n-m/m marking on some nominals in Wagaya can be regarded as a system of noun classes, since it satisfies the criterion of agreement – that is, of noun class being marked on some constituent (e.g. on an adjective or on a body part term) other than the

head noun which determines the noun class. (Note that the data on western Wagaya are scanty and were gathered from the last speakers – see Breen 1976d, e; also p.c.)

(ii) In WAb2, Diyari, proper names take gender-determined allomorphs of case endings, different from the allomorphs on common nouns (which do not show gender). It appears that case forms of m and f free pronouns have reduced to become case endings on m and f proper names. Compare the 3sgm S form *nhawu* and the 3sgf S form *nhani* with S suffixes on proper nouns: m -*nha*, f -*ni*. (Note that not all reductions are fully regular – details are in Austin 1981a: 61, 48.)

This could not be regarded as a system of noun classes since marking is confined to the head noun – that is, there is no agreement.

(iii) In WAc1, Wangkumara, there is one set of nominal suffixes for m.sg and another set for non-m.sg and all plurals. These appear to be derived from reduced forms of the corresponding 3sg pronouns (Breen 1976f: 336), as shown in (10).

(10)	S	A	O
3sgm pronoun	nhiya	nhulu	nhinha
suffix to m.sg nouns	-iya	-(u)lu	-(i)nha
3sgf pronoun	nhani	nhandru	nhanha
suffix to n-m.sg and all pl nouns	-((nh)a)ni	-(a)ndru	-(nh)anha

(Note that nouns taking the dual suffix -*ula* have a different series of case markers, independent of gender, which are probably the original case endings for this language.)

Information on Wangkumara is also skimpy, being gathered by Breen from the last speakers. McDonald and Wurm (1979) provide a further salvage account but note only a handful of instances of the m.sg suffixes in their corpus. However, Breen (p.c.) reports that this contrastive case marking (m.sg versus the rest) does extend to modifiers within the NP – adjectives and the like. It thus qualifies, on the criterion of agreement, as a system of noun class marking.

(iv) Mf, Bandjalang, was spoken in a number of dialects over a considerable area of north-east NSW and south-east Queensland. Some dialects have a system of noun classes – the class of the head noun is marked within an NP on a constituent other than the noun itself.

In the Casino (Smythe 1978: 264–7) and Gidabal (Geytenbeek and Geytenbeek 1971: 8) dialects, noun class is marked on some (but not all) adjectives, never on the noun itself. There are many irregularities, but three sample adjectives – in (11) – (taken from the list of about forty in Smythe 1978: 266–7, with his orthography retained) illustrate the kind of patterns.

- (11) Noun class marking on adjectives in the Casino dialect of Mf, Bandjalang
- | noun class | 'hot' | 'small' | 'one' |
|-----------------|------------------|--------------|----------------|
| 1 male people | ɲouwunj-gali | beraŋ-gei | jäbur-ginj |
| 2 female people | ɲouwunj-gali-gan | beraŋ-a:-gan | jäbur-ginj-gan |
| 3 trees | ɲouwunj-a:-gan | beraŋ-a: | jäbur-na: |
| 4 all else | ɲouwunj | beraŋ | jäbur |

In these examples the m (male people) class is shown by suffixes *-gali*, *-gei* and *-ginj* and the arboreal (tree) class by *-(n)a:* with the residue class taking zero marking. Class 2 (female people) always requires the f suffix *-gan* (discussed in §10.2). It is added to the m form for 'hot' and 'one' but to the arboreal form for 'small'. And note that 'hot' has *-gan* added after *-a:* for the arboreal form.

In the Minjangbal dialect (Livingstone 1892: 4–6, Crowley 1978: 43–4) there are also four noun classes – again one for male and one for female people but here the third class relates to animals and places. These are illustrated in (12).

- (12) Noun class marking on adjectives in the Minjangbal dialect of Mf, Bandjalang
- | noun class | 'big' | 'tall, long' | 'new, young' |
|----------------------|--------------|--------------|---------------|
| 1 male people | gamay-bin | gura:-rim | baliŋ-gal |
| 2 female people | gamay-na-gan | gura:-na-gan | baliŋ-gal-gan |
| 3 animals and places | gamay | gura:-r | baliŋ-gal |
| 4 all else | gamay-na | gura:-na | baliŋ-gana |

Here class 4 is marked by *-(ga)na* which appears to correspond to the marking of class 3 in the Casino dialect. It will be seen that once more the f class involves the addition of *-gan*, either to class 1 or class 4 forms. (Note that in Minjangbal the f suffix *-gan* can also be added to some nouns.)

The Waalubal dialect of Bandjalang divides nouns into four classes – male persons, female persons, trees; and all else – which can be marked by suffixes (here the tree suffix is *-ga:*). But these suffixes only go onto nouns, never onto adjectives. Unlike the Casino, Gidabal and Minjangbal dialects, there is no agreement, and we cannot say that Waalubal has a system of noun classes. A further dialect, Yugumbir, shows just a vestige of what may have been noun classes at an earlier stage. The adjective 'big', for instance, has two forms, *gamay* and *gamagay* that appear to be (for the last speakers of the dialect, from which these data were collected) in free variation (Cunningham 1969: 108). But they may reflect original noun class endings.

It is hard to determine whether at an earlier time Bandjalang had a fully fledged system of noun classes, which have been lost in some dialects, or whether noun classes are currently in the process of evolution in a number of central dialects.

Mg1, Gumbaynggirr, has just a trace of what may be an earlier system of noun class marking. Describing the northern dialect (which is adjacent to Bandjalang) Smythe (1948/9: 24) states that all tree names ending in *-ga* have a collective plural in *-binj* (this is the same as in the Gidabal dialect of Bandjalang). This dialect also has *f* suffix *-gan* on a number of nouns, something which appears to be missing from the southern dialect of Gumbaynggirr, described by Eades (1979).

The clearest example of a system of noun classes in a non-prefixing language is that in H1, Dyirbal, a language with no gender distinctions in pronouns (in fact it has no 3sg pronouns at all). There are four noun classes marked by agreement on three types of nominal modifier: (a) demonstrative *ginja-* 'this', which only occurs in absolutive case (SO functions); (b) a 'noun marker' or determiner which begins with a locational-type root *ya(la)-* 'here', *ba(la)-* 'there' (this is also the unmarked term, used in citation of a noun) or *ŋa(la)-* 'not visible (but audible or remembered)'; and (c) an interrogative/indefinite root *wunjdja-* 'where/somewhere'. (The demonstrative, based on *ginja-*, is generally used in place of the SO form of the 'here' noun marker *yala-*. However, SO *yala-* forms do occur in some morphological environments – see Dixon 1972: 47.)

Roots of Types (b) and (c) take a case-marking suffix first ($\emptyset$ for absolutive, *-ŋgu* for ergative, *-gu* for dative or *-ŋu* for genitive), followed by noun class suffix *-l* for class 1, *-n* for class 2, *-m* for class 3, and $\emptyset$ for class 4. Sample paradigms are given in (13).

(13) Examples of noun class marking in H1, Dyirbal (Dixon 1972: 44–9)

class	'this' (SO)	'there' (SO)	'there' (A)	'where' (SO)	'where' (dative)
1	giyi	bayi	ba-ŋgu-l	wunjdjinj	wunjdja-gu-l
2	ginja-n	bala-n	ba-ŋgu-n	wunjdja-n	wunjdja-gu-n
3	ginja-m	bala-m	ba-ŋgu-m	wunjdja-m	wunjdja-gu-m
4	ginja	bala	ba-ŋgu	wunjdja	wunjdja-gu

It will be seen that there is one irregularity – the SO forms in class 1 are *giyi*, *bayi* and *wunjdjinj* where *ginjal*, *balal* and *wunjdjal* would be predicted on the basis of the rest of the paradigm. Sands (1995: 293–8) documents a set of gender forms (realised as noun class prefixes in some of the prefixing languages) *gi-* for m and *ginj-* for f. It may be that the demonstrative in Dyirbal originally had the form *gi* or *giyi* (which can be pronounced [gi:]) for m and *ginja* for f; the latter formed the basis for all noun classes save class 1 (which includes m). The other irregular forms, *bayi* and *wunjdjinj*, could conceivably have been created by analogy with the irregular SO demonstrative form *giyi*.

When I began work on Dyirbal, in 1963, it was at first hard to see any overall semantic basis for the noun classes. Statements like 'most fishes are class 1 but some are class 2' and 'most birds are class 2 but some are class 1' seemed of minimal use. However, I noticed that children learning the language did not have to learn the class

of each noun separately, but appeared to operate with a number of general principles. In addition, different speakers assigned noun class to new loan words in a consistent way. Further investigation suggested that there were a number of basic concepts associated with each class, and also two principles for transferring class membership. The basic concepts are:

- class 1: human masculine; non-human animate
- class 2: human feminine; water; fire; fighting
- class 3: non-flesh food (including honey)
- class 4: — (a residue class covering everything else)

The first principle states that a noun may be assigned to a class not on the basis of its nature, but in view of a mythic association. For instance, birds are believed to be the spirits of dead human females and are assigned to class 2 on the basis of this association with 'human feminine' (rather than to class 1 on the basis of being non-human animates). However, certain birds each have an individual role in myths, and are said to have originally been men or women – they are assigned a noun class on the basis of the gender of the individual mythic role. The second principle specifies that if a subset of a certain set of nouns has a particularly important property then it may be assigned a different noun class from the main set, to emphasise this property. For instance, most fishes are in class 1 but a few particularly harmful fishes (such as *balan djaŋan* 'stone fish') are in class 2. Similarly, almost all trees with non-edible parts are in class 4 (for example *bala miyabur*, 'red silky oak') but the stinging tree (*balan djaŋali*) is, because of its harmful nature, placed in class 2. (A fuller discussion of the semantics of noun classes in Dyirbal is in Dixon 1972: 306–11, reprinted with minor modifications in 1982a: 178–83.)

Dyirbal's southerly neighbour H2, Warrgamay, has a form *yala* 'here' while *bala* 'there' is found across the continent and *ginja* 'this' occurs in groups which include T, W1 and NE (see §7.8). The fact that noun class endings follow case suffixes, as shown in (11), suggests that these developed at a late stage. Class 3, with reference just to edible plant food (and honey) takes suffix *-m*; this is very likely to have evolved from the generic noun *mayi* 'vegetable food' (which is found, as a generic, in some of Dyirbal's neighbours). At an earlier stage people might have said *bayi mayi mirranj* ('THERE VEGETABLE.FOOD black.bean') and the generic could have reduced to be a suffix on the determiner, giving *bala-m mirranj*. The origins of the *-l* and *-n* suffixes for classes 1 and 2 are not known. F suffix *-gan* is found in Dyirbal (on seven or eight nouns) and the f noun class suffix *-n* could conceivably be a reduction from *-gan*; this is, however, rather speculative.

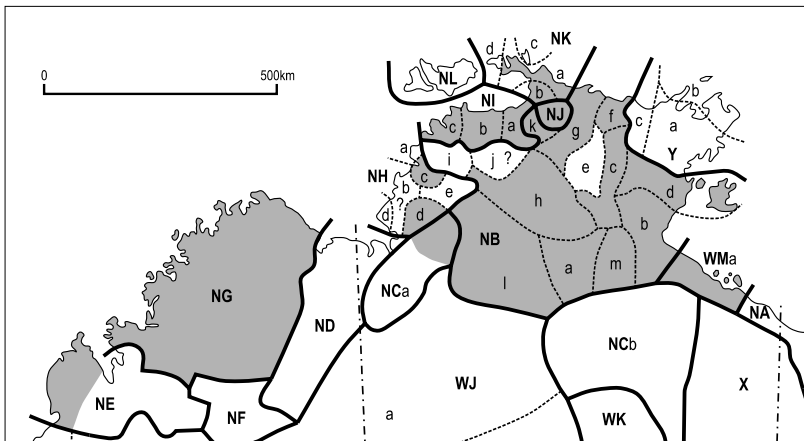
One other example is worth quoting, of a non-prefixing language which may be moving towards a noun class system. Ea2, Olgolo, has lost initial consonants, so that all

words now begin with a vowel (it may be the only language in the world with this structure). For example *guyu* ‘fish’ > *uyu* and *minha* ‘animal’ > *inha*. I worked briefly on this language in 1964 and 1967, eliciting a number of nouns. Some of these were given in two forms, both with and without an initial consonant. Thus, *anbu* or *nh-anbu* ‘possum’, *amara* or *nh-amara* ‘brown snake’, *urubu* or *y-urubu* ‘barramundi’ and *almali* or *y-almali* ‘oyster’. It appears that the names of animals can optionally be prefixed by *nh-* and the names of fishes by *y-* (and the names of trees by *w-*). These are in fact reductions of the generic nouns *inha* and *uyu* respectively. A sequence of generic-noun plus specific-noun, such as *inha anbu* has developed into generic-prefix-plus-specific-noun *nh-anbu*. This provides a canonical phonological structure CVCV . . . , in place of the unusual earlier structure VCV . . .

Generics are typically separate words while noun classes are generally marked by affixes. It would be a natural development for the generic prefixes in Olgolo to also extend to nominal modifiers, thus establishing agreement, which would be sufficient criterion for recognising a system of noun classes (see Dixon 1982a: 207–10). Also see Laycock (1969) for information on Da2, Lama-Lama, which appears also to have generics as prefixes to specific nouns.

10.5 Nominal prefixes in prefixing languages

All the prefixing languages have prefixes to verbs (always including a bound pronoun referring to at least S and A arguments) but not all of them have prefixes to nominals (nouns and adjectives). Map 10.2 shows those languages which do have prefixes on nominals.



Map 10.2 Languages with prefixes to nominals

Basically, nominals may take three kinds of affix:

- (a) Noun class markers. About two-thirds of the prefixing languages have noun classes. In most languages these are shown by prefixes to NP constituents (and sometimes also to the verb). However, in eight languages (NCb1/2/3, ND1/2, NHa, NIc and NL) they are marked by prefixes to the verb but by suffixes within an NP (sometimes fused with case – see §10.7).
- (b) Possessive markers. As discussed in §8.9, some languages mark possession by a possessive free pronoun or genitive noun while others add bound possessive pronominals to the possessed noun – in some languages these are prefixes, in others suffixes, and a few languages have a combination of prefix and suffix.
- (c) Others. There may be affixes marking case and also derivational affixes such as ‘with’, ‘like’, ‘very’ or collective/plural. The great majority of these affixes are suffixes but there is a sprinkling of prefixes.

The only case-type prefix – excepting cases fused with noun class markers, discussed in §10.7 – is a locative prefix; we find *na-* and *yandji-* in NBf3, Nakkara, and *gu-* in NBg1, Mayali, and probably also in NIc, Larrakiya. We also find a comitative prefix (‘with’) in NBc2, Ngalakan – see §5.3 – and both comitative and similarity (‘like’) prefixes in NBc1, Rembarrnga. In NBd1, Ngandi, a number of verbal prefixes may also apply to nouns: ‘distributive’, ‘together’, ‘still’ and ‘just now’, while NBf2, Gurrgoni, has a collective prefix and a prefix meaning ‘very’.

Note that some languages also have gender prefixes for names of subsections; these are thought to have spread very recently (see McConvell 1985). We find gender prefixes to some kin terms in, at least, NBc1 and NB11.

Prefixing languages fall into eight sets with respect to nominal prefixes, as set out in table 10.3. Note that there appears to be little correlation between whether noun classes are marked by prefixes or suffixes and whether possession is marked by bound pronominal prefixes, by bound pronominal suffixes, or by possessive free pronouns (and genitive-marked nominals). Most languages which mark noun classes by suffixes within an NP use free possessive pronouns, but NIc, Larrakiya, has possessive suffixes and prefixes. Of those languages which mark noun classes by prefixes within an NP, some have possessive prefixes (e.g. WMa, NKa1), some have possessive suffixes (e.g. NBa, NBm) and others have just free form possessive markers (e.g. NBh2, NB12).

There is also little correlation between prefixing on nouns and the time-depth of prefixing on verbs. We mentioned at the beginning of chapter 9 that subgroup NF shows the greatest fusion (of prefixes, root and suffixes) within the verb; yet NF has no nominal prefixes at all, except on recently acquired subsection terms.

It is worth remarking that in those languages where some nouns take a possessive pronominal prefix and others a suffix, it is always kin terms that attract the suffix – in

Table 10.3 *Prefixes on nominals in the prefixing languages*

type	noun class prefixes	possessive prefixes	other prefixes	
A	—	—	—	NBi, NCa1, NE1, NF, NHb2/3, NHd1, NHe (languages with no noun classes marked within the NP) and NCb, ND, NHa, NHb1, NL (languages with noun classes, but marked by suffixes within the NP)
B	—	yes	—	NE2, NKb (no noun classes)
C	—	—	yes	NBc1, NBe, NB11 (no noun classes)
D	—	yes	yes	NKa2 (no noun classes marked within the NP); NIc (noun classes marked by suffixes within the NP)
E	yes	—	—	NBa, NBf4, NBh2, NBk, NB12, NBm, NCa2, NHc, NHd2 and probably NBh1 (data incomplete)
F	yes	yes	—	WMa, NBb1, NBg2, NG, NIa, Nib1, NKa1 and probably NJ (data incomplete)
G	yes	—	yes	NBc2, NBd1/2
H	yes	yes	yes	NBb2, NBd3, NBf1/2/3, NBg1

Note that the following are not placed on the table due to lack of adequate data: NBj, Nib2, NKc and NKd.

NBb1, NBd3, NG2, NG3 and Nib1. As noted at the end of chapter 8, this suggests that possessive marking on kin terms is the oldest established, and may have been in place before these languages accepted prefixes onto nouns. Possessive bound pronominals onto body part nouns would have developed later with (and as) prefixes.

10.6 Noun classes in prefixing languages

About three-quarters of the prefixing languages have a system of noun classes (between two and eight in number). In most languages noun classes are marked by prefixes on modifiers within the NP, but in others they are marked by suffixes. Those languages which also mark noun class on bound pronominals to the verb always employ verbal prefixes (even if they use suffixes within the NP). Within an NP, noun class is always marked on adjectives, usually also on demonstratives, sometimes on the noun itself (either on all nouns or just on some of them). It is generally marked on some interrogatives, but which ones varies from language to language (just on 'who' in one language, just on 'where' in another, and so on).

The semantics of noun classes also varies considerably. There are generally separate m and f classes, but an m/f distinction is missing from about five languages. Around

half the languages have a class that covers vegetable food. There may also be classes for animals and/or trees and/or places. Some languages have a separate class for body part nouns while others divide body parts up between the various classes.

The variation in noun classes – their number, form and places of marking – is consistent with the hypothesis presented here, that noun classes have developed recently, as an areal phenomenon, within the prefixing region. It is basically the CATEGORY of noun classes that has diffused, with each language developing the actual marking for itself, out of its own internal resources. Two of the major sources for noun class marking are generally the extension of m and f 3sg pronominal forms and the grammaticalisation of classifiers.

§10.6.1 deals with the inter-relationship between noun classes and number, and then §10.6.2 discusses where in the clause noun classes are marked. §10.6.3 deals with their semantics, §10.6.4 with markedness and §10.6.5 with the actual prefixal and suffixal forms. §§10.6.6–7 then consider the mechanisms for the development of noun classes, and how they can be lost.

First, though, it is appropriate to consider those prefixing languages which lack noun classes. These are taken group by group.

NB group. It appears that NBi, Gungarakanj, lacks noun classes, lacks gender in pronouns, and has no nominal prefixes at all. NB11, Wagiman, lacks noun classes and gender in pronouns but has m and f prefixes on some kin terms. NBC1, Rembarnga, lacks noun classes but has gender in 3sg free pronouns, and also has nominal prefixes ‘with’ and ‘like a’. NBe, Dalabon, lacks noun classes but has m and f prefixes to some human nouns. All other languages in the NB group have noun classes shown by prefixes.

NC subgroup. NCa1, Djamindjung/Ngaliwuru, lacks noun classes and gender and has no nominal prefixes. NCa2, Nungali, has noun classes shown by prefixes. Languages of the NCb subgroup have noun classes, but these are marked by suffixes within the NP and there are no nominal prefixes.

NE subgroup has no noun classes or gender marking. NE2, Baardi, has possessive pronominal prefixes to a number of body part nouns (including 3sg *ni-*) but no other nominal prefixes. NE1, Njigina, has no nominal prefixes but some body part nouns begin with *ni-*. This suggests that proto-NE had possessive pronominal prefixes that have been lost in NE1 (which neighbours non-prefixing languages) but retained in NE2.

NF subgroup has no noun classes, no genders and no nominal prefixes (save on subsection terms, which have been introduced very recently).

NH group. Subgroup NHe has no noun classes or genders and no nominal prefixes. Groups NHa–d all have gender in 3sg free pronouns. NHc has, in addition, noun classes, marked on adjectives. In NHa, Patjtjamalh, m/f marking extends to bound pronouns

(which are prefixed to the verb) and to demonstratives and one adjective, 'good' (here marked by suffixes); this agreement is sufficient criterion for recognising a system of two noun classes. In the NHb subgroup and in NHd1, Murrinh-patha, gender is marked just on dative bound pronominal enclitics (and also on demonstratives just in NHb1, Emmi); this agreement could be taken as (just) sufficient criterion to recognise a system of noun classes. In NHd2, Ngan-gi-tjemmerri, eight members of a larger system of classifiers have developed into noun class markers which are added to NP constituents; this is in addition to m/f gender on 3sg free pronouns and on the dative enclitic pronoun.

Summarising the NH languages, there is a clear system of eight noun classes in NHd2, four in NHc and two in NHa and NHb1. The remaining languages in the NHb and NHd groups have a minimal system of two genders, shown on free pronouns (which does not qualify as agreement) and on dative bound pronouns (which does), and hence two noun classes. Only NHe, on the information available, has no noun classes.

NK subgroup. NKa1, Mawung, has a system of five noun classes, marked in the NP and on the verb. NKb, Amurtag, lacks noun class and gender but does have possessive pronominal prefixes to nouns. NKc, Marrgu, also lacks noun class and gender, but here the information is too scanty to tell whether there were any other types of nominal prefixes. NKa2, Iwaydja, appears to have gender in the 3sg free pronoun just in the Garik dialect. It has an m/f distinction in the A bound pronominal prefix which does constitute the agreement necessary for recognising a system of noun classes.

Of the remaining groups, WMa, NG, NIa/b and NJ have noun classes shown by prefixes within the NP and to the verb. In ND, NIc and NL all noun class marking within the NP is by suffixes.

In summary, for the prefixing languages:

- (i) Both noun classes and gender are lacking from: NBe, NBi, NCa1, NE, NF, NHe, NKb and NKc.
- (ii) The following lack noun classes but have gender in the 3sg free pronoun or on kin terms (note that this does not involve intra-clausal agreement and so is not accepted as a system of noun classes, on the criteria followed here): NBc1, NB11.
- (iii) The following languages have no noun class marking within an NP, but there is an m/f distinction in one bound pronoun series. Taking this as sufficient agreement to satisfy the criterion, we have to recognise a system of two noun classes (but with no marking within an NP): NHb2-3, NHd1, NKa2.
- (iv) All other prefixing languages have a clear system of noun classes marked on some constituents within the NP, and sometimes on one or more pronominal affixes to the verb.

The remainder of §10.6 will discuss languages of Type (iv).

10.6.1 Noun classes and number

Most languages with noun classes have affixes which mark just this category. In a number of languages information about noun class is combined in a single affix with case marking – this is discussed in §10.7. In a further set of languages a single morphological system covers both noun class and number. This is exemplified in (14) and (15).

- (14) Prefixes to nouns and adjectives marking noun class and number in NBB2, Warndarrang (Heath 1980b: 22–4); see also (38) in §10.6.6.

class	prefix	referents
1	rna-	singular human male; some place names; etc.
2	ŋi-	singular human female; some fauna; etc.
3	ma-	plants with edible underground parts; etc.
4	wu-	trees; demonstrative adverbs of place and time; etc.
5	(r)a-	large animals; etc. (also used as 'indefinite' for humans when sex and number are unknown)
dual	yirri-	two humans (may occasionally be used for two non-humans)
paucal	yili-	a few humans (from three to about five)
plural	wulu-	many humans (more than two, overlaps with paucal)

There are eight terms in the system but only five noun classes, combined with four numbers – sg, du, paucal and pl. The number system basically applies to human nouns so that here we have:

REFERENT	sg	du	paucal	pl
male	rna-	yirri-	yili-	wulu-
female	ŋi-			

Some non-human nouns do fall into classes 1 and 2, but here the prefixes *rna-* and *ŋi-* are generally maintained irrespective of number.

- (15) Suffixes to nominals marking noun class and number in N1c, Larrakiya (Capell 1984: 62–8)

class	suffix	referents
1	-va/V–, -ba/C–	singular humans; some animals and birds
2	-la/V–, -da/C–	most non-human animates; some body parts; moon; stone; etc.
3	-ma	most plants and their parts; most body parts; some birds; etc.
4	-wa/V–, -gwa/n–	implements; some body parts; water; clouds; etc.
n-sg	-ra/V–, -bira/C–	non-singular humans

Similar comments apply. Here humans take a number-marked suffix, *-va* or *-ba* for sg and *-(bi)ra* for n-sg. Other nouns in class 1 take the suffix *-va/-ba* irrespective of the number of their referent. Thus, compare (Capell 1984: 63–4):

- (16) bilə-va gun-ba guligi-va ba-na-m
 man-CLASS.1 THAT-CLASS.1 big-CLASS.1 CLASS.1.O+1sgA-see-COMPLETIVE
 I saw that big man
- (17) bili-ra gun-bira guligi-ra ba-na-m
 man-N.SG THAT-N.SG big-N.SG CLASS.1.O+1sgA-see-COMPLETIVE
 I saw those big men
- (18) bəlbə-la gun-da guligi-la da-na-m
 stone-CLASS.2 THAT-CLASS.2 big-CLASS.2 CLASS.2.O+1sgA-see-COMPLETIVE
 I saw that large stone/those large stones

Examples (16) and (17) show that for a human noun its number must be stated, in addition to the noun class; (18) demonstrates that for non-humans the suffix marks just noun class, and not number. Note that in Larrakiya a noun class suffix is included on all modifying words in an NP (adjectives and demonstratives) and often – as here – also on the head noun. In addition, it is marked in the S prefix to an intransitive verb and – as here – in the A-plus-O fused pronominal prefix to a transitive verb. (But note that, although suffixes within the NP distinguish sg and n-sg number in (16) and (17), the pronominal prefix does not here mark number.)

Those languages which combine noun class with number in one morphological system are:

sg/n-sg number system: NG, NIc, NHa, NKa1, NL

sg/du/pl number system: WMa, NBb1, NBd1, NBd3, NBm

sg/du/paucal/pl number system: NBb2

NBd2 has separate m and f noun class prefixes which cover sg and du numbers, with a further prefix for pl human. (NBd1 and NBd3 have additional complexities – see Heath 1978b and Leeding 1989.) ND1, Kitja, has three noun classes – m, f and neuter – with neuter also being used for pl reference to humans and animals.

All other languages have a constant prefix or suffix for each noun class regardless of number.

10.6.2 *Where noun classes are marked*

There are six types of element that can show noun class. Firstly:

- (a) the noun itself.

Then modifiers to the noun within its NP:

- (b) adjectives (including numbers);
 (c) demonstratives;
 (d) interrogatives/indefinites.

And also:

- (e) bound pronominal affixes or clitics to the verb;
- (f) free pronouns.

These will now be discussed one at a time.

(a) *On the noun itself.* There are three possibilities here – in some languages every noun carries an affix indicating its noun class; in other languages only some nouns do; and in a third set of languages no noun does.

(i) *Obligatory marker.* In two geographical regions every noun bears a prefix indicating its noun class. The first consists just of NCa2, Nungali, and its neighbour NHd2, Ngan.gi-tjemmerri. The second region consists of WMa, NBa, NBb, NBc2, NBd and NBh1. Adjacent to the second region is the NCb subgroup, where every noun bears a suffix marking noun class. (In WMa, NBa, NBb1, NBh1, NCa2 and NCb a single affix combines information about noun class and case – see §10.7.)

For NBb2, Warndarrang, Heath (1980b: 22) reports that a noun usually bears a noun class prefix when used in a text, but this may be omitted in citation. For NBd3, An-inhdhilyagwa, Leeding (1989: 227, 268–9) states that although every indigenous noun bears a noun class prefix (in all occurrences) some recent loans lack one, e.g. *tjarrang* ‘horse’ (said to be a loan from Macassan).

(ii) *Some nouns take a marker.* There are a number of languages where some – but not all – nouns bear an affix marking their noun class. In NIc, Larrakiya, and NL, Tiwi, most nouns take a noun class suffix. In NBf1–2, NBg1, NBh2, NBI2, NBM, ND and NIa just some nouns take a class prefix. In NG3, Wunambal, only body part nouns take a noun class prefix.

(iii) *No marker.* It appears that no noun takes an affix which marks its noun class in NBf3–4, NBg2, NBk, NG2, NIB and NKA1.

It is sometimes not easy to decide whether the first (or last) syllable of a noun is indeed a noun class affix rather than being a part of the root. One criterion exists in languages with noun incorporation into the verb – a noun class prefix is omitted when the noun is incorporated, as illustrated in (22a–b) from §9.3.

Another criterion is provided, ready-made, in languages where a given noun root can be used with one of several noun class prefixes, each carrying an appropriate difference in meaning (similar to occurrence of a noun with different classifiers, illustrated in (4–5) in §10.1.1). This is exemplified in (19).

- (19) NBI2, Wardaman (Merlan 1994: 62)

with noun class prefix *wu-*
wu-warli ‘branch, tributary of river’
wu-mum ‘nipple’
wu-diwalg ‘index finger’

with noun class prefix *yi-*
yi-warli ‘arm’
yi-mum ‘eye’
yi-diwalg ‘second-born child’

(Further examples are given by Leeding 1989: 287–303 for NBd3, Aninhdhilyagwa.)

NG1, Worrorra, is unusual in that noun class agreement is predominantly marked by prefixes, but for the noun itself it is the final part of the root which provides an indication of noun class, as shown in (20).

- (20) NG1, Worrorra (Love 2000: 15, 21; Mark Clendon p.c.)
- | | |
|-------|--|
| class | |
| 1 | Masculine (plus moon, spear, etc.) – about half end in <i>-ya</i> or <i>-i</i> |
| 2 | Feminine (plus sun, woomera, etc.) – all end in <i>-nja</i> or <i>-dja</i> |
| 3 | Places, etc. – about 80 per cent end in <i>-b</i> , <i>-ba</i> , <i>-m</i> or <i>-ma</i> |
| 4 | Residue class – about 55 per cent end in <i>-gu</i> or <i>-u</i> |

It is interesting to compare these endings on nouns with noun class marking on other types of word. In (21) we examine the noun class prefixes to demonstratives and verbs, the suffixes to two interrogatives and the marking on most adjectives – here all noun classes show a prefix, and there may also be a suffix.

- (21) NG1, Worrorra – forms of noun class prefixes and suffixes (Clendon 1994)
- | | | | | | |
|-------|---------------------|----------------|-----------------|-------------------|--------------------|
| | marking | | prefix | suffix | suffix |
| | on most | prefix to | as bound SO | to <i>aŋ(k)u-</i> | to <i>ŋani-/a-</i> |
| class | adjectives | demonstratives | pronoun on verb | 'who, what' | 'where' |
| 1 | a-, i- . . . (-iya) | i- | ga- | -yu | -ya |
| 2 | nji- . . . -nja | nji- | njin-, njan- | -nja | -nja |
| 3 | ma- . . . -m(a) | ma- | ma- | -dja-m | -ma |
| 4 | wu- . . . (-u) | wu- | gun- | -dja | -aŋga |

It will be seen that there is some similarity between the noun endings given in (20) and noun class prefixes and suffixes in (21). Most notable is the occurrence of *njan-* and *-nja* for class 2 and *ma-* and *-m(a)* for class 3. There is also the recurrence of *-ya*, *-i*, *i-* and *a-* for class 1 and of *gun-*, *wu-* and *-u* for class 4.

(b) *On adjectives*. In the majority of languages with noun classes, all adjectives take a prefix or suffix indicating the noun class of the noun they are modifying. There are just a few languages which only mark noun class on some adjectives.

In NCb1, Djingulu, there are just eight non-inflecting adjectives which do not take noun class suffixes; these include *kilkil* 'happy', *njambarnin* 'old, venerable' and *mar-lumarlu* 'lame with illness' (Pensalfini 1997: 259). In ND2, Miriwung, there are ten adjectives which do not accept noun class suffixes, including *langen* 'dirty, muddy' and *merrgen* 'three' (Kofod 1978: 36). In NG3, Wunambal, there are only about twenty adjectives which do take noun class prefixes, including *-yaba* 'good, nice' and *-newur* 'big, large'. Vasse (1991: 32) mentions that there are also non-inflecting adjectives with

the same meaning: *wandjumaya* 'good, nice' and *djo:yingari* 'big, large'. For the nearby language NG2, Ungarinjin, Rumsey (1982a: 53–5) simply states that some adjectives behave like body part nouns in taking noun class and other pronominal prefixes (agreeing in person, number and noun class with the head noun), while others do not. Prefixing adjectives include *-arner* 'great' and *-eri* 'one' while non-prefixing adjectives include *burdu* 'small' and *medjeri* 'two'.

In NHc, Malak-Malak, there are just seven adjectives which take noun class prefixes. These have the meanings 'good', 'bad', 'big', 'little', 'short', 'young' and 'old' (Birk 1976: 99). And in NHa, Patjtjamalh, there is a single adjective, *-kku* 'good', which takes prefixes for noun class and number (Ford 1990: 89).

Numbers generally pattern with adjectives; but note that in NBg1, Mayali, *-gudji* 'one' takes noun class prefixes while *bogen* 'two' does not (Evans 1997a: 109).

NG1, Worrorra, shows the most complexity. Adjectives fall into three sets, exemplified in (22). Most adjectives take a prefix for each of the four noun classes, and often also a suffix, as shown in (21). However, there are a few which just take a suffix. The third set of adjectives takes no noun class marking at all.

- (22) Examples of adjective inflection from NG1, Worrorra (Clendon 1994: 48–50; Love 2000: 25)

	set 1 – takes noun class prefixes and suffixes	set 2 – takes noun class suffixes	set 3 – not marked for noun class
class	e.g. 'good'	e.g. 'small'	e.g. 'long'
1	i-nia	birdee-ndja	garrangen
2	nji-nia-nja	birdee-nja	
3	ma-nia-m	birdee-n-ma	
4	wu-nia	birdee-n-u	

There is one example – shown in (23) – of a language which marks noun classes on adjectives, but with fewer distinctions than on other constituents.

- (23) Nlb1, Limilngan – marking of noun classes (Harvey 2001)

	SO bound			
	prefixes to verbs, and prefixes on free pronouns	prefixes to body parts	prefixes to adjectives and possessive prefixes to nouns	suffixes to demonstratives
1 humans	w-	w-	bu-	-wi
2 animals	l-	l-	du-	-na, -tda
3 plants	m-	m-	mu-	-ma
4 residue	ø-	<none>	du-	-ga

It will be seen that, in Limilngan, four classes are distinguished in the prefixes to verbs and to free pronouns, and in the suffixes to demonstratives; but in the prefixes to adjectives (and in possessive prefixes to nouns) only three distinctions are made since classes 2 and 4 are both marked by *du-*. (Note that in this language there is no marking of noun class on the head noun itself.)

(c) *On demonstratives.* All languages which mark noun class on some NP constituents include demonstratives in this inventory except for NBh2, Warray, NBI2, Wardaman, and NHc, Malak-Malak.

NBg2, Gunbarlang, is unusual in distinguishing five noun classes on demonstratives, but just four on other constituents. This is shown in (24).

(24) Noun class prefixes in Nbg2, Gunbarlang (Coleman 1982, Appendix 2)

	noun class	noun class	3sg
	prefixes with	prefixes with	free
	demonstratives	adjectives	pronouns
1 m, some fauna, sun, moon, honey, etc.	ni-	na-	nu-kka
2 f, some fauna	ŋi-	gi-	gi-kka
3 plants and plant parts	ma-	ma(a)-	—
4 most body part terms	ga-, ge- }	gu(n)-	—
5 inanimate	ŋo-		

Gunbarlang has no marking of noun classes on the noun itself (although some kin and section terms take prefixes *m ŋa-* and *f ŋal-*) nor on bound pronominal prefixes to the verb.

(d) *On interrogatives/indefinites.* Languages with noun classes show great variety in whether noun class is marked on all, some or no interrogatives/indefinites and, if on some, then on which.

(i) There is no noun class marking on interrogatives/indefinites in NBh2, NBk, ND2, NHb1, NHc, NHd2, NIa and Nka1 (but note that in Nka1, Mawung, interrogatives are followed by a noun class marker, as a separate word – Capell and Hinch 1970: 64).

(ii) All interrogatives/indefinites take a noun class affix in Nib/c (where they have the same morphology as demonstratives) and in NBb2, Wardarrang. As mentioned in §7.7, in Wardarrang the choice of noun class prefix distinguishes the interrogative and indefinite senses of *-ngaga*; with neuter class prefix *wu-* it means ‘what’ and with indefinite class prefix *ra-* it is taken to mean ‘something’.

In WMa, noun class is shown by a prefix to ‘who’, ‘what’ and ‘which’ (as to nouns and adjectives) but by a suffix to ‘where’ (as to ‘here’ and ‘there’).

(iii) Where only some interrogatives/(indefinites) may be marked for noun class, the possibilities include:

- just on 'where' in NG2, NHa;
- just on 'who' in NBa, NBc2, NBf3/4, NBg2, NBm, NCa2, NG3;
- just on 'who/what' in NBf1/2, NBh1, NCb3;
- just on 'who/what' and 'where' in NG1;
- just on 'who' and 'what' in NBg1, NL;
- just on 'what/which' and 'how many' in NBd3;
- just on 'what sort of' in NCb1.

(There are further possibilities in NBb1, NBd1/2, NCb2 and ND1.)

It will be seen that although some languages mark noun classes on NP constituents just by prefixes, and others just by suffixes, there are a number of languages which combine the two varieties of affix. We showed in (23) that Nib1, Limilngan, has suffixes to demonstratives (and also to interrogatives) but prefixes in all other circumstances. The greatest variety of types of affixation is in Worrorra, shown in (20–2). We also find a number of languages which use prefixes for all marking of noun classes but have suffixed possessive pronouns (e.g. NBc2, NBd1, NBm).

(e) *On bound pronominals to the verb*; and (f) *On free pronouns*. It is useful to discuss these two types of noun class marking together. Recall that in this chapter we distinguish:

- noun classes, marked by agreement (of modifiers in the NP and/or bound pronouns to the verb) with the noun;
- gender, marked on free pronouns (but involving no intra-clausal agreement).

There can be from two to eight noun classes, usually – but not always – involving an m/f distinction. There are always just two genders, one m and the other f.

At the beginning of §10.6, we looked at languages that have no noun class agreement within an NP but do have some agreement in bound pronouns. In NHb2–3 and NHd1 there is an m/f distinction in free pronouns and also in dative bound pronouns, while in NKa2 there is an m/f distinction just in A bound pronouns.

We now examine further those languages which have noun class markers on some constituents within an NP, as set out under (a–d) above. The various possibilities encoded in free and bound pronouns are set out in table 10.4. Note that here we identify noun class and gender marking on different types of words in terms of formal similarity of prefixal/suffixal marking.

Table 10.4 Occurrence of noun class and gender in free and bound pronouns for languages that have noun class marked by agreement within an NP

SET	FREE PRONOUNS	BOUND PRONOUNS	
A	neither noun class nor gender	neither noun class nor gender	NBa, NBh1, NBI2, NIa
B	gender	neither noun class nor gender	NBb1, NBg, NCa2 (gender only in possessive free pronouns)
C	gender	gender	NHd2
D	gender	noun class	NBf, NBk, NCb1, NCb3
E	noun class	noun class	NBc2, NBd, NBm, NG, NHa, NHb1, Nib1, NIc, NKa1; plus WMa, ND, NL
F	noun class	neither noun class nor gender	NBb2, NBh2
G	gender	mix of noun class and gender	NCb2, NHc

There are two further parameters of variation.

(i) Functional restrictions on noun classes. We find the following:

- noun class marked only in SO (not A) bound pronouns in NBf1–3, NG, Nib1, NIc.
- noun class marked only in SA (not O) bound pronouns in NBm, NL.
- gender marked only in A (not SO) bound pronouns in NCb1, NCb3.
- gender marked in A and noun class in S bound pronouns (but nothing in O) in NCb2.

(ii) Paradigmatic distinctions, with number of noun class distinctions reduced in bound pronouns. This happens in one language from set D of table 10.4:

- NBk, Gaagudju, marks four noun classes (m, f, plants, residue) within an NP and on SO bound pronouns, but the A bound pronouns simply distinguish m from non-m (covering f, plants and residue).

Within set E we find:

- NBc2, Ngalakan, has (as described and exemplified under (1) at the very beginning of this chapter) four noun classes marked within an NP; these are, roughly, m, marked by *rnu(gu)-*; f, marked by *dju(gu)-*; plants, marked by *mu(ngu)-*; and others, marked by *gu(ngu)-*. Only three distinctions are made in bound pronouns, m and f falling together with zero realisation, while the other two classes can be marked by *mu-* and *gu-* respectively.
- ND1, Kitja, has three noun classes (m, f and neuter) marked on NPs but only m/f on bound pronouns (as on free pronouns); full details are not available for this language.

- NKa1, Mawung, has five noun classes marked on NPs and on SO bound pronouns – roughly: m, f, ground, plants, vegetable food; the A bound pronoun only distinguishes m/non-m.
- NBd3, Anindhilyagwa, basically has five noun classes – human m, non-human m, human/non-human f, plus two non-human classes – marked in an NP; bound pronouns effectively have four noun class distinctions, with human m and non-human m falling together (both taking the human m prefix *ni-*).
- NBd2, Nunggubuyu, makes a varying number of noun class distinctions in different circumstances – five on nouns and adjectives in ‘continuous’ aspect, six in ‘punctual’ aspect; four on free pronouns; five on S and A bound pronouns; and seven on O bound pronouns. Combining these we get a total of eight noun classes (even though no more than seven distinctions are marked in any one structural position) – see (25). Note that A and O bound pronouns are fused – I quote the O forms combined with 1min A. (The A bound pronoun makes the same distinctions as the S pronoun, and the underlying forms appear to be similar.)

(25) Noun class prefixes in NBd2, Nunggubuyu (Heath 1984: 160, 243, 347–75)

class	nouns and adjectives		free pronouns	S (and A)	O bound prefix (plus 1min A)
	continuous	punctual		bound prefix	
1 human m	na-	na-	ni-	ni-	ṇanu-
2 non-human m		yi:-			ṇani-
3 non-human f	ṇara-	ṇara-	ṇi-	ṇi-	ṇaṇu-
4 human f					
5 some flora, body parts	mana-	ama-	ma-	ma-	ṇama-
6 most fauna	ana-	a-	wu-	wu-	ṇa-
7 some flora, abstracts					ṇawu-
8 swamp and associated things, etc.	warra-	warra-, wa:-		wurru-	ṇarra-

This only provides an outline of what is a most complex system. Note also that *na-* and *ɲara-* are used as m and f prefixes on human nouns with sg and du reference; for pl the prefix *warra-* (as in class 8) is used, irrespective of gender.

We can now provide commentary on some of the sets in table 10.4.

Set C. Here we find formal marking of m and f gender (as discussed in §10.3) on free pronouns, also extended to some bound pronouns. There is quite different marking – for noun classes – on the constituent words of an NP. In NHd2, Ngan.gi-tjemerri (the one language of this set) two of the noun classes involve m and f reference. In view of this we can link the gender marking on pronouns to the noun classes, as a single system. The forms are:

(26) NHd2, Ngan.gi-tjemerri (Reid 1990: 384, 128, 287)				
	3sg free	3sg dative bound		
class	pronoun	pronominal suffix	noun class prefix	
1 m	nem	-ne	wa-	
2 f	ɲayim	-ɲe	wur-	
			plus additional noun classes	

It will be seen that the pronouns relate to the recurrent m form *na-* and f form *ɲa(l)-* discussed under (b) in §10.3. (There is discussion of the evolution of the Ngan.gi-tjemerri system under (e) in §10.6.6 below.)

Set D. Here noun class marking on NP constituents extends to bound pronouns. Free pronouns have gender marking on 3sg, with quite different forms from the noun class markers. As with set C, two of the noun classes are (basically) m and f, and can be semantically related to gender on 3sg free pronouns, thus integrating gender into noun classes as a single grammatical system.

In NBf2, Gurrioni, for example, the gender forms of free pronouns are quite different from noun class prefixes to words within an NP, and on bound pronouns. As shown in (27), the m pronominal form has extended its scope to cover all non-f classes.

(27) NBf2, Gurrioni (R. Green 1995: 54, 128)					
	prefix	3sg SO	free pronouns		
class	within NP	bound pronoun	SAO	possessive	
1 f, etc.	dji(n)-	djin-	ɲidjiyé-	ɲutjuyu	
2 m, etc.	a(n)-, nu-	a-	niyé-	nuyu	
3 vegetable, etc.	mu(n)-	mu-			
4 others	gu(n)-	gu-			

NCb1, Djingulu, and NCb3, Wambaya, have familiar gender forms in oblique free pronouns – m *naŋa* and f *ɲaya*. They have nominal suffixes combining noun class and

case; the absolutive form is shown in (28). In addition, bound pronominal prefixes in A function mark noun class but with a reduced set of choices – m versus n-m.

- (28) Noun class and gender marking in NCb3, Wambaya (Nordlinger 1998: 126, 60, 139)

		noun class plus	
	oblique 3sg	absolutive (SO)	3sg A
class	free pronoun	suffix on nominals	bound pronouns
1 m	naŋa	-dji, ø	gini-
2 f	ŋaya	-rna, -ŋa, -nja	} ŋiyi-
3 edible	—	-ma	
4 neuter	—	-a, ø	

It will be seen that forms in the three columns of (28) are essentially different, albeit with some similarities (notably f *ŋaya* in the first column and n-m *ŋiyi-* in the third).

One theoretical possibility would be for a language to have gender in pronouns together with a noun class system that does not involve an m/f distinction. It would then not be possible to relate the genders to two of the noun classes and two separate systems would have to be recognised. If the gender on free pronouns extended to bound pronominal affixes to the verb (constituting agreement) there would be two distinct systems of noun classes – one involving m/f and the other with different distinctions.

There is in fact no Australian language of this type. Of the languages which lack an m/f distinction in their noun classes, NBI2 and NIB1 have no 3sg pronouns at all, while NG3, NIB2 and NIC form 3sg pronouns by using the noun class affixes from NPs. That is, if a language has noun classes without an m/f distinction, then it will not have gender distinction in free (or bound) pronouns.

Set E. Here noun class affixes to NP constituents have been extended to free and to bound pronouns, although often with some neutralisations and irregularities – see, for instance, the prefixes in NBd2, Nunggubuyu, set out in (25).

In WMa, ND and NL there are rather different forms marking noun classes within an NP, on bound pronouns, and on free pronouns. Those in WMa, Yanyuwa, are discussed in §10.6.6.

Set F. These two languages use noun class prefixes on NP constituents and in free pronouns but there are no noun classes marked in bound pronouns (which have a single 3sg form). In NBb2, Warndarrang, the five noun class prefixes are added to *-iwa* to form free pronouns (Heath 1980b: 22–3, 34). In NBh2, Warray, there are four prefixes to NP constituents but just two to free pronouns, the m form having been extended to cover the two non-human classes. This is shown in (29).

(29) NBh2, Warray (Harvey 1986: 51, 89)

	prefix to some	3sg free
	nouns and adjectives	pronouns
1 f	al-	al-kala
2 m	a-	} a-kala
3 body parts	an-	
4 other	ø-	

For these two languages, it is likely that bound pronouns to verbs were in place before the development of noun classes, and that noun class markers never spread into verbal morphology.

Set G. In these languages one set of bound pronouns shows similar noun class prefixes to nominals, while the other set is similar to free pronouns both in having just m/f and in showing some forms that are probably cognate. In NHc, Malak-Malak – shown in (30) – the SA bound pronouns have similar form to prefixes used on seven adjectives (with four noun classes) while the O pronominal suffix just makes an m/f distinction, like free pronouns.

(30) NHc, Malak-Malak (Birk 1976: 98–101, 75–8, 30–1)

class	prefixes to adjectives	3sg SA prefixes to verbs	3sg O suffixes to verbs	3sg free pronouns	
1 males, etc.	yV-	yV-	-nō	yōntōn	m
2 females, etc.	nV-	nV-	-ŋayi	nōntōn	f
3 vegetables, etc.	mV-	mV-	—	—	
4 others	wV-	wV-	—	—	

Note that *ō* is a ‘mid-close retracted front unrounded vowel’.

In NCb2, Ngarnga – shown in (31) – it is the 3sg bound A prefix which is similar to free pronouns in having just an m/f distinction (and in the forms used) while the S bound pronoun distinguishes four noun classes (by prefix) just as do NP constituents (by suffixes, portmanteau with case). The O pronominal prefix shows neither noun class nor gender.

(31) NCb2, Ngarnga (Chadwick 1978, 1979; Nordlinger 1998: 260)

	absolute plus noun class suffix in NP	3sg bound S prefix to verb	3sg bound A prefix to verb	3sg free object pronoun	
1 males, etc.	-dji, -i, -lji	ŋgV-	nV-	rna-ŋi	m
2 females, etc.	-rna, -nja, -ŋa, -da, -la	nV-	ŋVyV-	ŋaya-ŋi	f
3 vegetables, etc.	-ma	mV-	—	—	
4 others	-a, -dja, -dga, -rra	yV-	—	—	

In summary, noun classes as marked within an NP can also be marked on bound and/or on free pronouns. There is sometimes a reduction in the number of noun class distinctions made on pronouns (only in NBd2, Nunggubuyu – illustrated in (25) – does one set of bound pronouns make more distinctions than are shown within the NP). In some languages there is gender marking on 3sg free (and sometimes also bound) pronouns. This probably antedated the development of noun classes, but has now been integrated into the noun class system (even if showing alternative forms). No language with noun classes has an m/f distinction in pronouns if it does not also have one in noun classes.

10.6.3 Semantics

NBa, Mangarrayi, has three noun classes: m, f and neuter. M and f cover reference to male and female humans (including subsection and kinship terms), higher animals and mythological beings; neuter covers all else (Merlan 1982a: 57–8). This is perhaps the most straightforward semantics of a noun class system; in other languages the semantics is more complex and – in most cases – less understood.

One of the most insightful discussions is that by Pensalfini (1997: 254) concerning the four noun classes in NCb1, Djingulu: ‘The easiest class to characterise is the smallest, and apparently most marked, vegetable class. This class is occupied mostly by objects that are long and thin or pointed, or are sharp, which happens to include a lot of vegetables, but also body parts such as colon, penis, tail, neck, umbilical cord and chin; instruments such as spears, didgeridoos, fire-drills, shields and barbed wire; phenomena such as lightning and rainbows; and features like roads, gullies and trenches. Some plant food that is not of this shape, such as acacia gum and berries, are in this class (though most are neuter), and there are some unusual entries such as the words for war and the ceremonial ring. The next smallest and specialised class is the feminine, which aside from words for female higher animals includes words for axes of all sorts, the sun, most smaller songbirds, and some of the more “unusual” animals including echidnas, flightless birds, crabs, scorpions, turtles and catfish. The two remaining classes are the most general, with the masculine being used for most other animates and neuter for inanimates. Exceptions to this are that flat and/or round inanimates tend to be masculine, including many trees, the moon, shadows, swamps (with water), grindstones, eggs, rounded spear throwers, boomerangs, coolamons, and things made of glass. Also body parts that are flat, such as liver, brow and vagina, are masculine. The neuter gender includes all words for dwellings, materials, sticks and stones, instruments and body and plant parts that do not fall into other gender classes on the basis of shape properties, and most abstract concepts and entities.’

NL, Tiwi, has only two noun classes – m and f, which cover male and female humans and higher animals. Other nouns are assigned to a noun class on the basis of mythological association or physical size and shape. For instance, *wayayi* ‘bush curlew’ (a bird) is believed to be the wife of a mythical man, *Purrukuparli*, and so is feminine; *kuripurrani*

'frilly lizard' and *ɲariŋa* 'black cockatoo' are believed to be brother and sister and thus are male and female respectively. In terms of physical parameters, things which are small, straight or thin tend to be assigned to the m class, and those which are large, round and ample to the f noun class. Thus (with m marked by suffix *-ni* and f by *-ŋa*):

m		f	
muŋkwa-ni	'small stone axe'	muŋkwa-ŋa	'large stone axe'
upu-ni	'blade of grass'	upu-ŋa	'grass'

Further details are in Osborne (1974: 51) and Lee (1987: 78–81).

In §10.4 the semantic basis for noun class assignment in the non-prefixing language H1, Dyrirbal, was summarised. Certain basic concepts are associated with each class (save one which is a residue class) and there are two principles for transferring class membership. The first is that something may be assigned to a noun class on the basis of its mythological association, rather than its inherent nature. The second is that a subset of some set of things, which has some particularly important property (e.g. being harmful), may be assigned to a different noun class from the remainder of the set. As shown in the last paragraph, Osborne and Lee recognise mythological association as one basis for noun class membership in Tiwi. And Kirton (1971: 58) recognises both principles as operative in WMa, Yanyuwa, a language with seven noun classes. For instance, the f class includes nouns referring to what are believed to be 'dreaming' female relatives of the people, such as *-madu* 'cold wind, cold season' and *-gildjarrgildjarr* 'eaglehawk'. Almost all animate nouns are in the m or f class but *-walgurrarra* 'stinging jellyfish' is placed in the arboreal class, perhaps because of its harmful nature. And so on.

The semantic bases for noun class membership undoubtedly vary in transparency from language to language. But in every language there must be some set of general principles involved. It is not likely that a speaker would have to learn the class of each noun, on an individual basis; rather they would work in terms of what may be a complex, culturally based set of assignment rules (plus a number of exceptions). Unfortunately, many grammars simply list some of the members of each noun class, without attempting to uncover the underlying principles of assignment. Heath (1984: 177–98) devotes sixteen pages to discussing the content of noun classes in NBd2, Nunggubuyu, commenting 'in the neighbouring Ngandi language, a similar noun class prefix system shows reasonably close correlations of particular domains with specific noun classes, but such correlations are much weaker in Nunggubuyu'. Yet in his grammar of NBd1, Ngandi, Heath (1978b: 35) simply states 'it is possible to make some generalisations using semantic criteria' but fails to fully specify what these are.

The assignment of nouns to noun classes proceeds on an individual basis in each language. Although the same sort of semantic principles may recur, the actual details depend on the world-view, cultural beliefs and institutionalised linguistic connections in a particular community. (Harvey's 1997a attempt at a cross-linguistic conspectus is

imaginative but on the whole unconvincing.) It is likely that, in a given language, each noun class is defined by a number of intertwined semantic principles. Leeding (1989: 227–67) characterises the two inanimate noun classes in NBd3, Anindhilyagwa, as ‘lustrous’, with prefix *a-*; and ‘non-lustrous’, with prefix *mwa-*. This parameter may well play some role in noun class assignment but it is unlikely to constitute the full story. (It seems scarcely plausible to describe *a-witja* ‘fog’ and *a-warriwalja* ‘shade’ as ‘lustrous’ but *mwa-rrakwa* ‘meteor’ as ‘non-lustrous’, for example.)

Loan words are generally placed in noun classes on semantic principles. But recall that in NG1, Worrorra, each class has a typical set of final segments – see (20) in §10.6.2. Here noun class assignment for loans may be on either semantic or phonological principles. The pioneer missionary J. R. B. Love (2000: 16, 22) tells how the traditional vegetable-fibre string of the Worrorra, called *irkalja*, belongs to noun class 1 (m). When sisal hemp was introduced, and used for string making, it was at first classified as m, like *irkalja*. But when told its English name, *hemp*, the Worrorra decided that it should, on phonological grounds, be placed in class 3, most of whose members end in *-m(a)* or *-b(a)*. In contrast, glass was placed in the f class, together with the sun, on semantic grounds – because it shines like the sun.

Body parts are dealt with in different ways in different languages. When a body part occurs with a ‘whole’ noun (e.g. ‘man foot’) it is – in many languages – the ‘whole’ noun which is head of the NP with the body part term effectively functioning as a modifier. In keeping with this there are languages in which body part nouns have no inherent noun class, but simply ‘agree’ with the class of the ‘whole’. In WMa, Yanyuwa, for instance, every body part term must take a prefix showing the person and number and (if third person) the noun class of the possessor (the ‘whole’); for example *nuwulaya* ‘its (FOOD class) head’, i.e. ‘head of a fruit’ (Kirton 1971: 30).

In most languages body parts do have a noun class of their own. There may be one noun class which consists just of body parts, as in NBg2, Gunbarlang, and NBh, the Jawoyn-Warray group. More commonly, body parts are distributed over several noun classes (the principle underlying this distribution – if there is one – is not given in most grammars). In NCa2, Nungali, however, there is a clear principle. The classes here are:

- (32) NCa2, Nungali (Bolt, Hoddinott and Kofod 1971b: 63–8)

prefix	class	content
di-	1	male humans and higher animals; lower animals; etc.
nja-	2	female humans and higher animals; sun, star, rainbow
ma-, mi-	3	food; interior body parts (heart, liver, blood, eye, throat); etc.
nu-, ni-	4	exterior body parts (head, hand, nose, ear, etc.); inanimates

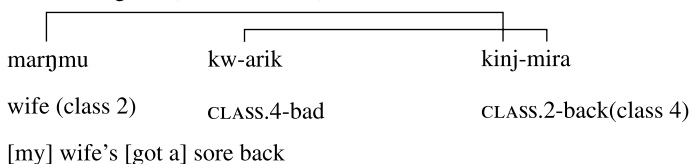
An unusual feature of this language is that a body part noun receives two prefixes. The first is its own noun class marker, with this being followed by an affix indicating the sex of the possessor: *-ya* for a male and *-na* for a female. Thus:

mi-ya-ɲargin ‘his eye’ mi-na-ɲargin ‘her eye’

ni-ya-manga ‘his ear’ ni-na-manga ‘her ear’

In NIa, Ubugarla, there is what Evans (1994) calls ‘domino’ agreement. A body part noun bears a prefix showing the noun class of the possessor, and an adjective modifying the body part bears a prefix showing the noun class of the body part. For example:

(33) NIa, Ubugarla (Evans 1994: 4)



Kin terms can behave similarly to body part nouns, often bearing an obligatory prefix showing the person, number and noun class of the possessor. But in some languages they behave quite differently from other nouns. In NBg2, Gunbarlang, adjectives take one of four noun class prefixes: *na-*, m; *gi-*, f; *ma-*, food, etc.; *gu-*, residue. However, kin and section nouns take a gender prefix *na-* for male (the same as the m noun class prefix) and *ɲal-* for female (quite different from *gi-*, marking the f noun class). Thus, with the noun *-goben* ‘spouse’ we get (Coleman 1982: 7):

na-goben ‘husband’ ɲal-goben ‘wife’

10.6.4 *Markedness*

It is interesting to enquire whether there is any markedness in a noun class system. The question can be asked at several levels.

One noun class will be formally unmarked if it has zero realisation, in contrast to non-zero affixes marking the other classes. This applies to class 4, the residue class, in the non-prefixing language H1, Dyirbal – see (13) in §10.4; and to class 4, the residue class, in the prefixing language NBh1, Jawoyn. In NHa, Patjiamalh, there are just two noun classes, with feminine marked by *-nj* and masculine by zero. But these languages are unusual; in the great majority of Australian noun class systems, each class bears a non-zero affix, with the consequence that no class can be regarded as formally unmarked with respect to the others.

Turning now to the functional level, it is in most languages again difficult to recognise any term as unmarked. In Dyirbal, for instance, there is no noun class that will

be used in default circumstances (pace Alpher 1987: 179 who opines that Dyirbal ‘is very likely an unmarked-masculine language’). A mixed group of men and women, for example, will be referred to with the masculine noun class marker if the most senior member(s) of the group are male, and by the female marker if the most senior member(s) are female.

But in some languages functional markedness is apparent. In NBf2, Gurrioni, the interrogative/indefinites *-nji* ‘what, something’ and *-njatbu* ‘what’s-its-name’ require a noun class prefix. R. Green (1995: 64–5) reports that when the referent is not known then a class 1 (masculine) prefix is commonly used, as in:

- (34) a-nji nji-na-ni?
 CLASS.1-what 2minA + 3minO-see-PRECONTEMPORARY
 What did you see?

Thus, class 1 is the functionally unmarked class in the Gurrioni system of four noun classes.

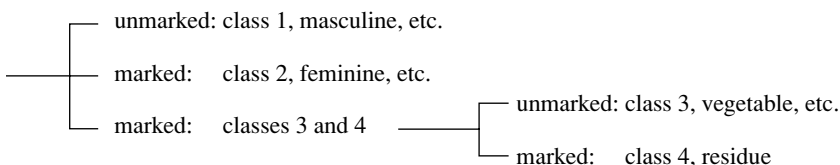
Functional markedness can be exhibited in another way. First note that, in most languages, if a noun bears a noun class affix this will be the same as the affix on a modifying adjective. In the Gunwinjgu dialect of NBg1, for example, adjectives and demonstratives take prefix *na-* for class 1 (m, etc.), *ɲal-* for class 2 (f, etc.), *mun-* for class 3 (vegetable, etc.) and *kun-* for class 4 (residue class). Some nouns take a prefix appropriate to their noun class while others lack a prefix. The norm situation is shown in columns (a) and (b) of (35).

(35) Noun class marking in NBg1, Gunwinjgu dialect

	on noun	agreement, on adjectives/demonstratives		
	(a)	(b)	(c)	(d)
1 m, etc.	na- <i>or</i> ∅	na-	na-	<i>na- used for all four</i>
2 f, etc.	ɲal- <i>or</i> ∅	ɲal-	ɲal-	
3 vegetable, etc.	mun- <i>or</i> ∅	mun-	<i>mun- used for both</i>	
4 others	kun- <i>or</i> ∅	kun-		

There are, however, two kinds of functional markedness within the Gunwinjgu system. Firstly, class 3 is the unmarked member of the two non-animate classes. Column (c) of (35) shows that agreement can be at a greater level of generality than in (b) with prefix *mun-* used for both of classes 3 and 4. And there is a further alternative, shown in column (d), where the class 1 prefix *na-* is used for agreement with nouns of all classes. This indicates that masculine is the functionally unmarked class for the

system as a whole. These two levels of functional markedness for Gunwinjgu can be diagrammed:



Evans (1997a) refers to the neutralised agreement patterns in columns (c) and (d) as ‘superclassing’. He states that there has been diachronic change in two other dialects of NBg1. The Gundjeihmi dialect has agreement as in column (c), with three distinctions. This brings about a lack of correspondence between marking on the head noun, in column (a), and on the modifier, in (c). Nouns fall into five types – the four prefixes and zero. Evans states that there are five ‘head classes’ (marked on the noun) and three ‘agreement classes’ (marked on adjectives and demonstratives). In this chapter I define noun class in terms of agreement, so that Gundjeihmi in fact has three noun classes. The richer prefixal marking on a head noun, in this dialect, is the relic of an earlier diachronic stage (maintained in the Gunwinjgu dialect) of four noun classes (with only some nouns in each class bearing the appropriate prefix).

A further dialect of NBg1, Kune, has changed even more, and now has just the fully neutralised system in column (d) of (35). The prefix *na-* is used for all agreement; there is no contrast in agreement and this dialect thus has no noun classes at all (although the five possibilities on the nouns themselves are a diachronic reminder of the noun class system that was). This loss of the noun class system in Kune has made it more similar to its neighbour NBe, Dalabon, which lacks noun classes. Similarly, the reduction from four classes to three in Gundjeihmi makes this dialect more similar to its neighbour NBh1, Jawoyn, which has just three noun classes.

Pensalfini (1997: 253–63) describes a very similar type of neutralisation of noun class marking for NCb1, Djingulu. There are again four classes, which can be roughly glossed as m, f, vegetable and neuter. M is the overall functionally unmarked class, and m agreement can be used with any noun, similar to column (d) in (35). There is also markedness between the two inanimate classes. But here Djingulu differs from Gunwinjgu in that it is the residue class which is relatively unmarked; a noun from the vegetable class may – in the equivalent of column (c) in (35) – be marked with the residue class suffix. (Further examples of agreement neutralisation, or ‘superclassing’, are in Harvey 1997b and Sands 1995: 264–5.)

The contrast between languages with and without markedness in noun classes can be clearly seen with respect to coordination. If there is obligatory marking of noun class in a bound pronoun to the verb, and if the argument being cross-referenced by

the bound pronoun involves a coordination of nouns of different classes, then the question is: which noun class should be used in the bound pronoun? We have already mentioned that in Gurrigoni *m* is the unmarked class; *m* agreement will be used to refer to a coordination of nouns of various classes (R. Green 1995: 64–6). In contrast, NG2, Ungarinjin, appears to have no functional markedness between its noun classes. Here one simply cannot coordinate, in one NP, nouns which belong to different classes. Instead, separate clauses must be used – one says, literally ‘she put down the *m*-class foodstuff and she put down the *w*-class foodstuff’ (rather than *‘she put down the *m*-class foodstuff and the *w*-class foodstuff’) – Rumsey (1982a: 137).

Although noun classes are a grammatical system there is generally a degree of fluidity in their use, to suit the semantics of a given situation. In H1, Dyirbal, for example, *guda* ‘dog’ basically belongs to class 2 (used for human females), marked by determiner *balan*, and *barrgan* ‘wallaby’ is basically class 1 (used for human males), marked by *bayi*. One would generally say *balan guda* and *bayi barrgan*. But, in order to draw attention to the fact that a certain dog is male, one could say *bayi guda*, and similarly *balan barrgan* in order to emphasise that a certain wallaby is female. Exactly the same fluidity is possible in a prefixing language such as Gunwinjgu. Here *-garndegin* ‘dingo’ belongs to class 1 and takes the masculine prefix. Modifying adjectives and demonstratives will also, in normal circumstances, take the masculine prefix. But to draw attention to a dingo as being female, modifiers may take the feminine prefix (although the noun itself retains the masculine prefix) – see Evans (1997a: 128–9).

Evans (1991: 108) provides further examples of fluid agreement in Gunwinjgu. The noun *kukku* ‘water’ itself bears no prefix; it can govern class 3 (vegetable) agreement when viewed as a drink, as in (36a), or class 4 (residue) agreement when viewed as a part of the landscape (e.g. a lake), as in (36b).

- (36) Variable agreement of ‘water’ in NBg1, Gunwinjgu (Evans 1991: 108, based on field notes of K. L. Hale)

- (a) yun yi-boŋu-n man-ih kukku
 DON’T 2sg-drink-NON.PAST CLASS.3-THIS water
 Don’t drink this water!
- (b) kun-ekke kukku kun-bo-ginuk
 CLASS.4-THAT water CLASS.4-liquid-big
 That water is big

The structure of a language is never stationary. There are always diachronic processes in train, such as analogical simplification. R. Green (1995: 62–4) notes that in NBf2,

Gurrgoni, most plants are in class 3 but there is a scattering in classes 1, 2 and 4. The latter are sometimes used with class 3 agreement, perhaps to emphasise – in a given context – the use of these plants as food. This may be the first step in a diachronic reassignment of the plants to class 3.

Languages with class marked both on the head noun and on modifiers sometimes exhibit a number of irregularities (called ‘quirky agreement’ by Evans 1997a). In NBg1, Gunwinjgu, ‘rain’ and ‘honey’ themselves take a class 3 prefix but trigger class 1 agreement while ‘fire’ and the names of some trees take a class 4 prefix but trigger class 3 agreement. This is, in fact, entirely in accordance with the markedness patterns set out in columns (d) and (c) of (35). It may well be a change in progress – the reassignment of class for these particular nouns – in which case the prefix on the noun itself might conceivably change, at some later date. (Evans draws attention to a similar example of irregular agreement reported by Capell 1984: 62 for N1c, Larrakiya.)

Other examples of a type of markedness are illustrated in (28–9). In (28), from NCb3, Wambaya, the 3sg A bound pronouns simply contrast *m* and *n-m*, while in (29), from NBh2, Warray, the 3sg free pronouns contrast *f* with *n-f*. Alpher (1987) provides a survey of this and other types of markedness in noun classes and in genders.

10.6.5 *Forms*

The number of noun classes in those prefixing languages which show this category varies between two and eight, and their content and marking also shows considerable variation.

(a) *Masculine and feminine*. All languages but five (NB12, Wardaman, NG3, Wunambal, N1b1, Limilngan, N1b2, Wuna, and N1c, Larrakiya) have distinct classes for male and female humans. These always also have other members. In most languages animals are divided between the two classes but in a few languages all or almost all animals are in the *m* class (e.g., NBB1, Marra, NBc2, Ngalakan). In quite a few languages the moon is *m* and the sun *f* (e.g. NBd3, Aninhdhilyagwa, NBf2, Gurrgoni, NG1, Worrorra, NG2, Ungarinjin – as also in H1, Dyirbal). Some body part and flora terms may also be found in these basically human classes.

In §10.3 we surveyed recurrent forms for *m* and *f* 3sg free pronouns. Some *m* and *f* noun class affixal allomorphs in WMa, Yanyuwa, reflect *m* **nhu-* and *f* **nhan-*, pronominal forms found in eastern languages (see §10.6.6). Within the prefixing area the recurrent 3sg pronominal forms are *m na-* (or *nha-*) and *f ŋa(l)-*. These have been extended to be markers of *m* and *f* noun classes in about seven languages from group NB, as shown in (37).

- (37) Noun class prefixes that may relate to 3sgm *na-* and 3sgf *ŋa(l)-* free pronouns

	noun class prefix		free pronouns	
	m prefix	f prefix	3sgm	3sgf
NBa, Mangarrayi	na-	ŋa-	<none>	
NBb2, Warndarrang	na-, ni-	ŋa-, ŋi-	ni-wa	ŋi-wa
NBd2, Nunggubuyu	na-	ŋarra-	ni-ga	ŋi-ga
NBgl, Gunwinjgu	na-	(ŋ)al-	nun̩ga	ŋalen̩
NBg2, Gunbarlang	na-	ŋi-, gi-	nuka	gika
NBh2, Warray	a-	al-	a-gala	al-gala
NBh1, Jawoyn	rna-	ŋal-	<just ŋayu, no gender marking>	

There is also m *rna-* in NBb1, Marra, but here the f prefix is *ya-* or *na-*. NBh1, Emmi, has *na* or *ŋa* as m and f 3sg free pronouns respectively, and also *-na* and *-ŋa* as m and f noun class suffixes on demonstratives.

Other languages have quite different forms for m and f noun class affixes. To mention just a few, the prefixes are *rni-* and *rna-* in NBd1, Ngandi; *ga-* and *ya-* in NBf4, Ndjeb-bana, *a-* and *nja-* in NG2, Ungarinjin. M and f noun class suffixes include *-dji* and *-ya* in NCb1, Djingulu; *-ŋ* and *-nj* in ND2, Miriwung; and *-ni/-ti* and *-ŋal/-ka* in NL, Tiwi.

(b) *Vegetable Food*. Just over half of the prefixing languages with noun classes have one class that all (or almost all) vegetable foodstuffs belong to; in every language it also includes reference to other things (which things varies from language to language). In every language save NKa1, Mawung, the noun class affix begins with *m-*. Details are set out in table 10.5. In Mawung the class which includes vegetables has prefix *aw-*; there is a noun class with prefix *m(a)-* which covers plants and wooden objects (not vegetables).

A number of other languages lack a vegetable class but do have a noun class whose affix begins with *m-*. In NG1, Worrorra, the class marked by agreement prefix *ma-* (or final *-m(a)* or *-b(a)* on the noun) relates to places. In NG3, Wunambal, the class marked by prefix *m-* relates to places, camp and some body parts. In NBd2, Nunggubuyu, the class with prefixes *ma(na)-* and *ama-* covers some flora and body parts – see (25). NBd3, Anindhilyagwa, has a class marked by prefix *mwa-* which Leeding (1989) suggests relates to ‘non-lustrous objects’ (see the comments on this in §10.6.3 above). Information on NJ, Giimbiyu, is scanty but there appears to be a noun class marked by *man-*, referring to water and water features.

We can now consider table 10.5 and the affixes for the ‘vegetable’ noun class, which have the form *ma-*, *-ma*, *mi-*, *-mi*, *-(i)mi*, *m-*, *man-* and *mu-* (plus *-(i)bi* and *ŋan-*). Under (1) in §4.2.1 we saw that a lexeme *mayi* ‘vegetable food’ (or a phonological

Table 10.5 ‘Vegetable’ classes marked by an affix commencing with m-

language	noun class marker	outline of content of noun class
WMa, Yanyuwa	ma-	non-flesh food, articles made from fibrous materials (and plants from which they are made), firesticks, etc. (Kirton 1971: 28)
NBd1, Ngandi	ma-	edible roots, water lilies, wattles (only sketchy information in Heath 1978b: 37)
NBk, Gaagudju	ma-	plants and their parts, weapons (Harvey 1992: 206)
NB12, Wardaman	ma-	flora, especially vegetables and vegetable parts (Merlan 1994: 61)
NIa, Ubugarla	ma-	vegetable foods, plants and their parts, most artefacts made from plants, some body parts (Davies 1989: 38–9)
NG2, Ungarinjin	ma-, mi-, mu-	plants (especially edible ones), some body parts, places (Rumsey 1982a: 39–40)
NCb2, Ngarnga	ma-, -ma, -mi	vegetables, fruit, rounded/full-shaped objects (Chadwick 1979)
NCb3, Wambaya	-ma, -mi	non-flesh food, body parts with rounded shape, faeces (Nordlinger 1998: 62–3)
NIc, Larrakiya	m(a)-, -ma	vegetable foods, trees and their parts, many body parts, some birds (Capell 1984: 64)
NCa2, Nungali	ma-, mi-	food, interior parts of the body (Bolt, Hoddinott and Kofod 1971b: 63–75)
NBb2, Warndarrang	ma-, mi-	plants with edible underground parts (only partial information in Heath 1980b: 24)
NIb2, Wuna	mi-	plants
NHd2, Ngan.gi-tjemerri	mi-	vegetable food, faeces (Reid 1997: 191–2)
NCb1, Djingulu	-ma, -(i)mi, -(i)bi	vegetables and objects that are long, thin and pointed, or sharp, including body parts, implements, lightning, rainbow, roads, gullies, trenches (Pensalfini 1997: 254 – see quotation at beginning of §10.6.3)
NBb2, Gunbarlang	ma(n)-	foods, plants and plant parts, items manufactured from plants (Coleman 1982, Appendix 2)
NBb1, Gunwinjgu	man-, ŋan-	plants with edible parts, honey, some wooden implements, some body parts, faeces, some geographical terms, rain, some birds, etc. (Evans 1991: 105–6)
NIb1, Limilngan	m(u)-, -ma	plants, weapons, vehicles (Harvey forthcoming)
NBc2, Ngälakan	mu(ngu)-	most vegetable foods, many other plants, honey, some implements, ochres, earth, seasons (Merlan 1983: 36)
NBf1, Burarra	mu(n)-	vegetable foods, grass, some body parts, some artefacts, some clothes, etc. (R. Green 1987: 15)
NBf2, Gurrgoni	mu(n)-	vegetable foods, most plants and items made from plants, most body parts, faeces, traditional canoes, corroboree songs, etc. (R. Green 1995: 58–9)
NHc, Malak-Malak	mu-, mö-	non-meat food, parts of the body directly associated with food and speech (e.g. belly, tongue), weapons and implements for obtaining (meat and non-meat) food, language and story (Birk 1976: 102)

development from this) is found in seventeen of the thirty-eight non-prefixing and six of the twelve prefixing groups. In §10.1 it was mentioned that in well over half the languages with generic nouns or classifiers one of the most frequently used generics/classifiers is *mayi* 'vegetable food'.

Some of the prefixing languages which do not have noun classes do show a lexical reflex of *mayi* 'vegetable food', including:

me	in NBc1
meyi	in NBe, NBi, NHe
mayi	in NE
miyi	in NF1 (the same form occurs in the adjacent non-prefixing languages in subgroup WJ) and NHe

Some of the languages with noun classes also have classifiers; the remainder all have a term for 'vegetable food'. These include:

mayi	in NBh1	miyi	in NHb2, NHb3, NHd2
may	in NBc2	miya	in NHb1
mayin	in NBI2	mi	in NHc
mayin	in ND2	muyi	in NBj
me	in NBg1	muya	in NBh2
me:	in NG3		

In §10.4 we examined the likelihood of suffix *-m* for the 'vegetable' noun class in the non-prefixing language H1, Dyrbal, coming from grammaticalisation of the classifier/generic *mayi* 'vegetable food'. Similarly, it is likely that the vast majority of the prefixes and suffixes in table 10.5 come from the same source. This applies particularly to those of the form *ma-*, *-ma*, *mi-* and *-mi*.

As noted many times, languages with a prefixing profile have typically undergone more phonological changes than those in the remainder of the continent – truncation, assimilation and the like. Changes *mayi* > *meyi* > *me* and *mayi* > *miyi* > *mi* are typical of those that occur.

An assimilation *mayi* > *muyi* is not impossible, but it is far less likely than those just mentioned. We should not immediately conclude that vegetable class prefixes beginning with *mu-* also come from *mayi*. These are *mu-* or *mungu-* in NBc2; *mu-* or *mun-* in NBf1/2; *mu-* or *mö-* in NHc; and *mu-* or *m-* in Nib1 (a language which also uses suffix *-ma*). Note the following:

- (i) In NBc2, Ngalakan, there is a noun *may* 'vegetable food' which takes the 'vegetable' noun class prefix *mu-*, i.e. *mu-may*. NHc, Malak-Malak, has 'vegetable' noun class prefixes *mu-* and *mö-* but free noun *me*.
- (ii) The non-prefixing language Da2, Lama-Lama, is reported by Laycock (1969: 78) to have a prefixed classifier *mun-* for 'starch food'.

It is most likely that, in addition to *mayi* as the source of noun class markers *ma-*, *mi-*, *m-*, *-m*, *-mi* and *-ma*, we should also posit a form *mun-*, as the source for markers *mun-* and *mu-*. Indeed, the prefix *man-* in NBg1/2 is as likely to come from an earlier form **muna*, by vowel assimilation and final vowel omission, as from **mayi*.

Table 10.6 *Instances of gu(n)/wu- noun class (for further putative examples see Sands 1995: 313–14)*

language	noun class marker	outline of content of noun class
NBc2, Ngalakan	gu(ngu)-	most specific tree names, most body parts, many implements and other cultural objects, most topographic terms (Merlan 1983: 36)
NBd1, Ngandi	gu-	many plants, most body parts, abstract nouns (only sketchy information is given in Heath 1978b: 37)
NBf1, Burarra	gu(n)-	some plants, some body parts, ground, places, fire, rain, wind, abstract nouns, etc. (R. Green 1987: 15)
NBf2, Gurrgoni	gu(n)-	a few plants, some body parts, topographic terms, fire, water, language, abstract nouns (R. Green 1995: 59–60)
NBg1, Gunwinjgu	gun-	generic names for plants, most body parts, many implements, most topographic terms, camp, fire, language, abstract nouns (Evans 1991: 106–7)
NBg2, Gunbarlang	gu(n)-	bodily excretions, topographic terms, earth, water, places, language, abstract nouns, etc. (Coleman 1982, Appendix 2)
NBk, Gaagudju	gu-	body parts, geographic features, fire, time, abstract entities (Harvey 1992: 206)
NJ, Giimbiyu	gun-	water (very limited information available, from Harvey 1987)
NIa, Umpugarla	gu-, nu-	most body parts, axe, geographic features, fire, smoke, rain (Davies 1989: 39)
NBl2, Wardaman	wu-	nouns associated with the ground and seasons, non-animate and non-vegetable objects (e.g. stone), cold weather, etc. (Merlan 1994: 61)
NKa1, Mawung	u(ŋ)-, w(u)-	some body parts, ground and associated objects, time, abstract nouns (Capell and Hinch 1970: 46–51)
NHc, Malak-Malak	wu-, wö-	trees, stomach, wooden objects, European implements, natural phenomena, fire (Birk 1976: 103)
NG3, Wunambal	g-, w-	some body parts, topographic terms
NG2, Ungarinjin	wu-, ga-, di-	trees and objects made from them, rocks and minerals, time, language (Rumsey 1982a: 40–1)
NG1, Worrorra	ku-, wu-	tree, stone, water, language, etc. (Clendon 1994: 28)
NBb2, Warndarrang	wu-, wi-	trees and body parts (slim information in Heath 1980b: 24)
NIc, Larrakiya	ga-, -wa	some tree products, some body parts, implements, water, cloud (Capell 1984: 64)

(c) *The gu(n)-class*. The only other recurrent noun class prefix is *gu(n)-*. Table 10.6 sets out instances of a prefix *gu(n)-* and a number of other forms that may conceivably be related to it (I make no suggestion that all these prefixes are necessarily genetically linked).

It will be seen that the content of the *gu(n)-* class varies considerably from language to language. There are a number of recurring semantic domains, mainly geographical/topographical words and abstract nouns (including 'language'). A number of languages include some or all plants in this class but others place most plants in another class. Some body parts may be in this class, but which body parts varies from language to language. 'Fire' is also in the *gu(n)-* class in half-a-dozen languages. Note that there is no recurrent free noun, beginning with *gun-*, which could be the lexical source for this prefix, in the way that we had *mayi* as a likely source for most of the vegetable noun class prefixes. (The recurrent form *guna* 'faeces, excrement, shit' – see (5) in §4.2.2 – has been informally suggested as a possible source, but this seems to me less than plausible.)

There are no other significant recurring prefixes (or suffixes) for noun classes. Sands (1995: 285–317) explores a number of other possibilities (including an 'animate prefix', *la-/ra-/da-/a-*) but all are speculative in the present state of our knowledge.

10.6.6 Development

We can recapitulate some of the hypothesised traits of languages in groups WMa and NB–NL, at a time before the development of prefixes to verbs and of noun class systems.

- (i) There would have been generic nouns/classifiers which generally preceded a specific noun within an NP.
- (ii) The languages were predominantly dependent-marking. There would have been case suffixes (or enclitics) indicating the function of an NP in its clause. These case markers might have attached to every word in the NP, or just to one word (typically the final word). That is, they might have attached to both generic/classifier and specific noun, or else just to the specific noun.
- (iii) Some languages had an m/f gender distinction in 3sg free pronouns.

There is such a variety in the number of noun classes, their semantics, their type of marking (only prefixes, only suffixes, or a combination of these) and the forms of affixes that it is clear that each language developed a system of noun classes on an individual basis, from its own internal resources. It was simply the category which diffused – a language would develop a system of noun classes under diffusional pressure from neighbouring languages which already had such systems.

There may have been a little diffusion of actual noun class affixes, as tentatively explored by Heath (1978a: 87–91) but this would have been rather exceptional. Most similarities of noun class affixes between languages are likely to be due to their having come from the same source. For example, if two languages both have classifier *mayi* ‘vegetable food’ and both develop noun classes, then each may develop a vegetable class marked by prefix *ma-*.

It is likely that prefixes developed first on verbs, mostly due to the innovation of bound pronominal prefixes. (In some languages the only verbal prefixes are bound pronominals.) In most (or all) languages which have prefixes on nominals this is likely to have developed at a later stage; note that some languages have prefixes on verbs but not on nominals, never the reverse. Once the morphological profile of having prefixes had been attained, with bound pronominal prefixes on verbs, a next step would have been to extend the prefixing profile also to nominals. In the great majority of instances this has involved the innovation of a system of noun classes, marked by prefixes to NP constituents. In some – but not all – languages, noun class prefixes were also incorporated into the system of bound pronominals on verbs.

It is possible but unusual for a newly innovated grammatical system to have a single origin. It is more likely to be assembled from a number of sources (not all of which may be retrievable). Many of the languages surveyed in this chapter developed a system of noun classes (a) partly through generalising the function and reducing the form of m and f 3sg free pronouns; and (b) partly through grammaticalising some generic nouns/classifiers. (These two sources perhaps being augmented by other sources.) In languages with no gender distinction in 3sg free pronouns, noun classes may largely have evolved just by route (b).

It was mentioned in §10.1 that in Ea1, Kuuk Thaayorre, a specific noun never occurs alone, but must be preceded by the appropriate generic noun/classifier. The obligatory inclusion of a classifier before a specific noun would naturally lead to reduction to an obligatory classifier prefix or proclitic, and then to a noun class prefix. Note the development of classifier words into classifier prefixes, for example *inha* ‘edible animal’ > *nh-*, in Ea2, Olgolo, mentioned at the end of §10.4. In these two languages we see the first stage of development from a set of classifiers to a system of noun classes (marked by prefixes) which is present in its final form in many of the prefixing languages.

We now briefly look at five rather different putative scenarios for the development of noun class systems.

(a) *NBb2, Warndarrang*. There are here five noun classes – shown in (38) – marked by prefixes which have slightly different forms, varying only in whether they end in *a/u* or in *i*. (See also (14) in §10.6.1 above.)

- (38) Noun class prefixes in NBb2, Warndarrang (Heath 1980b: 22–3, 28, 35, 48)

class	prefix form on:			rough semantic content
	demonstratives	nouns and adjectives	3sg free pronouns	
1	rna-	rna-	rni-	human males, some place names, etc.
2	ŋa-	ŋi-	ŋi-	human females, some fauna, etc.
3	ma-	ma-	mi-	plants with edible underground parts, etc.
4	wu-	wu-	wi-	trees, adverbs of place and time, etc.
5	ra-	(r)a-	ri-	large animals, etc.

The prefixes for classes 1 and 2 plainly relate to the recurrent 3sg free form pronouns discussed under (b) in §10.3 – *m na-* and *f ŋa(l)-*. As discussed in §10.6.5, the class 3 prefix *ma-* is likely to be a grammaticalisation of the classifier *mayi* ‘edible plant’. Class 4 prefix *wu-* may relate to the *gu(n)-* prefix in other languages, shown in table 10.6 (for which no sure origin is known). The source of the class 5 prefix *ra-* is also not known.

The 3sg free pronouns involve prefixes from the third column of (38) added to a root *-wa*. An alternative analysis would be to suggest that prefixes from the first column are added to a pronominal root *-iwa*, with *ai* > *i* and *ui* > *i*. The only unexplained features of (38) would then be why nouns and adjectives take class 3 prefix *ŋi-*, rather than *ŋa-*, and can omit the initial *r* from the class 5 prefix.

Warndarrang is placed with Marra in tentative subgroup NBa. However, the system of noun classes in Marra differs in both form and function – see (48) in §10.7. The noun class systems must have developed independently in these two languages, after the posited stage of proto-NBa.

(b) *WMa, Yanyuwa*. Unlike Warndarrang, Yanyuwa also incorporates noun classes into its system of bound pronominal prefixes to verbs. There is considerable variation in the forms of noun class prefixes, shown in (39). (Note that there is a fifth class, for abstract nouns, which is omitted here; it basically involves the addition of *rnui-* to the class 4 form.)

- (39) Noun class prefixes in WMa, Yanyuwa (Kirton 1970: 826–8; 1971: 32, 38)

		prefixes on nominals portmanteau with case:			
		class	absolutive	dative	ergative/locative
human m	1a		nja-	nju-	
non-human m	1b		∅	dji-	
f	2		rra-	rru-	
vegetable, etc.	3		ma-	mu-	mu-ŋgu-
trees, etc.	4		na-	nu-	nu-ŋgu

		prefixes to verbs cross-referencing functions:			possessive prefixes to body part nouns	forms of 3sg free pronouns	
class	S	O	A			S/O	dative
1a } 1b }	-iwa- ~	-iya- -anja-	-ilu	{	-iwa- -i-	yiwa	yi-gu
2	-anda-	-arra- ~	-ay- -anda-		-anda-	anda	an-gu
3	-u	-u	-angu-		-u-	—	—
4	—	-ana-	—		-anu-	—	—

Prefixes to nouns combine information about noun class and case, as shown in the top part of (39). Verbs have an S prefix, or an O prefix followed by an A prefix, shown in the bottom part of (39). The S/O forms all begin with *g-*, which has not been included in (39), e.g. class 1 O prefix *ganja-*. Possessive prefixes to body part nouns all begin with *n-*, also omitted from (39), e.g. class 1a *niwa-*. As a result, S/O prefixes to verbs and possessive prefixes to nouns have lost their initial consonant. Free form pronouns are only used for human reference and then only in S/O and oblique functions (for A function only a bound pronominal is available).

WMa, Yanyuwa, belongs to the same genetic subgroup as the three languages in WMb (Wagaya, Bularnu and Warluwara) which lack prefixes. There is no doubt that Yanyuwa innovated prefixes on verbs and on nominals rather recently. There are two obvious sources.

Firstly, it is very likely that, as in Warndarrang, the prefix *ma-* for the vegetable class comes from grammaticalisation of the classifier *mayi* ‘vegetable food’. It seems reasonable to assume that an earlier stage of Warndarrang would have had case marking just on the last word of an NP, so that [classifier specific.noun-case] would have developed into [noun.class.prefix-specific.noun-case]. However, we can infer that in an earlier stage of Yanyuwa, case marking went on to each word in an NP. From [classifier-case.suffix specific.noun-case.suffix] has evolved the modern system (for class 3) of [[noun.class.prefix-case.prefix]-specific.noun-case.suffix].

Case marking on nominals is retained in Yanyuwa. On disyllabic nouns it is basically (with some assimilations): *-wu* for dative, *-ngu* for ergative and *-nga* for locative. The original classifier plus case has fused together as one portmanteau prefix on nouns, by a series of shortenings and assimilations:

	classifier <i>mayi</i>		noun class plus case prefix	
	plus case			
absolutive	<i>mayi</i>	>	<i>ma-</i>	
dative	<i>mayi-wu</i>	>	<i>ma-wu</i>	> <i>mu-</i>
ergative	<i>mayi-ngu</i>	>	<i>ma-ngu</i>	> <i>mungu-</i>

And then locative (originally **mayi-nga*) fell together with ergative, i.e. the contrast between these two cases was neutralised in nominal prefixes (although retained in nominal suffixes). The class 4 prefixes show similarities to the class 3 forms, and may well have developed from a language-particular classifier (whose form may have included *-ana-*).

The second source for noun class prefixes in Yanyuwa is from gender-based free pronouns. Under (a) in §10.3 we surveyed reflexes of the 3sgm and 3sgf forms found across an eastern region. Proto-WM forms **yu(wa)* for m and **yan* for f relate to original forms **nhu-* and **nhan-* respectively. The 3sgm form *yuwa* has become *yiwa* through assimilation. The 3sgf form *yan* has lost the initial y (a recurrent historical change in Yanyuwa). In the final column of (39) the dative free pronoun is root *an-* plus dative suffix *-gu*. In four of the other columns the form is *-anda-*, involving root *an-* plus a suffix *-da* which cannot at present be explained.

The interesting feature of (39) is the difference in form of prefixes for classes 1a, 1b and 2. For class 1a the A and O prefixes to verbs can be explained in terms of **yi-* plus ergative *-lu* and **ya-* plus accusative *-nja*. The nominal absolutive prefix *nja-* is hard to explain in the present state of knowledge. The oblique nominal prefix *nju-* is likely to come from neutralisation, under phonological reduction, of dative **nja-wu-* > *nju-* and ergative **nja-ngu-* > *nju-*. Class 1b oblique prefix on nominals, *dji-*, must have some quite different origin, that has not yet been traced. Class 2 has rather different forms for its prefixes, *-anda-* and *-arra-/ay-*. These may be phonologically related (through an alternation *d ~ rr*) or they may be a combination of forms from different sources.

Examination of the noun class prefixes in Yanyuwa illustrates a number of points. The first is that these must have come from a variety of sources, only some of which can be identified; indeed a single noun class (class 2 here) may well combine prefixes from different sources. The fact that only prefixes for classes 3 and 4 show a difference between dative and ergative/locative (and include a clear reflex of the ergative case suffix *-ngu*) is an indication that classes 3 and 4 are likely to have evolved from a different source to classes 1a, 1b and 2. The second point is that there has plainly been a good deal of phonological change and fusion in the development of this synthetic word structure, as there

has been throughout the development of a prefixing profile in groups NB–NL and WMa. The final point is that we cannot – in the present state of knowledge – provide more than a partial explanation for the forms involved in marking noun classes.

(c) *The NBc subgroup.* NBc1, Rembarrnga, and NBc2, Ngalakan, show many formal similarities and plainly make up one low-level subgroup. Only Ngalakan has a system of noun classes, marked on all words within an NP and also on bound pronouns to the verb. Rembarrnga lacks noun classes but it does have gender prefixes to clan names and to some kinship terms, and gender-based 3sg free pronouns. We can first present the forms involved, in (40) and (41).

(40) Noun class prefixes in NBc2, Ngalakan (Merlan 1983: 37, 87–8, 71)

class		prefixes to nouns, bound		free pronouns (full forms)
		adjectives and demonstratives	pronominal prefixes to verb	
1	f, etc.	dju(gu)- ~ $\emptyset$	$\emptyset$	dji-njdja?
2	m, etc.	rnu(gu)- ~ $\emptyset$		
3	vegetables, etc.	mu(ngu)- ~ $\emptyset$	mu- ~ $\emptyset$ } gu- ~ $\emptyset$	rni-njdja?
4	others	gu(ngu)- ~ $\emptyset$		

Note that f and m prefixes *dju-* and *rnu-* are also used with subsection and kin terms.

(41) Gender forms in NBc1, Rembarrnga (McKay 1975: 73–4, 100, 105)

	prefixes to clan names	prefixes to some kin terms	3sg dative free pronoun	3sg cardinal free pronoun
f	η al(ik)-	ta-	η atə	η atji?tanta ~ η ayi?tanta
m	na(yik)-	$\emptyset$ -	nawə	ni?tanta

It will be seen that the gender forms of free pronouns and prefixes to clan names in Rembarrnga reflect the recurrent forms f * η a(l) and m *na surveyed under (b) in §10.3. However, the f gender prefix to kin terms, *ta-*, is quite different. Ngalakan shows no trace of a η al- f form. It is possible that Rembarrnga f prefix to kin terms, *ta-*, is cognate with Ngalakan f prefix *dju-* and/or that the Ngalakan m prefix *rnu-* is cognate with the 3sgm form *na-* in Rembarrnga; but in each instance the forms are rather different and these suggestions must be regarded as speculative.

It is most likely that proto-NBc lacked noun classes. Rembarrnga's neighbours include Y, the Yolngu subgroup, to the east, and NBe, Dalabon, to the west, neither of which has noun classes; it has thus not come under areal pressure to develop this category. Ngalakan also borders Dalabon but all its other neighbours (NBd, NBb, NBm and NBh) do have noun classes and it is undoubtedly because of this diffusional pressure that it has innovated the grammatical category. Concerning the origin of the prefixal forms in (40) I have no firm hypothesis.

This illustrates the relatively late development of noun class systems in the prefixing area. In the present example, the category developed in Ngalakan after its genetic split from Rembarrnga. There is a similar example in subgroup NBI where NBI2, Wardaman, has three noun classes (animate, flora and others) while there are no noun classes in the closely related language NBI1, Wagiman, although Wagiman does have gender prefixes *m na-* and *f gal-* to kin terms. Neither of these languages has gender in free pronouns, and the noun classes in Wardaman are not marked on free or bound pronouns. The emerging noun classes in Wardaman must be an innovation since its genetic split from Wagiman.

(d) *NC, the Mindi subgroup.* These five, genetically related languages are spoken in two geographical regions. As described at the end of §9.1, NCa, the Western Mindi branch, has pronominal prefixes to simple verbs but in NCb, Eastern Mindi, the original simple verb constituent has become an enclitic to the erstwhile coverb with the languages moving towards a structural profile typical of suffixing languages. In fact NCa has prefixing languages bordering it on three sides, while NCb has non-prefixing languages on three sides – it is plainly due to this diffusional pressure from non-prefixing languages that the NCb branch has moved away from a prototypical prefixing profile.

Noun classes undoubtedly developed at a later stage than verbal prefixes in NC, as in other groups. There are no noun classes at all in NCa1, Djamindjung/Ngaliwuru. They are present in the other four languages but marked entirely by prefixes in NCa2, Nungali, and by suffixes to nouns and adjectives and prefixes to demonstratives in the NCb languages, Djingulu, Ngarnga and Wambaya. Each language has four noun classes, basically *m*, *f*, edible and neuter (see the account of the semantics of noun classes in Djingulu at the beginning of §10.6.3). In all the languages, noun class prefixes and suffixes are fused with case.

There is a fair degree of allomorphic variation. However, we can examine similarities and differences by comparing Bolt, Hoddinott and Kofod's (1971b: 63–90) forms for NCa2 with those given by Nordlinger (1998: 65, 108) for NCb3, Wambaya. Just the affixes for absolutive case (*S* and *O* functions) are given, in (42).

(42) Noun class affixes in NC languages, for absolutive case			
	in NCa2, Nungali		in NCb3, Wambaya
	prefixes to nouns, adjectives and demonstratives		suffixes to nouns and adjectives prefixes to demonstratives
1	<i>m</i>	<i>di-</i>	<i>-dji, -yi, -i</i>
2	<i>f</i>	<i>nja-</i>	<i>-rna, -nja, -ŋa, -rda, -rra</i>
3	vegetable	<i>ma-</i>	<i>-ma</i>
4	neuter	<i>nu-, ni-</i>	<i>-a, -dja, -ga, -wa</i>

There is enough formal similarity to suggest that a significant proportion of these class/case affixes are likely to be genetically related.

The question now is how the eastern languages came to have class/case suffixes to nominals but prefixes to demonstratives while the western language, Nungali, has entirely prefixes. Nordlinger (1998: 258–64) summarises the full data (of which only a sample is included in (42)) and the various hypotheses that have been put forward. Perhaps the most plausible is that suggested by I. Green (1995), who suggests that there may have been a number of distinguishable stages:

- (i) There would have first developed a marker that combined information about noun class and about case (possibly from an earlier classifier plus case). This would have been a separate word, or perhaps a clitic attached to some word in the NP.
- (ii) These markers then attached to demonstratives, as prefixes.
- (iii) At a later stage, in the NCb branch the class/case markers became enclitics to an NP and then suffixes. They then became obligatory suffixes to both nouns and adjectives. In NCa2, Nungali, the class/case markers became proclitics to an NP, and then prefixes to a nominal modifier, i.e. an adjective (being later generalised to apply to some – but not all – nouns).

These remarks are essentially tentative. The topic is deserving of further study.

(e) *NH, the Daly group*. Most languages in NH, the Daly River areal group, have classifiers. In NHd1, Murrinh-patha, there are ten classifiers; these cover most – but not all – nouns, with some overlap. A classifier occurs just once in an NP; for example:

- (43) NHd1, Murrinh-patha (Walsh 1997: 273)
- | | | | | |
|-----------------|------|---------|-----------|---------|
| ku | were | murntak | perrkenku | ɲay |
| ANIMATE | dog | old | two | 1sgPOSS |
| my two old dogs | | | | |

Note that the classifier *ku* is used for non-human animates and also for non-Aboriginal people (the classifier *kardu* is used for Aboriginal people, and spirits). There is no agreement involved in Murrinh-patha and so, on the criterion followed here, this language does not have a system of noun classes.

All of the classifiers in Murrinh-patha are free forms, although four of them are monosyllabic (including *mi* ‘flowers and fruits of plants and any vegetable foods; also faeces’, which is probably a reflex of *mayi*). The nearby language NHB2, Marrithiyel, has fourteen classifiers – eight of them are separate words, three are prefixes or pro-

clitics (prefixes if monosyllabic and proclitics if polysyllabic) while three can be either words or prefixes (I. Green 1997: 230):

edible plant (produce)	miyi-	or	mi-
lower animate, flesh food	awu-	or	a-
trees, manufactured things	thawurr-	or	tharr-

This is in one respect a typical classifier system in that it does not cover the entire class of nominals; many nouns do not occur with a classifier.

A classifier will generally precede the specific noun. And it may be repeated before a following modifier; I. Green (1997: 246) states that it will often be repeated before an adjective or quantifier and is occasionally repeated before a demonstrative, numeral or possessive pronoun. Thus:

(44) NHb2, Marrithiyel (Green 1997: 246)

wudi thusru wudi furrburr wudi gati
 WATER froth WATER cold WATER good
 a good cold beer (wudi thusru 'WATER froth' is the normal way of
 referring to beer)

The inclusion of the classifier *wudi* 'liquid (excluding bodily fluids)' three times in one NP is a kind of agreement. It could in time develop into an obligatory grammatical system. Marrithiyel thus provides an example of a set of classifiers that appear to be on their way to developing into a system of noun classes.

This diachronic development has been taken a stage further in Marrithiyel's neighbour NHd2, Ngan.gi-tjemerri. There are here fifteen classifiers, six existing only as a free word, five only as a prefix/proclitic, and four either as a free word or as a prefix/proclitic (three of these are cognate with the forms given above for Marrithiyel). Classifiers are normally obligatory before nouns, and optional before noun modifiers of all types.

At first mention within discourse, Ngan.gi-tjemerri generally employs classifier plus specific noun. At later instances the classifier will be retained with the specific noun omitted; the NP can then consist of classifier plus modifier. Reid (1997: 215–18) suggests that the fact that a modifier could be preceded by a classifier when used with no specific noun would then have been generalised so that a classifier would be included before a modifier even when there was a specific noun present, in NPs similar to (44). This could be the mechanism by which agreement develops, with a set of classifiers evolving into an embryonic system of noun classes. Reid also describes how some – but not all – of the classifiers have reduced to monosyllabic forms, becoming first proclitics and then prefixes.

One feature which suggests that Ngan.gi-tjemerri could be regarded as having a system of noun classes is the fact that the classifier/noun class prefixes fulfil an important role in the grammar. They can be attached to a simple noun or to a complex noun,

e.g. *wa-[de-pi kerre]* ('MALE-[BODYPART-head big]') 'boss'. Or to a complete clause, which is thereby marked as a relative clause, as in:

(45) NHd2, Ngan.gi-tjemerri (Reid 1997: 207)

wa-[kultji	mengenj-nin]	nem-ninigi	menj-ŋiti
MALE-[evening	3sgS+arrive-1du.incO]	3sgm-AGENT	3sgS+say-1sg+DAT
The man who came to us last night, he told me			

10.6.7 *Loss*

There is constant ebb and flow within the Australian linguistic area. A language may gain a certain grammatical category or structural profile due to diffusion from its neighbours in one direction and, at a later stage, lose it due to diffusional pressure from neighbouring languages in another direction. Proto-WM was entirely suffixing, a profile that is maintained by the WMb branch, surrounded by non-prefixing languages. But WMa, Yanyuwa, is now in contact with prefixing languages of group NB and has – rather recently – developed prefixing on both nouns and verbs. Proto-NC had a typical prefixing profile that is maintained in the NCa branch, which has other prefixing languages on three sides. However, the NCb branch has non-prefixing languages on three sides and is moving towards a structural profile more typical of the non-prefixing area with noun class/case markers as suffixes to nouns and adjectives and what were pronominal prefixes to simple verbs now being reanalysed as pronominal enclitics to coverbs (or to the first constituent in the class). The NE subgroup is mildly prefixing, with bound pronominal prefixes to the verb for S and A functions (but enclitics for O function). NE2, Baardi, has bound pronominal prefixes on body part nouns but NE1, Njigina – which is adjacent to non-prefixing languages – has lost these and now has no prefixes at all on nouns and adjectives.

Noun classes have, by and large, been evolving during recent times, mostly on an areal basis. But there is also some evidence for their loss, due to areal diffusion. In §10.6.4 we saw how one dialect of NBg1, Gunwinjgu, maintains this language's original system of four noun classes, marked by agreement on adjectives and demonstratives, and also by the noun class prefixes attached to some nouns in each class. However, the Gundjeihmi dialect has, in agreement, merged the two inanimate classes and now has just three noun classes, the same as in the adjacent dialect of NBh1, Jawoyn. And the Kune dialect of NBg1 has generalised the unmarked *m* prefix for all agreement on modifiers, effectively losing the noun class system (except as a prefixal relic on some nouns). Kune has become like its neighbours NBe, Dalabon, and NBc1, Rembarrnga, which lack a system of noun classes.

Note that loans are generally taken over together with their noun class prefix. For example *manberrk* 'inland country' in NBf2, Gurrgoni, is undoubtedly a loan from

man-berrk 'lowland slopes' in the neighbouring language NBg1, Gunwinjgu (where *man-* is a noun class prefix). The fact that stress is on the first syllable of the word in Gurrgoni shows that the *man-* is not treated as a prefix here (Gurrgoni places stress on the first syllable of a root). Gurrgoni has its own system of four noun classes but borrows lexemes from other languages that include a noun class prefix to be monomorphemic forms in Gurrgoni (Rebecca Green, p.c.). Languages which lack noun classes – such as Dalabon and Rembarrnga – do have a handful of nouns whose initial syllable could be the relic of a noun class prefix. But these are most likely to be loans from a neighbouring language, which has noun classes, rather than the relics of earlier noun class systems in the languages themselves.

NKa1, Mawung, and NKa2, Iwaydja, have many cognate forms and are clearly genetically related. Mawung has a system of five noun classes but these are missing from Iwaydja. It seems likely that Mawung maintains the noun class system from proto-NKa, which has been lost by Iwaydja (this language's neighbours also lack noun classes). There is, however, a relic of noun class marking in the verbal morphology of Iwaydja. In Iwaydja there are two sets of verbs with irregular pronominal prefixes. One of them takes prefixes which include *-aŋ-* when the O is 3sg. In fact this prefix paradigm appears to be cognate with that in Mawung for when the O belongs to noun class 4, marked by *-aŋ-*. This class in Mawung is related to 'the ground and associated objects' and many of the set of irregular verbs in Iwaydja do relate to the ground, e.g. 'sweep', 'live on land'. The second set of irregular verbs in Iwaydja has pronominal prefixes cognate with those in Mawung for when the O argument is class 5, relating to 'plants and wooden objects'; in this case the Iwaydja verbs ('eat meat', 'keep away', 'lead on a rope' etc.) do not show any semantic link to the Mawung class. (Iwaydja data are from Pym and Larrimore 1979: 88–90; Mawung data from Capell and Hinch 1970: 50–2, 75–7.) In summary, it does seem likely that proto-NKa had a system of noun classes marked on nominal modifiers and in S/O bound pronominal prefixes to the verb. The system has been lost in Iwaydja, but there is a relic in old class 4 – and perhaps also class 5 – forms maintained just in the O prefixes to some verbs.

NBh1, Jawoyn, and NBh2, Warray, are neighbouring languages but with such different forms that there is little evidence for a close genetic relationship. They do, however, have systems of noun classes which are similar both in semantics and in marking (Harvey 1997b: 151), suggesting that the entire system (including prefixes) may have been borrowed from one language to the other or else may have evolved on an areal basis, in the NBh group. Both languages now appear to be in the process of losing noun classes. One dialect of Jawoyn has four classes but another dialect has just three, as does Warray. Harvey (1997b: 153) says 'it appears that there is a drift in Warray towards the class prefixes forming part of the lexical entries for adjectives and

quantifiers’, i.e. no longer being recognisable as prefixes. He suggests that NBi, Gun-garakanj, NHe2, Kamu, and NB11, Wagiman, may be losing noun classes in a similar manner. But the fact that some lexemes in these languages begin with what looks like an old noun class prefixal syllable may simply be an indication that they are loans from a language with noun classes (see also Sands 1995: 256). This is a matter de-serving of detailed study.

Schmidt (1985: 150–66) describes the gradual loss of the original noun class system from H1, Dyirbal, during the process of language death. The traditional system (outlined in §10.4) has been replaced by three classes, corresponding exactly to the semantically based pronouns in English, *he*, *she* and *it*.

10.7 **Noun classes and case marking**

There are about nine languages which combine specification of noun class with in-formation about case in a single portmanteau affix.

Of the languages which employ prefixes, there are two which have one form for A and S and another for O function. In an eastern dialect of NBh1, Jawoyn, just one noun class has case-sensitive prefixes, shown in (46).

(46) NBh1, eastern dialect of Jawoyn (Merlan p.c.)

class		nominative (AS)	accusative (O)
1	m, animate	<u>rna-</u>	<u>rna-n-</u>
2	f	ŋal-	
3	body parts, topography	ŋan-	
4	residue	ø	

(Note that class 3 is distinguished only in the Lhetburirt dialect; other dialects have just three noun classes.)

NBa, Mangarrayi, has a nominative(AS)/accusative(O) system for f and m classes but an absolutive(SO)/ergative(A) system for the third, neuter, noun class:

(47) NBa, Mangarrayi (Merlan 1982a: 57)

		function		
class		A	S	O
1	f	ŋarla		ŋan-
2	m	rna-		ø
3	neuter	rna-	ø	

It will be seen that classes 2 and 3 fall together in O function, both with zero prefix, and in A function, both with prefix *rna-*.

Interestingly, speakers of the dialect of Jawoyn represented in (46) have had considerable contact with speakers of Mangarrayi; Merlan (p.c.) suggests that the paradigm in (46) may be due to influence from Mangarrayi.

All the other languages with a case/class association function on an absolutive-type pattern, with one form for S and O functions and another for A (often also covering peripheral functions). The prefixal forms in WMa, Yanyuwa, were illustrated at (39) in §10.6.6. NBb1, Marra, has three noun classes, with neutralisation of feminine and neuter in absolutive functions (there are also du and pl human prefixes, which have different forms in the two columns).

(48) NBb1, Marra (Heath 1981a: 71)

class		function	
		absolutive (SO)	oblique (all else)
1	m, etc.	∅	rna-
2	f, etc.	n-	{ ya-
3	most body parts, etc. }		{ nja-

NBm, Alawa, also has absolutive/oblique prefixal forms for its two noun classes, m and f (Sharpe 1972: 64).

In subgroup NC all languages (save for NCa1) have portmanteau affixes marking noun class plus syntactic function. NCa2, Nungali, employs prefixes and there are distinct forms – in each of the four noun classes – for (i) absolutive (SO); (ii) ergative (A)/instrumental/locative; and (iii) dative/purposive/genitive. The three languages of the NCb branch have a similar system, but as suffixes.

Under (iii) in §10.4 we looked at the portmanteau suffixes to nouns for case and gender in the non-prefixing language WAc1, Wangkumara. These are transparent reductions of the case-forms of gender-specifying 3sg free pronouns. Under (d) in §10.6.6 I suggested that in the NC subgroup there was originally a marker that combined information about noun class and case (it then developed into a prefix in NCa2 and into a suffix in NCb). The m and f forms of this may have come from 3sg pronouns (appropriately marked for case) as may the portmanteau affixes in some of the other languages mentioned here. Or there could be some other source, or sources; this is another matter deserving of further study.

10.7.1 *The loss of case marking*

A basic hypothesis underlying this volume is that Australian languages were originally dependent marking, with the syntactic function of a predicate argument shown by a case affix (or clitic) on the NP expressing that argument. There has been a steady development towards a head-marking profile, where information about the syntactic function of core arguments is largely given by bound pronominals to the verb (the head of the clause).

Bound pronominal systems are of two kinds. The first gives just person and number information, with no specification of noun class. The second kind also marks noun classes, for at least some syntactic functions (as summarised in §10.6.2). In the second kind there is substantive information within the verb to enable one often to identify the syntactic function of nominal arguments. For example, in ‘boy girl 3sgmO-3sgfA-see’ we can infer that it is the girl who sees the boy since the verb indicates that the A is f and the O is m. In the first kind there is less information, e.g. in ‘boy girl 3sgO-3sgA-see’ the lack of specification of gender in bound pronouns leaves unclear whether the boy saw the girl or the girl saw the boy (assuming that, as in most Australian languages, constituent order is fairly free).

We would thus expect that in languages with head marking and bound pronominals of the second kind (including specification of noun class) there would be a tendency to lose dependent marking, i.e. to drop case marking on NPs that served to distinguish between the core syntactic functions A and O. But that in languages with bound pronouns of the first kind (lacking noun class specification) there would be a tendency to retain dependent marking. This is what is found in the prefixing languages of Australia – but note that it is just a tendency, not a strict correlation.

We can now survey the various types.

(a) *Prefixing languages with no noun classes.* As a rule these maintain dependent marking, generally an ergative case for A function (or something similar). This applies to NBc1, NBe, NB11, NCa1, NE, NF and the languages of group NH which do not have noun classes (note that all NH languages excepting NHa have an ergative case, whether or not there is anything recognisable as a system of noun classes).

There are three languages with no noun classes and no case marking for core functions – NBI, Gungarakanj, Nka2, Iwaydja, and NKb, Amurdag. In §10.6.7 we saw that Iwaydja probably lost its system of noun classes (which would have been marked on S/O bound pronominals) rather recently; the same may well apply for Amurdag. Until recently these languages would have been in set A of table 10.7. As a follow-up to their having lost noun class marking we would expect that, at some time in the future, they might well evolve a system of case marking for core functions. Data are only partial on Iwaydja, Amurdag and Gungarakanj and no information is available as to how the syntactic function of an argument is shown in these languages. We can only surmise that it may be indicated by constituent order or that a clause with third person A and O arguments may simply be ambiguous (like the set H languages in table 10.7).

(b) *Prefixing languages with noun classes.* Table 10.7 illustrates the possibilities involved. Most languages fall into one of sets A–D, where syntactic function is marked either on the verb or on NPs but not on both. Languages of set A are entirely head marking (where the pronominal affixes include information on noun classes) while

Table 10.7 Head and dependent marking for A, S and O functions in prefixing languages with noun classes

set	on verb	on NPs			
	noun class marking on bound pronominal affixes/clitics	case suffixes	portmanteau case/noun class suffixes	portmanteau case/noun class prefixes	
A	yes	—	—	—	NBd2–3, NBf, NBk, ND, NG, Nib1, Nic, NKa1, NL
B	—	yes	—	—	NBh2, NBl2, NHb2, NHd2, NIa
C	—	—	—	yes	NBa, NBb1, NBh1
D	—	yes	—	yes	NCa2
E	yes	yes	—	—	NBc2, NBd1, NHa, Nib2
F	yes	yes	—	yes	WMa, NBm
G	yes	—	yes	—	NCb
H	—	—	—	—	NBb2, NBg

those of sets B–D retain dependent marking (since the head marking does not extend to information about noun classes). Languages in sets A and E–G, with noun classes shown on bound pronouns, are indicated with hatching on map 10.1.

NCa2, Nungali, the sole language in set D, has two mechanisms for dependent marking but in fact these are in complementary distribution. Most nominals take the portmanteau case-plus-noun-class prefixes. Some do not (and these are mostly loans, many from NCa1, Djamindjung/Ngaliwuru) and these take case suffixes, including ergative *-ni*.

Languages in sets E–G show both head marking (including noun class specification) and dependent marking. This redundancy is worth closer examination in each language in which it occurs.

- NBc2, Ngalakan, has four noun classes marked in NPs but in pronominal prefixes to verbs the m and f class fall together – see (40) in §10.6.6. There is thus only limited information on verbal arguments coded within the verb. As mentioned in §10.6.6, it is most likely that proto-NBc lacked noun classes, as does NBc1, Rembarnga, today. Like Rembarnga, Ngalakan retains an ergative suffix *-yi?*. Noun classes are plainly a recent development in Ngalakan; if they developed further – especially in bound pronominals – we might expect the ergative suffix to drop out of use (at present it is occasionally omitted – Merlan 1983: 42).

- NBd1, Ngandi, has an ergative suffix *-dhu* which Heath (1978a: 75–7) shows to have been borrowed from its northerly neighbour Ya3, Ritharngu. Before this loan took place Ngandi would presumably have been in set A.
- NHa, Patjtjamalh, has only two noun classes, m and f, and thus codes into the verb less information about nominal arguments than do most languages in set A.
- NIb2, Wuna, has four noun classes. It does retain an ergative case suffix, *-dje*, but this appears – from the slim data available – to be used only rather rarely.
- WMa, Yanyuwa, has six noun classes, marked on NPs and on bound pronominals, plus a full system of case suffixes. But the development of a head-marking profile, and of noun classes, must have taken place recently – these are not in the WMb branch, Yanyuwa's close genetic relatives, and in fact Yanyuwa is on the fringe of the diffusional region for head marking and for noun classes. Given more time, we would expect the case suffixes for core arguments to drop out of use.
- NBm, Alawa, is like Patjtjamalh in having just two noun classes (m and f) and its bound pronominals thus include less information about argument identification than most other languages with noun classes, which generally have around four choices.
- Two of the three languages in the NCb branch (NCb1, Djingulu, and NCb3, Wambaya) have only f/m marking in A bound pronouns – with no noun classes marked on S and O bound pronouns – as against four noun classes on nominals. In view of the minimal information on the nature of third person core arguments provided in the verb it is not surprising that case marking is retained. NCb2, Ngarnga, marks the four noun classes in S bound pronouns but again none in the O series; it still requires an ergative case marker, to distinguish what is in A function from what is in O function.

The three languages in set H lack noun class specification within their head-marking system and also lack dependent marking for core syntactic functions. For NDb2, Warrarrang, Heath (1980b: 90) states that the most common constituent order in a transitive clause is AOV. For NBg2, Gunbarlang, Coleman (1982: 21) mentions orders AVO and AOV, stating that 'the first NP which occurs in a clause always denotes the subject'. For NBg1, Gunwinjgu, Oates (1964: 75–6) states that the most usual order is AVO. However, discussing the same language, Evans (1991: 299) maintains that any order of clause constituents is possible, so that a sentence like (49) is considered by speakers to be ambiguous.

(49) NBg1, Mayali (Evans 1991: 299)

na-marnde	bi-baye-ŋ	ginga
CLASS.1-devil	3A+3O-bite-PAST.PERFECTIVE	crocodile
<i>either:</i> The devil bit the crocodile		
<i>or:</i> The crocodile bit the devil		

It appears that the hearer's interpretation of what is A and what is O (when both are third person) in a language of set H will be determined mainly by contextual information, including what has already happened in the discourse. Constituent order may play some role in disambiguation in some languages; this remains to be more fully investigated.

10.8 Summary

I began this chapter by noting that just as a speaker of an Australian language will tend to employ one of a small set of simple verbs, each with a general meaning, and only when necessary add a coverb that provides greater specificity of meaning, so there is a tendency to employ one of a limited set of generic nouns, and only add a specific noun when the context of communication requires more particular statement of meaning. I contrasted the situation when a generic noun is prior, and can be further elucidated by a specifier noun, with that when a specific noun is prior, and determines a classifier that may occur with it or replace it in certain grammatical contexts. It can, in fact, be hard to distinguish between generic-noun-plus-specifier and classifier-plus-specific-noun systems, especially in the case of languages on which there is limited information.

§10.2 surveyed the feminine suffix *-gan* which is found on a limited set of nouns in some eastern languages; it has become a part-source for the noun class system in Mf, Bandjalang (and possibly also in H1, Dyirbal). In §10.3 we surveyed the recurrent gender forms of 3sg free pronouns – (a) m *nhu-* and f *nhan-* in an eastern area (only in WMa, Yanyuwa, have these been a part-source for noun class prefixes); and (b) m *na* and f *ŋa(l)* in a northern block, entirely within the prefixing area (these have become a part-source for noun class affixes in about seven languages). §10.4 examined the few clear instances of noun class systems in non-prefixing languages.

In most or all of groups NB–NL, prefixing would have begun with the development of bound pronominal prefixes to verbs (marking A and S, or A, S and O arguments); in some languages the only verbal prefixes are pronominal. Prefixing would then have spread to nouns, mainly through the development of noun classes with prefixal marking. We saw in §10.5 that some languages with prefixes to verbs have no prefixes at all on nouns; most of these lack noun classes but a few have noun classes marked by suffixes on NP constituents.

§10.6 then examined the details of noun classes in prefixing languages. These differ in number (from two to eight), in where in the clause they are marked, and in their semantics. Generally, the class of a noun is marked on modifiers to it within its NP – on adjectives, and normally also on demonstratives; class may also be marked on some or all nouns themselves. In most languages noun class is marked just on some interrogatives – just on ‘who’ in one language, just on ‘where’ in another, and so on. In a sizeable minority of languages a single prefixal system includes some terms marking noun classes and others indicating n-sg number for human nouns. A few languages have portmanteau affixes combining information about noun class and about case.

In most noun class systems two of the classes include reference to male humans and to female humans respectively; this distinction is missing from five languages. Just over half the languages have a vegetable food class that is marked by affixes *ma-*, *mi-*, *m-*, *-ma*, *-mi* or *-m* and these probably come from grammaticalisation of the generic noun/classifier *mayi* ‘vegetable food’ (some of the ‘vegetable food’ class affixes may come from another form, something like **mun(a)*). In some noun class systems there is no relative markedness of one class with respect to the others, but in a number of languages there is clear markedness. The prefix of the unmarked inanimate class may be used for agreement with other inanimate classes; and the prefix of the masculine class (the overall unmarked member of the system) may replace all other noun class prefixes for agreement. These optional replacements may in fact become obligatory, leading to the loss of some or all noun class distinctions.

In some languages noun class markers within an NP have been extended to bound pronouns, yielding a system of head marking that provides – on the verb – person, number and noun class information about the core arguments of the clause. In most languages where this has happened, ergative marking on an NP has been lost. That is, the development of comprehensive head marking has led to the loss of dependent marking for core arguments.

Ergative/accusative morphological and syntactic profiles

A pervasive theme of this book is the alternation between ergative and accusative schemes of morphological marking in Australian languages. In this chapter we extend the survey to ergative and accusative strategies for syntactic clause-linking, and investigate the types of correlation between morphological and syntactic characteristics.

It will be seen that while most languages have a mixed strategy for morphological marking, some have moved towards a fully ergative and some towards a fully accusative profile. A number of languages show ergative syntax and a fair number have accusative syntax (there being a degree of correlation between morphological and syntactic profiles) while others appear to lack any ergative or accusative orientation at the syntactic level.

§11.1 recapitulates the kinds of morphological marking systems described in chapters 7, 8 and 10 and outlines the kinds of marking shift for nouns, free pronouns and bound pronouns. §11.2 explains and describes the types of syntactic pivot encountered in Australian languages (including the phenomenon of switch-reference marking). §11.3 deals with antipassive and passive derivations; §11.3.1 discusses the suffix **-dharri*, which is likely to have originally had a semantic effect but has since come to mark detransitivising derivations such as reflexive, reciprocal, passive and antipassive. §11.4 describes a number of shifts in ergative/accusative profile in individual languages. There is a short summary in §11.5.

11.1 Development of morphological marking

In chapters 7, 8 and 10 we surveyed the various types of marking, across the continent, for the syntactic functions of core arguments. Those hypotheses will now be recapitulated from the point of view of the shifting accusative/ergative (ACC/ERG) profiles of the languages.

In §7.5 we described a number of stages in the development of case forms on free pronouns. These are summarised in table 11.1, together with the type of inflection on nouns at each stage. Here ERG is used to indicate A/SO (S and O marked in the same way, differently from A) and ACC to indicate AS/O (A and S marked in the same way,

Table 11.1 *Stages in the development of dependent marking*

stage (from §7.5)	nouns and adjectives	free pronouns	
		sg	n-sg
A	ERG	A/S/O ACC	
B	ERG	ACC	
C-i	ERG	ERG	
C-ii	A/S/O	A/S/O	
C-iii	<none>	<none>	

differently from O). Tripartite marking, with each of A, S and O marked differently, is shown as A/S/O.

We showed, in §§7.5.1-4, the ways in which these various stages developed one out of the other. These are summarised in figure 11.1. (Stage C-iii is found almost exclusively in those fully head-marking prefixing languages which have noun class specified by bound pronominals; it is discussed further below.)

We can now examine which languages at the various stages have bound pronouns, and what their ERG and/or ACC pattern is, recapitulating the discussion in §8.2.3.

Stage A. There are just a few languages at this stage, mostly scattered around the fringe of the continent. Just three of these have developed a full set of bound pronouns. In U1, Yaralde, and V, Baagandji, the bound pronouns are transparent reductions from free forms and maintain the same marking pattern. (WAd, Maljangapa, has a slightly different pattern – see §8.2.3.)

Thus, these languages maintain a split system of functional marking – ERG for nouns and adjectives, ACC for free and bound n-sg pronouns, and A/S/O for free and bound sg pronouns.

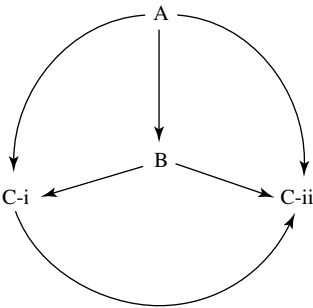


Figure 11.1 Diachronic development between the stages in table 11.1

Stage B. There are many languages at this stage, some without and some with bound pronouns. When there are bound pronouns these follow an ACC pattern, like their free congeners. That is (with ^b indicating the development of bound pronouns):

	nouns, etc.	free pronouns		bound
		sg	n-sg	pronouns
stage A	ERG	<u>A/S/O ACC</u>		<none>
stage B	ERG	ACC		<none>
stage B ^b	ERG	ACC		ACC

Languages at Stage B^b are found amongst the non-prefixing languages with bound pronouns in groups B–N, T, Y, WD, WG, WH, WMb, and the prefixing languages of groups NCb, NHa, NHc. (NBa, Mangarrayi, has fused bound pronouns, ACC inflection on free pronouns, and a mixed system on nouns – ACC for m and f, and ERG for neuter gender.)

These languages have a slightly more accusative profile than those at Stage A: an ACC pattern on free and bound pronouns, and ERG on nouns and adjectives.

Stage C-i. In §7.5.3 it was shown how a language at this Stage can develop either directly from Stage A or through Stage B.

In the first alternative the S form of a sg free pronoun was extended also to cover O function (or vice versa), and this ERG pattern was analogically extended to n-sg free pronouns. That is, both nouns and free pronouns now have an ERG profile.

All the well-attested examples of languages with this origin have bound pronouns. For WBb2, Adnjamathanha, the bound pronouns appear to have developed recently out of free pronouns (that is, at Stage C-i), with similar forms and the same pattern of marking:

	nouns, etc.	free pronouns		bound
		sg	n-sg	pronouns
stage A	ERG	<u>A/S/O ACC</u>		<none>
stage C-i	ERG	ERG		<none>
stage C-i ^b	ERG	ERG		ERG

This language appears to have become fully ergative in its morphological marking. (It is hard to be absolutely certain about this, since a full description of WBb2 has not yet been published. The other two languages from group WB may well pattern in the same way; information on them is slim, and comes almost entirely from nineteenth-century sources.)

WMa, Yanyuwa, is also of this type save that free pronouns only have an SO form; pronominal information about an A argument can only be rendered through use of a bound pronoun.

The second alternative is that a language at Stage C-i may develop through Stage B, with bound pronouns being introduced at that stage:

	nouns, etc.	free pronouns		bound pronouns
		sg	n-sg	
stage A	ERG	A/S/O	ACC	<none>
stage B	ERG	ACC		<none>
stage B ^b	ERG	ACC		ACC
stage B ^b /C-i	ERG	ERG		ACC

That is, bound pronouns developed out of free pronouns at Stage B, on an ACC pattern. In languages where the bound pronoun is obligatory, these provide basic information concerning the person and number of core arguments. Free pronouns tend then to be little used (mostly for emphasis and topicalisation). In this circumstance it is natural for the ERG pattern on nouns and adjectives to be analogised across to also apply to free pronouns (at Stage C-i).

Although we now get ERG in two columns and ACC in just one column, these languages have about the same overall degree of accusativity as those at Stage B – bound pronouns at Stage B^b/C-i carry a functional load similar to that of free pronouns at Stage B.

Languages of Type B^b/C-i include some in groups Pb, W1, WJ and some dialects of WD from the non-prefixing area; plus NE2 and some languages from group NH in the prefixing area. Subgroup NF provides a variant, in that nouns and free pronouns show an ERG pattern but bound pronouns are fused so that neither an ERG nor an ACC profile can be recognised here.

Stage C-ii. This is attested in just a few languages, listed in §7.5.4. None of them show a full set of bound pronouns. These have a consistently tripartite system of function marking (with minor irregularities in some languages).

Stage C-iii from §7.5. This relates to languages that have achieved an entirely head-marking profile, losing case marking on both nouns and free pronouns. In §10.7.1 we saw how in languages with obligatory bound pronouns which include information about noun classes, there is a tendency to lose case marking on NPs, while languages which do not include noun classes in bound pronouns tend to retain dependent marking.

The varieties of bound pronouns in these languages were listed under Types E–G in table 8.2 of §8.2.3. Table 11.2 repeats this, adding information about noun classes. It will be seen that, under Type E, NBc1, Rembarnga, has an entirely ERG profile while NCa, the West Mindi subgroup, and NE1, Njigina, are ERG for free pronouns but ACC for bound ones. The sole language of Type F (NBi, Gungarakanj) is fully ACC. Under G the ACC or ERG profile is shown just by the bound pronouns – NG, NL, NBg2, NHe1 and NKb are ACC, while NBk and NKa are ERG.

Table 11.2 *Reduced systems of case marking (with data on noun classes)*

type (from §8.2.3)	case marking on		bound pronouns	do bound pronouns include noun class?	
	nouns	free pronouns		yes	no
E	ERG	<none>	ACC ERG A/S/O fused	NBc2, NBd1 NBm	NCa, NE1 NBc1 NAb2 NBb1, NBe NBh2
F	<none>	ACC	fused		NBi
G	<none>	<none>	ACC ERG fused	NG, NL NBk, NKa1 NBd2-3, NBf, ND, Nlb1, Nlc	NBg2, NHe1, NKb NKa2 NBb2, NBg1 NBh1

There are two additional sets of languages that have achieved an ACC profile by different means. In §11.4 we briefly discuss the historical developments which have led to five of the eight well-attested languages in group WH, and two of the three well-attested languages in subgroup NA taking on a fully ACC profile at the morphological level (none of these has a full set of bound pronouns).

Stage A was posited as the initial type of morphological marking for syntactic function; this is a mixed ERG/ACC system. It will be seen that, as the result of developments from this, most languages retain some sort of mixed ERG/ACC pattern. In just a few languages changes have produced what appears to be a pure ERG or a pure ACC morphological profile:

- (1) Fully ERG
 - (a) Stage C-i^b – WBb2, Adnjamathanha, and WMa, Yanyuwa;
 - (b) Type E in which bound pronouns have an ERG system – NBc1, Rembarnga;
 - (c) Type G in which bound pronouns have an ERG system – NBk, Gaagudju, and NKa, the Mawung-Iwaydja subgroup.
- (2) Fully ACC
 - (a) Type F – NBi, Gungarakanj;
 - (b) Type G in which bound pronouns have an ACC pattern – NG, the North Kimberley areal group; NL, Tiwi, NBg2, Gunbarlang, NHe1, Matngele, and NKb, Amurdag;
 - (c) Five languages from WH and two from NA.

That is, of the languages for which we have adequate descriptions, there appear to be six which are fully *ERG* and fifteen which are fully *ACC*, at the morphological level. The remainder have mixed *ERG* and *ACC* systems.

11.2 Syntactic pivots

The term ‘topic’ is used for reference to a participant which is present in a number of consecutive clauses in discourse and serves to link them together. In some languages there is grammatical marking as to which predicate argument is topic in a given clause; the term ‘pivot’ is used for such a grammatically specified topic.

The pivot is invariably a core argument. It will be *S* in an intransitive clause and either *A* or *O* (depending on the language) in a transitive clause. That is, a language may have either an *S/A* or an *S/O* pivot. At the morphological level (nominative–)accusative is used to describe a language which treats *S* and *A* in the same way, and *O* differently, and (absolutive–)ergative for a language which treats *S* and *O* in the same way, and *A* differently. These labels are naturally extended to clause linking, so that a language with an *S/A* pivot is described as being ‘syntactically accusative’ and one with an *S/O* pivot as being ‘syntactically ergative’.

Pivot conditions sometimes apply just to the arguments that must be shared between a main clause and a subordinate clause (for example, a relative clause, or a purposive clause). In other languages they apply also to clause coordination (which, in many Australian languages, is marked just by two clauses falling into the same intonation group).

A pivot condition may apply in one of two ways. In its strongest form it may limit the linkage of clauses; for example, in Dyirbal two clauses may only be coordinated – in one intonation group – if they share an argument which is in a pivot function (in this language, *S* or *O*) in each clause. A weaker form of pivot condition may apply not to clause linkage as such, but to the omission of a repeated argument from the second of two linked clauses. Thus in English, one can coordinate clauses which share an argument that is in pivot function (in this language, *S* or *A*) in one clause but in a non-pivot function in the other, for example *John_S came in and Mary_A saw him_O*. However, the second occurrence of a coreferential NP can only be omitted if it is in a pivot function in each clause – we can say *John_S came in and Ø_A saw Mary_O* but not **John_S came in and Mary_A saw Ø_O*.

Many languages (a majority of those in Australia, and also a majority of those across the world) do not have a syntactic pivot. Any pair of clauses can be linked together and any repeated NP may be omitted (whatever its syntactic function) so long as this is pragmatically plausible. Consider a transitive clause with fully specified arguments linked to an intransitive clause with the *S* argument left unspecified. These are translated as:

- (1) ‘John’_A ‘hit’ ‘Tom’_O and Ø_S ‘cried’
- (2) ‘John’_A ‘hit’ ‘Tom’_O and Ø_S ‘laughed’

In a language with no syntactic pivot (a language with what is sometimes said to have a ‘pragmatic pivot’), sentence (1) would generally be interpreted as saying that Tom cried, since anyone who is hit is likely to be hurt and, as a consequence, cry. In contrast, (2) would generally be interpreted as saying that John laughed since a person who is hit (here, Tom) is unlikely to laugh. However, in a language with an S/O pivot – such as Dyirbal – it is Tom who both cries in (1) and laughs in (2), whereas in a language with an S/A pivot – such as English – it is John who cries in (1) and laughs in (2).

Some languages have a strict S/O pivot while others have a strict S/A pivot. In addition, there are a few languages with mixed pivot. For instance, the Austronesian language Tongan has an S/A pivot for clauses linked by *mo* ‘and (simultaneously)’; but an S/O pivot for clauses linked by *ʔo* ‘as a result’ – see Dixon (1994: 176).

There are a number of other syntactic operations which link together S and O, or S and A, but the great majority of them are language-universal and thus do not serve to characterise a language in which they occur as syntactically ergative or accusative. For example, noun incorporation generally relates just to an argument that was in S or O function; see §9.3 above. In imperatives, S and A are treated in the same way – in their person/number possibilities and in omissibility; see §3.3.9 above. (There is discussion of universal S/O and S/A associations in Dixon 1994: 84–5, 131–42.) Within Australian languages (as in most or all other languages) the syntactic profile of a language as accusative or ergative (or a mixture of these) relates only to constraints on the functions of a shared argument in clause linkage.

We can now look in turn at various varieties of Australian languages: those with no syntactic pivot, those with an S/O pivot, those with an S/A pivot, and one language with mixed pivots. We then briefly look at languages with switch-reference marking, which is another manifestation of accusative syntax.

(a) *Languages with no syntactic pivot.* Syntactic pivots are predominantly found in dependent-marking languages – in Australia, as elsewhere in the world. In a head-marking language each predicate includes information about (always some, generally all) core arguments. An NP in core function may be freely omitted and the topic continuity of the discourse is maintained through the obligatory bound pronominal forms in the predicate. In an entirely dependent-marking language core arguments are expressed only through NPs. If an NP is omitted by the speaker its identity and function should be retrievable by a hearer, in order to understand what is being said. If an NP is omitted from a language with an S/A pivot we know that it must be coreferential with a stated NP which is in S or A function in a preceding clause. Similarly, *mutatis mutandis*, for a language with an S/O pivot.

Many grammars of Australian languages do not mention a syntactic pivot, or the lack of one. It is possible to make inferences on this matter through examining complex

sentence examples quoted in a given grammar, but one can never, in this way, be certain of what the situation is. Only a few grammars do state that there is a pivot – and of what type and applicable in which circumstances – or that there is no syntactic pivot.

It appears that, as would be expected, none of the prefixing languages (all with obligatory bound pronouns attached to the verb) have a syntactic pivot. For NE1, Yawuru, Hosokawa (1991: 464) states ‘whether or not the matrix and subordinate subjects are co-referential in the purposive construction is totally dependent on context. Different subjecthood may be explicitly monitored by the different subject prefixing’. And for NG2, Ungarinjin, Rumsey (1982a: 148–9) reports that “relativisation” by means of *-ɲari* is not sensitive to the syntactic function of the relativised NP in the matrix sentence, nor to that of its coreferential counterpart in the *-ɲari* clause, nor to the relationship between the two . . . I point all of this out because Ungarinjin differs sharply in this regard from other Australian languages, such as Dyirbal . . . Yidinj . . . and Ngayamil [sic] . . . which restrict relativisation to NPs in certain (derived) case functions.’

Other prefixing languages for which the data clearly indicate that there is no syntactic pivot include NL, Tiwi (Osborne 1974: 70ff), and NKa1, Mawung (Capell and Hinch 1970: 100ff).

Quite a number of non-prefixing languages also appear to lack any clear syntactic pivot. These include Nc1, Yuwaaliyaay (Williams 1980: 113ff) – which does have some bound pronominal enclitics – and Eb1, Yir-Yoront (Alpher 1991: 56), F, Kuku-Yalanji (Patz 1982: 262–86), and WGa2, Parti-maya (Dunn 1988: 122) – which lack bound pronouns.

A point of special interest concerns the syntactic orientation (or lack of it) in those languages which have a fully *ERG* or a fully *ACC* morphology, as listed at the end of §11.1.

Eight of the languages given as fully accusative at the morphological level are in the prefixing area, with obligatory bound pronouns. I have just quoted reliable grammars of NE1, Yawuru, and of NG2, Ungarinjin, stating that these languages have no syntactic pivot. There is no clear information on the other languages (NB1, NG1, NG3, NBg2, NHe1 and NKb) but it is likely that, as head-marking languages, they also lack a syntactic pivot. On the information available at least some of the non-prefixing languages in WH and NA, which have entirely accusative morphology, do show an S/A pivot – see (c) below.

Of the six languages quoted as fully *ERG* at the morphological level, four (NBc1, NBk and NKa1/2) are prefixing and fully head marking. As mentioned above, the data available on NKa1, Mawung, indicates that there is no syntactic pivot; we are lacking explicit, relevant information for the other three languages but it is rather unlikely that they will have a syntactic pivot. WMa, Yanyuwa, is also prefixing and head marking but here the bound pronouns have developed rather recently; there is again no infor-

mation concerning syntactic constraints on clause linking. For WBb2, Adnjamathanha, Schebeck (1976b: 534–44) provides some information suggesting, surprisingly, that the language may have an S/A pivot; however, his remarks are tentative, and the matter requires further study.

We can now survey those languages which have an S/O or S/A pivot. Apart from those in groups WH and NA, which are fully ACC at the morphological level, the languages with a clear pivot fall into that large class of languages which have a mixed ERG/ACC morphological profile.

(b) *Languages with an S/O syntactic pivot.* The best-known example of this is H1, Dyirbal, where two clauses may only be conjoined (forming one intonation group, and then omitting the second occurrence of a shared argument) if they have a shared argument and it is in S or O function in each clause. In a relative clause construction the argument that is common to main and relative clauses must be in S or O function in the relative clause. If a common argument is in underlying A form, then the antipassive derivation has to be applied, to bring it into derived S function. These characteristics of Dyirbal are well known and have often been described in print, both by me (for example, Dixon 1972; 1994: 9–16, 160–72) and by a range of other scholars (based on these publications). In view of this, the S/O pivot will here be illustrated from Mf, Bandjalang.

Crowley (1978: 78, 91, 109f) describes how, in the Waalubal dialect of Bandjalang, all pronouns except 1n-sg have different forms for A, S and O functions, e.g. 1sg is S, *ḡay*; A, *ḡadju*; O, *ḡanji*. 1n-sg has an ACC and nouns basically an ERG paradigm. Two clauses can be straightforwardly linked together if they share an argument which is either (i) in the same function (A, S or O) in each clause; or (ii) in S function in one clause and O in the other. If the common argument is in S or O function in one clause and A in the other, the antipassive derivation must be applied, placing the underlying A argument into derived S function.

The antipassive derivation in Bandjalang works as follows:

- the verb takes derivation suffix *-li-*;
- the underlying A NP goes into S function;
- the underlying O NP generally retains its (zero) marking but, if it is a pronoun, may add suffix *-bu* ‘back’ (or may be omitted, see Geytenbeek and Geytenbeek 1971: 23).

For example, the simple transitive clause (3) becomes (4) when the antipassive derivation is applied (Crowley 1978: 114).

- (3) ḡadju ga:ḡga-nj bulan_O
 1sgA take-FUT meat
 I will get some meat

- (4) η ay ga: η a-li-:nj bulan
 1sgS take-ANTIPASS-FUT meat
 I will get some meat

Now consider an intransitive clause:

- (5) yanga:-nj η ay gila:
 go-FUT 1sgS THERE
 I will go there

One cannot directly link (5) and (3) since although they share a common argument (the 1sg pronoun) it is in S function in (5) and in A function in (3) – that is, it is not in a pivot function (S or O) in each clause. To achieve this linkage we have to employ (4), the antipassive derivation, in which the underlying A NP is now in S function. Thus, linking (5) and (4), with purposive inflection on the verb of the second clause and the second occurrence of 1sg omitted:

- (6) yanga:-nj η ay gila:, ga: η a-li-ya: bulan
 go-FUT 1sgS THERE take-ANTIPASS-PURP meat
 I will go there to get some meat

Another language with an S/O pivot is W1, Kalkatungu. For example, a participial phrase may be used to qualify an NP but the coreferential NP must be in S or O function in the participial clause. If it is in A function then it must be antipassivised, putting the underlying A into derived S function (Blake 1982: 80–2; 1987a: 148–51).

(c) *Languages with an S/A syntactic pivot.* The Yolngu subgroup, Y, in north-eastern Arnhem Land (which is at Stage B^b from §11.1) has prefixing languages as its neighbours to the south and west, and the sea to the north and east. Some of the Yolngu languages spoken next to the prefixing block have developed bound pronouns (see §8.8); they appear to have no pivot. However, for the Ngayimil dialect of Yb2, Dhangu – an entirely dependent-marking language, spoken in the far north-east of the Yolngu area, furthest away from prefixing languages – Schebeck (1976b: 516–34) describes a clear S/A pivot.

In Ngayimil two clauses can be coordinated, and the second occurrence of the common argument omitted if this common argument is either (i) in the same function – S, A or O – in each clause; or (ii) in S function in one clause and in A function in the other, as in (Schebeck 1976b: 524):

- (7) yu:l η u_S yatj η thuwa-n ka $\emptyset$ _A taykka-nha_O pu:ya-n
 man scream-PAST AND woman-ACC hit-PAST
 man screamed and hit woman

However, coreferential NP omission is not possible when the common argument is in O function in one clause and in S or A in the other (for example ‘man hit woman and woman screamed’). There are two grammatical strategies for dealing with this situation. One is to make the intransitive clause transitive by applying the causative derivation. From ‘woman screamed’ we can derive ‘man made woman scream’; which can then be coordinated with ‘man hit woman’ to give:

- (8) *yu:lŋu-thu_A taykka-nha_O pu:ya-n (ka) ø_A ø_O*
 man-ERG woman-ACC hit-PAST AND
yatjthu-ma-n
 screamed-CAUSATIVE-PAST
 man hit woman and made her scream

The other strategy is to apply a passive-type nominalisation to the transitive clause, making it intransitive. Under this derivation the underlying O becomes S, the verb is marked by *-nara* or *-nta* and the underlying A goes into ablative case. For example:

- (9) *yu:lŋu-kun pu:ya-nta taykka_S yatjthuwa-n*
 man-ABL hit-NOMINALISATION woman screamed-PAST
 woman hit by man screamed

Other languages with mixed *ERG/ACC* morphology and an *S/A* pivot include WJa1, Walmatjarri (Hudson 1976: 9–12; Dixon 1994: 172–5), which is dependent marking.

Of the languages in group WH with fully *ACC* morphology (discussed in §11.4), at least WHc3, Panyjima (Dench 1991: 197), has an *S/A* pivot. NAb1, Kayardild, is also fully *ACC* at the morphological level. In this language an *S/A* pivot is the norm; in some constructions the pivot can be non-*S/A* but there is then a special marking to highlight this. Non-finite subordinate clauses require an *S/A* pivot and the passive derivation may then be employed to feed it (Evans 1995a: 95–100, 484–511).

(d) *Mixed pivots*. There is just one Australian language for which a mixed pivot has been reported. G2, Yidinj, is at morphological Stage B (§11.1) with nominals showing an *ERG* and (first and second) pronouns an *ACC* system of inflection. If two clauses are coordinated and the shared argument is realised as a noun, then an *S/O* pivot is employed (that is, there is here ergative syntax, mirroring the ergative morphology of nouns). However, if the common argument is a pronoun, then an *S/A* pivot is in operation (accusative syntax, mirroring the accusative morphology of pronouns).

However, subordinate constructions (including relative clauses and purposive clauses) in Yidinj work on a different principle. Here the argument common to main clause and subordinate clause must be in *S* or *O* function in each clause (irrespective

of whether this argument is realised through a noun or a pronoun). Yidinj has an antipassive derivation, whereby an underlying A argument goes into surface S function (underlying O goes into dative or locative case, or may be omitted, and the verb takes derivational suffix *:-dji-*). This feeds the S/O pivot for subordinate clauses, and for coordination involving a noun. (Note that there is no passive derivation to feed the S/A pivot for coordination involving a pronoun.) Details are in Dixon (1977a: 388–406, 322–41).

It is interesting to compare Yidinj with its southerly neighbour H1, Dyirbal; the two languages do not have any close genetic connection. Dyirbal has a split morphology at Stage B, very similar to Yidinj. But, as mentioned above, Dyirbal has a constant S/O pivot for coordination, irrespective of whether nouns or pronouns are involved. For relative clause constructions the common argument must be in S or O function in the relative clause but can be in a wide range of functions – including S, A and O – in the main clause. Table 11.3 compares the syntactic profiles of the two languages.

We can enquire why Dyirbal and Yidinj should differ syntactically in these ways while being almost identical in morphological profile. The answer – or at least a part of it – comes from comparative study of narrative style in the two languages. Narrative style in Dyirbal is rather similar to that in English: a storyteller sets the scene and refers to the characters in third person, being sure to quote exactly any significant dialogue between them. I have never encountered a Dyirbal story – as opposed to a reminiscence – in which the narrator assumes the role of the central character.

In contrast, Yidinj narratives typically involve the principal character serving as narrator, with the whole story being given a ‘first person’ slant. There may be a few

Table 11.3 *Syntactic profiles of Dyirbal and Yidinj*

H1, DYIRBAL	G2, YIDINJ
COORDINATION	COORDINATION
S/O pivot (for nouns and pronouns)	S/O pivot for nouns S/A pivot for pronouns
RELATIVE CLAUSE CONSTRUCTION	SUBORDINATE CLAUSE CONSTRUCTION
Common argument functions are:	Common argument functions are:
• in main clause: A, S, O, dative or locative • in relative clause: S or O	• in main clause: S or O • in subordinate clause: S or O

sentences at the beginning told in third person – these set the scene and introduce the main character, who thereafter takes over the narration. If the central character changes, the narrator will shift (still remaining in first person); the narrator will introduce the arrival of the new character and then silently relinquish their meta-role to them.

As a result, there is a predominance of first and second person pronouns in Yidinj stories (these are about four times more frequent than the corresponding pronouns in Dyirbal texts). I suggest that this is one reason why Dyirbal uses an S/O pivot (reflecting the morphological profile of its nouns) for coordination involving both nouns and pronouns, whereas Yidinj pays more attention to pronouns and has an S/A pivot for coordination involving them.

What now of relative clauses? Why does Yidinj not have a mixed pivot here too? The answer lies in the fact that the common argument linking together main and relative clauses is only very seldom a pronoun. In English, for instance, it cannot be a singular pronoun – one says *The man who was painting the wall yawned* but not **I who was painting the wall yawned*; one must instead say something like *I yawned while I was painting the wall*. Dyirbal and Yidinj do permit the argument common to main and subordinate clauses to be a pronoun, but this option is rather seldom taken up. It is thus natural that relative clauses (and, indeed, other kinds of subordinate clause) in Yidinj should work exclusively in terms of an S/O pivot, reflecting the morphological patterning of nouns. (This discussion of pivots in Dyirbal and Yidinj is a summary of the fuller account in Dixon 1977c.)

(e) *Switch-reference marking*. As mentioned in §3.3.12, there is one further manifestation of accusative syntax in Australian languages – switch-reference marking. Languages from several parts of the world have a system of morphological marking to show whether two clauses, combined to form one complex sentence, have ‘same subject’ or ‘different subject’. Interestingly, it is always same or different ‘subject’ (i.e. S/A) that is marked. There is no language known which has switch-reference marking relating to same or different S/O. (Languages with switch-reference marking on an S/A basis have something akin to an S/A pivot.)

In a classic paper, Austin (1981b) describes how switch-reference marking is found over a continuous area in central and west Australia. The category of switch-reference has plainly diffused, although the actual morphemes used to mark switch-reference have developed separately in each language. In all of these languages there is switch-reference marking in relative clause constructions; in an inner block it is also used in purposive constructions.

The languages involved belong to groups X, WA, WC, WD, WG, WH, WJb, WK, WL, WMb and NCb. These are at Stages A, B, C-ii and B^b/C-i; that is, they all show a mixed ACC/ERG morphological profile. Switch-reference marking is generally through suffixes to the verb, occasionally through particles (see §3.3.12).

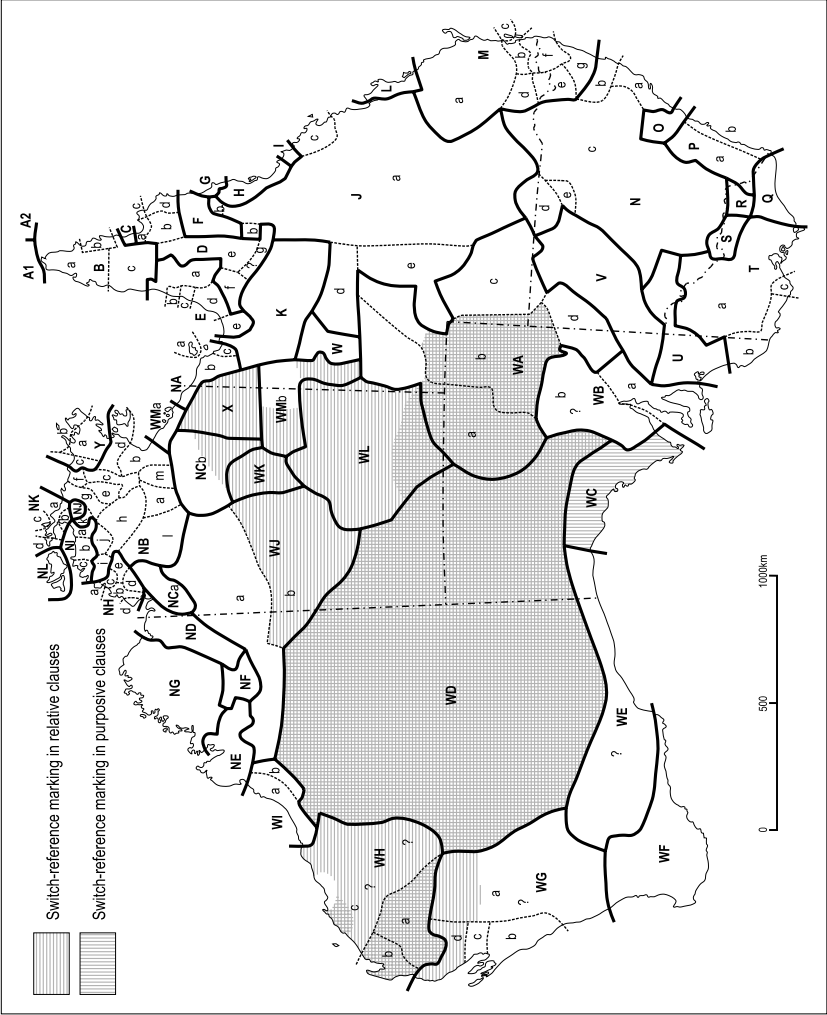
An updated version of the map from Austin (1981a) is given here as map 11.1; this shows which languages have switch-reference for relative clause constructions, and which for purposive constructions. Note that of the languages in group WHc, only WHc2, Martuthunira, appears to have switch-reference marking in purposive clauses. Some other languages in WHc have switch-reference for relative clauses while others appear to be developing this type of marking (see Dench 1988: 136). Switch-reference in relative clauses is reported in NCb3, Wambaya, by Nordlinger (1998: 212). Pensalfini (1997: 221–3) considers that the evidence for switch-reference marking in the related NCb1, Djingulu, is not conclusive. The only language which appears to have switch-reference marking in purposive but not in relative clauses is WC, Wirangu (Hercus 1999: 127–9). The nineteenth-century materials on WBa, Kadli, could be interpreted as involving switch-reference marking on dependent clauses (Jane Simpson, p.c.).

Switch-reference marking fulfils a similar function to pivot constraints, allowing the speaker to omit the second occurrence of an argument common to two clauses, and a hearer to retrieve its identity. Not surprisingly, languages with switch-reference marking (always on an S/A basis) and those with a syntactic pivot (either on an S/O or on an S/A basis) appear to constitute mutually exclusive sets.

In §11.1 we saw that most Australian languages have a mixed ERG/ACC morphological profile; six languages appear to be fully ERG and fifteen to be fully ACC. In this section we have seen that, on the information available, just a small set of languages appears to have an S/O pivot and another small set to have an S/A pivot (however, for many languages there is just not enough information available to see whether or not they have a syntactic pivot). In addition, languages over a continuous area have switch-reference marking, which is always on an S/A basis.

The geographical distribution of these syntactic profiles is interesting. Those languages with an S/O pivot are widely scattered over the eastern part of the continent – G, H, Mf, W and WAa (between them we find languages in groups J–M for which little syntactic information is available).

Switch-reference marking is found in languages further west, mostly non-prefixing (including just NCb from the fringe of the prefixing area). An exclusively S/A pivot is found in languages a little to the west or north of the switch-reference area (WHc3, Panyjima, and WJa1, Walmatjarri), in Yb2, Dhangu, a non-prefixing language to the north-east of the prefixing area, and in NAb1, Kayardild.



11.3 Antipassive and passive

The terms 'passive' and 'antipassive' are used in a wide variety of senses. We first need to provide definitions of these syntactic derivations.

Prototypical antipassive derivation

- (a) Applies to an underlying transitive clause and forms a derived intransitive.
- (b) The underlying A becomes S of the antipassive.
- (c) The underlying O argument goes into a peripheral function, being marked by a non-core case; this argument can be omitted, although there is always the option of including it.
- (d) There is some explicit formal marking of an antipassive construction (generally, by a verbal affix).

The marking accorded the demoted O argument in an antipassive varies from language to language. It is dative or instrumental in H1, Dyirbal, and H3, Nyawaygi; dative or locative in G2, Yidinj; dative in Dd1, Guugu Yimidhirr, G1, Djabugay, W1, Kalkatungu, and WAa1, Pitta-Pitta; locative in WAb2, Diyari; and locative or perlocative in F, Kuku-Yalanji. In Mf, Bandjalang there is – as mentioned under (b) in §11.2 – a slightly unusual antipassive in that the original O generally retains its (zero) marking, but if it is a pronoun it may optionally take suffix *-bu* 'back' (Crowley 1978: 92).

A number of languages have a derivation which just satisfies criteria (a), (b) and (d); however, the underlying O is obligatorily omitted. This is a 'patientless antipassive'.

Prototypical passive derivation

- (a) Applies to an underlying transitive clause and forms a derived intransitive.
- (b) The underlying O becomes S of the passive.
- (c) The underlying A argument goes into a peripheral function, being marked by a non-core case; this argument can be omitted, although there is always the option of including it.
- (d) There is some explicit formal marking of a passive construction (generally, by a verbal affix).

There is again variation concerning the marking now accorded the underlying A NP – ablative in Yb2, Dhangu; agentive/instrumental or causal in WHc3, Panyjima; instrumental in WHc4, Yinjtjipamrti; locative in F, Kuku-Yalanji; locative or instrumental in WAb2, Diyari. In NAa, Lardil, the underlying A is marked by genitive if it is a pronoun or if the verb is in future, non-future or admonitive tense, and by accusative case otherwise. (There is similarly complex realisation in NAb1, Kayardild – see Evans 1995a: 349–51.)

Just as there is a non-prototypical antipassive (the patientless antipassive), in which the underlying O is obligatorily omitted, so there is a non-prototypical passive in which the A argument is obligatorily omitted – the 'agentless passive'.

Antipassive and passive have a range of meanings and syntactic functions, which show some similarities and some differences between languages. The semantic effect of an antipassive is generally to focus on the underlying A argument – on the fact that its referent is taking part in an activity which involves a patient (the underlying O argument) while paying little or no attention to the identity of the patient. There can be additional nuances in individual languages. In Mf, Bandjalang, for example, an antipassive construction is used to indicate that the referent of the A argument repeats the action over and over again. A1, West Torres, has an antipassive-like construction (but just involving a transitive verb employed in an intransitive construction, with no explicit marking of an antipassive derivation) used to indicate that the agent performs the action on all of a set of referents of the O argument, e.g. ‘I cut down all the trees’ (Bani and Klokeid 1976).

Languages which have a patientless antipassive typically use this when the underlying O is ‘indefinite or otherwise unimportant’ (Heath 1980b: 83 on NBb2, Warrdarrang) or ‘indefinite or unspecified’ (Heath 1978b: 92 on NBd1, Ngandi).

Passive is used for quite different reasons; for example, to direct attention onto the O rather than the A argument – especially when the O is definite and the A indefinite, or when the O is first or second person and the A third person – or to focus on the result of the activity. An agentless passive is typically used when ‘the underlying subject is indefinite or contextually unimportant’ (Heath 1978b: 92 on NBd1, Ngandi) and thus need not be specified.

The two derivations may, as already noted, also have a syntactic role of ‘pivot feeding’. If there is an S/O pivot then – as illustrated in §11.2, for Mf, Bandjalang – antipassive serves to place an underlying A into derived S function, to satisfy the pivot constraint. Similarly – as illustrated in §11.2 for Yb2, Dhangu – passive can be used to satisfy an S/A pivot constraint, by placing an underlying O argument into surface S function.

Study of the forms of the derivational suffixes which mark an antipassive or passive construction across Australian languages is a fascinating matter. Most of the instances of these suffixes are likely to be reflexes of an original form **-dharri-*, which typically also has reflexive and/or reciprocal function. This was noted in §6.4.2 and §7.6 and is discussed further in §11.3.1.

11.3.1 **-dharri and other suffixes that can mark antipassive and/or passive function*

In table 7.6 of §7.6 we discussed a series of verbal suffixes that mark reflexive and reciprocal. Many of them appear to be cognate, the most likely original form being **-dharri-*. Through assimilation, lenition, shortening, etc., this has given rise to modern forms such as *-djirri-*, *-yirri-*, *-dji-*, *-yi-*, *-rri-*, *-djili-* and *-li-*.

In most of the languages in which it occurs, a reflex of **-dharri-* has the syntactic effect of detransitiviser; that is, deriving an intransitive stem from a transitive one. It

can have reflexive and/or reciprocal effect (see table 7.6) and sometimes also some variety of passive and/or of antipassive. However, it can have just a semantic effect, without involving any change in valency.

The grammar of G2, Yidinj, appears to be based on the following principle: the syntactic argument which is in A function should be identical with the semantic role of 'controlling agent'. The suffix *-:dji-* is used to mark any instance of this identity NOT holding. In a purposeful reflexive situation (e.g. 'he cut himself deliberately') we do have a controlling agent (underlying A) but it is identical with the patient (underlying O) and is mapped onto S in a derived intransitive construction; this is marked by *-:dji-* since the controlling agent is no longer in A function. Yidinj has an antipassive construction, to feed its S/O pivot in relativisation and in noun coordination; the underlying A argument goes into S function and the underlying O now takes dative or locative case. Again, the controlling agent is not in A function and *-:dji-* is used to mark this. In each of these instances *-:dji-* has syntactic effect, marking the derivation of an intransitive from an underlying transitive clause. But *-:dji-* is also used when the A argument is something inanimate, which is inherently incapable of control (e.g. 'the fire burnt me'), or when the A argument is human but achieves some result accidentally (e.g. 'by chance I saw the coin by the roadside'). In these two instances the clause remains transitive, with an A argument, but this is not a controlling agent and hence the inclusion of *-:dji-*. (A fuller discussion is in Dixon 1977a: 274–93.)

Patz (1982: 241–59) has characterised the prototypical transitive clause in F, Kuku-Yalanji, as having the following characteristics: (1) A and O are not coreferential; (2) the described action is intentional; (3) the A NP is stated and is the most prominent clause constituent; and (4) the described action is discrete and performed on a specific object. If any of these conditions is not satisfied then the verb is marked by the derivational affix *-dji-*. When (1) is not satisfied and A and O are coreferential they are mapped onto S and here *-dji-* marks a reflexive or reciprocal construction. If something happens accidentally – contravening (2) – or if the underlying A is unknown or irrelevant or lower than O on the nominal hierarchy – contravening (3) – then underlying O becomes derived S and *-dji-* marks a passive-type construction (the underlying A NP may be included, in locative case). If condition (4) is broken, with the action or patient being 'generalised' (e.g. 'He is hitting all the children', 'He is throwing curses everywhere') then underlying A becomes S in an antipassive-type *-dji-* construction (with underlying O going into locative or perlocative case).

It will be seen that in Kuku-Yalanji the conditions for the use of *-dji-* can be semantically defined, and here the derivation always reduces transitivity. In Yidinj the conditions on the use of *-:dji-* can also be semantically defined (in a similar but not identical manner); in this language the derivation sometimes reduces transitivity and sometimes leaves it as is. Grammars of other languages invariably just refer to the

detransitivising effect of a reflex of **-dharri*. It is likely that the suffix does have semantic effect in other languages, along similar lines to those described for Yidinj and Kuku-Yalanji. If enough such studies were available it might be possible to reconstruct the original semantic profile of **-dharri*. As it is, I can simply state my feeling that **-dharri* would originally have had a basically semantic effect, and that the syntactic role of reflexes of the suffix in modern languages are a development from this.

In just a few languages (on the available data), reflexes of **-dharri* have some type of antipassive and/or passive role, almost always in addition to a reflexive and/or reciprocal sense. We can now summarise all the forms of antipassive and passive markers in Australian languages, both those that relate to **-dharri* (the majority) and those that do not. These are arranged into convenient groups.

(i) *Antipassive whose uses include feeding an S/O pivot.*

- (a) H1, Dyirbal, has a derivational suffix *-ŋa-/na-* which is used exclusively as an antipassive. There is also *-(yi)rri-* which marks either reflexive or antipassive. There is a semantic difference between the two antipassives, *-ŋa-/na-* referring to an actual and *-(yi)rri-* to a potential action (Dixon 1972: 91–2). Both antipassives feed the S/O pivot for coordination and relativisation. Interestingly, about 73 per cent of the occurrences of *-ŋa-/na-* are pivot-feeding, as against about 34 per cent of the non-reflexive occurrences of *-(yi)rri-*.
- (b) In G2, Yidinj, the suffix *:-dji-*, as described above, can mark a purposeful reflexive, an antipassive or a transitive clause whose A argument does not achieve the result volitionally. The antipassive feeds the S/O pivot.
- (c) In Mf, Bandjalang, the suffix *-li-* can mark reflexive, reciprocal or antipassive, which is used for feeding the S/O pivot, as described in §11.2.
- (d) W1, Kalkatungu, has *-ti-* as reflexive/reciprocal verbal suffix and a different form, *-yi-* which marks antipassive in dependent clauses, feeding the S/O pivot.
- (e) For G1, Djabugay, Hale (1976h: 325–6) remarks that the suffix *-yi-* can mark reflexive, agentless passive, and also antipassive, which feeds an S/O pivot in the relative clause construction.
- (f) WAa1, Pitta-Pitta, has reflexive/reciprocal *-mali-* and a different suffix *-li-* which can also mark reflexive and in addition antipassive, which feeds an S/O pivot (Blake 1979b: 207).
- (g) H3, Nyawaygi, has an antipassive suffix *-(y)gi-*. This may have been used for pivot feeding; unfortunately, the data on clause linking in this language are too slim to be certain about this (Dixon 1983: 496–7).

It is noteworthy that all languages known to work in terms of an S/O pivot have an antipassive derivation to feed this pivot constraint. In contrast, only some of the languages with an S/A pivot have a passive derivation which will feed it. This is because a topic is predominantly in S and A functions within the clauses of a discourse, so there is less need to bring an underlying O argument into pivot function than there is to bring an A argument into a pivot function.

(ii) *Passives whose uses include feeding an S/A pivot.* This is found in Yb2, Dhangu – discussed in §11.2 – and in languages from the WH and NA groups, discussed in §11.4. In two NA languages *-yi(:)* marks both reflexive and passive.

(iii) *Languages with no pivot but with a prototypical antipassive and/or passive.*

- (a) In Dd1, Guugu Yimidhirr, suffix *-dhi-* generally marks reflexive or reciprocal. With just a few verbs it has an antipassive sense (underlying O now takes dative case). The suffix also has an agentless passive use (Haviland 1979a: 128–32).
- (b) As described above, the suffix *-dji-* in F, Kuku-Yalanji, can have reflexive, passive (underlying A takes locative case) or antipassive (underlying O takes locative or perlocative) sense.
- (c) For WAb2, Diyari, Austin (1981a: 151–6) describes how verbal suffix *-tharri-* (which he writes as *-thadi-*) can have varied senses depending on the class of verb with which it is used – reflexive, antipassive (underlying O goes into locative case) or passive (underlying A takes locative or instrumental case). Note that Diyari has switch-reference marking.
- (d) WHc2, Martuthunira, has passive clauses, in which the verb can be marked in one of two ways (Dench 1995: 226–30); the underlying A goes into what Dench calls ‘effector’ case (which is a development from an earlier ergative form). This language also has switch-reference marking.
- (e) NAb1, Kayardild, and NAa, Lardil, both have a passive marked by *-yi(:)*-, with – as mentioned in §11.3 – complex case assignment for the underlying A NP. Kayardild basically has an S/A pivot (with special marking for a pivot that is non-S/A); pivot possibilities in Lardil have not yet been investigated. See the further discussion of these languages in §11.4.
- (f) NBI2, Wardaman, has *-yi-* for reflexive and reciprocal and for antipassive (underlying O goes into dative case).
- (g) Eb1, Yir-Yoront, has *-n-* for passive and reflexive (Alpher 1991: 48–50). (Alpher, p.c., reports that the neighbouring language Eb2, Koko Bera, has *-n-* marking agentless passive and reflexive; it is of Type (iv).)

Table 11.4 Languages with patientless antipassive and/or agentless passive

language	suffix	reflexive	reciprocal	patientless antipassive	agentless passive
NBb2, Warndarrang	-i-	√	√	√	√
NBc2, Ngalkakan	-tji-	√	√	√	√
NBd1, Ngandi	-(y)i-	√	√	√	√
NBd2, Nungubuyu	-i-	√		√	√
NBf2, Gurrioni	-yi-	√	√		√
NBf4, Ndjebbana	-yi-	√	√		√
WAc1, Wangkumara	-(i)yi-	√		√	√
NBb1, Marra	-rlana-	√	√		√
Ba2, Uradhi	:-n(t)i-	√			√
Ba6, Anguthimri	-pri-		√		√
WAb1, Yandruwanhdha	-yindri-	√	√		√

(iv) Languages with no pivot, but a patientless antipassive and/or agentless passive. Languages of this type are shown in table 11.4. The form of each suffix is given, plus its senses. It can be seen that the first seven of these suffixes have a form *-tji-* or *-yi-* or similar, and are probably reflexes of **-dharri-*.

In Nc3, Ngiyambaa, a transitive verb of the L or R conjugation can be used with Y conjugation allomorphs and the clause then has intransitive syntax, with O going into S function (and the underlying A argument omitted). This appears to be a type of agentless passive. Interestingly, with an R conjugation root *-rri-* intervenes between root and inflection. That is, for one of the conjugations, agentless passive appears to be marked by derivational suffix *-rri-*. Note that this is different in form from the reflexive suffix *-dhili-* and reciprocal suffix *-la-* in Ngiyambaa.

As pointed out in §6.4.3, an inchoative suffix ‘become’ – which serves to derive an intransitive verb stem from a nominal – has the form which appears to be a reflex of **-dharri* in languages from, at least, groups W, Y, WA, WG, WK, WMb, NBa, NBd and NBh.

Terrill (1997) suggests that, in Australian languages, antipassives developed out of reflexives. However, she utilises only a part of the available data and looks simply at grammar (not semantics). The position taken in this volume is that both antipassive and reflexive (plus reciprocal and passive) are likely to have developed out of an original semantic specification associated with **-dharri-*, similar to those now found in F, Kuku-Yalanji, and G2, Yidinji.

In conclusion, we have seen that reflexes of **-dharri-* can have an antipassive and/or passive, or patientless antipassive and/or agentless passive sense, in addition to a

reflexive and/or reciprocal meaning (and sometimes also an inchoative sense). In some languages a reflexive and/or reciprocal suffix with a different form may have some of these extensions. Those languages with an S/O pivot all show an antipassive derivation which will feed the pivot, and some languages with an S/A pivot show a pivot-feeding passive derivation. In other languages these valency-changing derivations serve simply to highlight the A and defocus the O (or vice versa) or simply have a semantic effect. The semantic effects are further discussed under (b) in §11.4.

11.4 Shifts in profile

We will now consider a number of special instances of shift (or anticipated shift) in orientation. This happens for a variety of reasons in different languages.

(a) *Warrgamay*. H2, *Warrgamay*, is at Stage A, with tripartite A/S/O marking for sg pronouns, ACC for n-sg pronouns and ERG for nominals. We can reconstruct that at an earlier stage *Warrgamay* had – as its northerly neighbour *Dyirbal* and many other Australian languages still have – a strict division of verbs into transitive and intransitive, and also two verbal conjugations that correlated with (but did not coincide with) transitivity classes. That is, most verbs in the *-y* conjugation would have been intransitive and most of those in the *-l* conjugation transitive, but with a fair number of exceptions (something of the order of 20 per cent). I also hypothesise that the earlier stage of *Warrgamay* was like modern *Dyirbal* in having an S/O pivot (at least for subordinate constructions) and – partly to feed the pivot constraint – an antipassive derivation, marked by the verbal derivational affix *-la-* (this may have developed out of conjugation marker *-l-* plus *-ŋa-*, i.e. *-lŋa-* > *-l(ŋ)a-* > *-la-*; see Dixon 1981a: 91).

The first historical change was that conjugational classes came to coincide exactly with transitivity; the few intransitive roots in the *-l* class were transferred to the *-y* class and the few transitive roots in the *-y* class were moved to the *-l* class. Thus *bungi-l* ‘to lie down’ in *Dyirbal* corresponds to *bungi-* in *Warrgamay*, used only with allomorphs from the intransitive conjugation. (Evidence that such a change has taken place comes from the *Biyay* dialect of *Warrgamay* where just a few exceptions remain, e.g. in *Biyay bungi-*, although an intransitive verb, takes inflectional allomorphs normally reserved for transitive verbs.)

There would at this stage still have been a productive antipassive derivation. Each transitive verb could take *-l* conjugation allomorphs and function in a transitive clause, with A and O NPs; or an intransitive stem could be derived from a transitive root by the addition of *-la-*, and this would then take *-y* conjugation allomorphs and function in an intransitive sentence with the underlying A NP being in derived S function and underlying O taking dative or instrumental–ergative case. The suffixes added to verb

roots would at this stage have been, for three sample inflections:

(10)	derived		
	intransitive	antipassive	transitive
	root	stem	root
	future	-ma	-lma
	purposive	-gu	-gu
	imperative	-ga	-ya, $\emptyset$

Then a further change occurred; just one set of additions to the verb root in an intransitive clause developed, effectively through merger of the first and second columns in (10). That is, the modern language allows:

(11)	intransitive	transitive root in	
	root in		
	intransitive		
	construction	intransitive construction	transitive construction
	future	-ma-	-lma
	purposive	-lagu	-gu
	imperative	-ga	-ya, $\emptyset$

In present-day Warrgamay an intransitive root can only occur in an intransitive clause, and must take inflections from the left-hand column. Transitive roots most commonly appear in transitive clauses – with A and O NPs – and must then take inflections from the right-hand column; but almost all of them can also occur in intransitive constructions – with just one core NP, in S function – and then take inflectional forms from the left-hand column. The A NP in a transitive construction corresponds to the S NP of an intransitive clause containing a transitive root; the transitive O NP is placed in either instrumental–ergative or dative case in the intransitive clause (normally instrumental–ergative, but dative if the verb of the clause shows purposive inflection) or it may be omitted.

There appear to be three main circumstances under which a basically transitive verb may occur in an intransitive construction. One is when the speaker does not want to specify the underlying O NP. The second is to mark reflexive, when underlying A and O coincide – they are mapped onto the S of the intransitive, as shown at (37–8) in §6.5.3. The third is to satisfy the S/O pivot condition; in relative clause constructions and in purposive constructions there must be an NP common to main and subordinate clauses which is in S or O function in each clause (its second occurrence is then generally omitted). If a common NP is in underlying A function in one clause then this clause must be recast as an intransitive, putting the common NP into S function.

To illustrate how this system works, consider examples (12–16). Intransitive verbs such as *gaga*- ‘go’ and *wirga*- ‘bathe’ can only occur in intransitive constructions, such as (12–14). A transitive verb, such as *nju:ndja*- ‘kiss’ can be used in a transitive clause such as (15) and, under appropriate syntactic conditions, in an intransitive construction such as (16):

- (12) *muyma_S gaga-ma*, the boy will go
- (13) *gadjiya_S gaga-ma*, the girl will go
- (14) *muyma_S wirga-ma*, the boy will bathe
- (15) *muyma_O gadjiya-ngu_A nju:ndja-lma*, the girl will kiss the boy
- (16) *gadjiya_S nju:ndja-ma (muyma-ngu_{INST})*, the girl will kiss (the boy)

Now (12) and (14) share an NP which is in S function in each, meeting the pivot conditions. They can be combined in a purposive construction, with purposive inflection, *-lagu*, on the second verb, and the second occurrence of the common NP omitted:

- (17) *muyma gaga-ma wirga-lagu*, the boy will go to bathe

Similarly, (12) and (15) share a common NP which is in S function in the first clause and in O in the second, again satisfying the pivot condition. They can be combined in a purposive construction, with the transitive purposive inflection, *-gu*, on the second verb:

- (18) *muyma gaga-ma gadjiya-ngu nju:ndja-gu*, the boy will go for the girl to kiss him

When we look at (13) and (15) they are seen to have a common NP, *gadjiya* ‘girl’, which is in S function in the first but in A in the second, not satisfying the pivot constraint. We must, therefore, recast (15) into intransitive form, as (16), where *gadjiya* assumes S function, and *muyma* ‘the boy’ is in a peripheral case; (16) can now be combined with (13), the verb taking the intransitive allomorph of purposive, *-lagu*, instead of the transitive allomorph, *-gu*, which it took in (18):

- (19) *gadjiya gaga-ma nju:ndja-lagu muyma-gu_{DAT}*, the girl will go to kiss the boy

Let us now consider the inflectional forms in (11), and their development from those in (10). It will be seen that the left-hand column in (11) takes purposive from the middle column in (10) but future and imperative come from the left-hand column. The main function of purposive is to mark the second verb in a purposive construction (e.g. ‘I went to spear the wallaby’); transitive roots occur more frequently than intransitives in this slot and so the form *-lagu* would have been more common than *-gu* in intransitive clauses. For the other inflections the straightforward intransitive forms (*-ma* and

-ga) would have been more common than the derived intransitives *-la-ma* and *-la-ga*, and would have replaced them. The new intransitive allomorph of purposive *-lagu* involves the old antipassive *-la-*, and the old intransitive suffix *-gu*; note that *-lagu* is not analysable within modern Warrgamay (*-la* does not now occur outside this form).

It is not hard to see how an entirely accusative morphology could arise from the present Warrgamay system. Currently, although nearly all transitive verbs can occur in intransitive clauses, they do so only sparingly. Transitive verbs would have to be used more and more in intransitive constructions, like (16), until eventually the original transitive construction type, illustrated in (15), ceased to be used; transitive allomorphs, from the right-hand column of (11), would simply be lost.

Transitive roots would now only occur with their subject (A) NP in what we have been calling absolutive case – this is also used for the subject (S) of an intransitive verb – and their object (O) NP in ergative–instrumental case (or in dative case, just in a purposive construction). But this is simply a nominative–accusative system, and it would surely be appropriate to rename absolutive as nominative, and ergative–instrumental as accusative–instrumental.

The most interesting feature of this sequence of changes is that it began with an S/O pivot, the indicator of ergative syntax, and an antipassive operation to feed this. By eventual reinterpretation of what was originally an antipassive construction as the unmarked construction type for transitive verbs, we would arrive at a language which is firmly accusative, both in morphological marking and in its syntax – the S/O pivot would naturally have been replaced by an S/A pivot. (Fuller accounts of the syntax of Warrgamay are in Dixon 1981a, b. The summary here is repeated from Dixon 1994: 193–7.)

(b) *Yukulta*. Languages with some ergativity at the morphological level typically have a split system. There are a number of types of split (and these can be combined in one language). That which is well attested in Australian languages is a split according to the ‘nominal hierarchy’, as in figure 11.2 (repeated from Dixon 1994: 85). The split systems surveyed in §11.1 broadly follow this hierarchy; that is, ACC systems tend to be found to the left, and ERG systems to the right on the hierarchy.

A second type of split is conditioned by tense and/or aspect and/or modality and/or mood (TAM). Typically, an ERG system is found in past tense and/or in perfective aspect

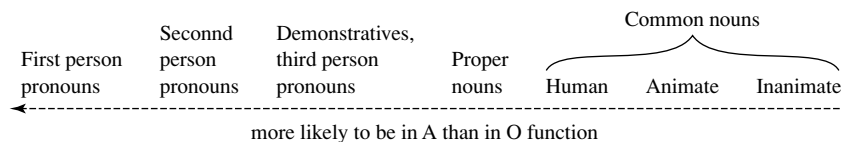


Figure 11.2 The nominal hierarchy

and an ACC system in non-past and non-perfective. There is a semantic reason for this – something which has not happened is, essentially, a propensity of the agent (the A or S argument). That is, A and S are likely to be linked together (an ACC system) for something that has not occurred. But for something that has happened, or which it is certain will happen, the orientation could be towards the patient (the O argument), thus linking O and S in an ERG system.

NAb2, Yukulta, shows a split system which is also conditioned partly by tense/aspect-type considerations and partly by the semantic nature of NPs. Keen (1983) recognises two kinds of transitive construction, with the following inflections:

	A	O	VERB MARKED BY
(1)	ergative	absolutive	transitive suffixes
(2)	absolutive	dative	intransitive suffixes

Construction (1) is used with statements of past fact and of future intention; but (2) is required in all other cases, i.e. for negative sentences in past tense ('He didn't do it') and for future irrealis (e.g. wishing). We see that this split is not simply in terms of past/future tense, but in terms of things that have happened (or are promised to happen) versus those that have not happened or might conceivably happen. Construction (2) must also be used, whatever the tense/polarity choice of the sentence, if (i) A is third person and O is first or second person, or if (ii) A is second person and O is n-sg first person. This second conditioning factor appears to deal with the relative positioning of A and O NPs on the nominal hierarchy (save for the odd specification of n-sg first person under (ii)); construction (2) is used when A is to the left of O on the hierarchy.

Now (1) has case marking on an ergative basis, like a normal transitive construction in most Australian languages, while (2) has the form of an antipassive construction. Note that there is no antipassive suffix in (2), just a transitive verb used with what are prototypically intransitive allomorphs. This is similar to the situation just described for Warrgamay.

The ERG system, in (1), is used for something which has definitely happened, or will happen. But for something that depends on, or depended on, a propensity on the part of the underlying A argument, one must use the accusative-type construction (2), which may well have developed out of an antipassive derivation at an earlier stage of the language.

(c) *Lardil and Kayardild*. There are two other well-attested languages in the Tangkic subgroup, NA – NAa, Lardil, and NAb1, Kayardild. These differ from their close genetic relative Yukulta in being entirely ACC in morphology and in having a passive derivation. Kayardild, at least, has a limited S/A pivot that is fed by passive. The two languages mark A and S in the same way and O by an accusative suffix which can be

shown to be cognate with dative in Yukulta. That is, the only transitive construction in Lardil and Kayardild appears to relate to construction (2) in Yukulta, which is there conditioned by a combination of tense/aspect, negation and relative positioning on the nominal hierarchy.

A number of varied scenarios have been suggested to explain the development of ACC marking in Lardil and Kayardild from the original ergative system of proto-Tangkic (which is retained in Yukulta); see Klokeid (1978) and McConvell (1981). These are summarised and critically examined by Evans (1995a: 446–50). In §5.3.1 we discussed double case marking in Kayardild, which Evans explains in terms of what were originally subordinate clauses being reanalysed as main clauses. Such an historical development also helps to explain the present-day ACC system. Evans suggests that there were originally a number of subordinate clause constructions with accusative-type marking (perhaps involving nominalisation, with O taking dative case). These have been reanalysed as main clauses with the erstwhile main clauses (which had an ERG system of case marking) falling into disuse.

As mentioned under (iii-e) in §11.3, both Kayardild and Lardil have a passive derivation, which is marked by verbal suffix *-yi(:-)*. This is likely to be a reflex of **-dharri*, which would have had general intransitivising effect at an earlier stage, then taking on a passive sense within the ACC profile of the modern languages.

(d) *Martuthunira, Panyjima, Yinjtjiparnrti, Ngarluma and Tjurruru*. The languages in group WHc, on the far west of the continent, are typologically similar in most respects. However, they divide into two groups in terms of syntactic conditioning. Five of them – *Martuthunira, Panyjima, Yinjtjiparnrti, Ngarluma and Tjurruru* – have an accusative grammar, while four – *Nhuwala, Palyku, Nyamal and Ngarla* – show a standard Stage B mixed ERG/ACC system (information is lacking on the other language from this group, *Kariyarra*). In the accusative WHc languages, nominative (with zero realisation) is used for S and A, and accusative, *-ku*, for O. This *-ku* is plainly related to *-ku* which functions as dative case in many Australian languages, including the WHc group. Here it covers accusative, dative and benefactive; thus, the ditransitive verb ‘give’ has both gift and recipient marked by case inflection *-ku*.

Dench (2001) notes that the languages in group WHc with ergative case marking in main clauses do have an accusative-type system in some subordinate clause types, with A and S taking zero marking and O receiving dative case, *-ku*. He suggests a similar scheme of development to that put forward by Evans for Kayardild and Lardil – the accusative languages have generalised these profiles from subordinate clauses to also apply in main clauses. At least some of these languages appear to have an S/A pivot and it could be that the ergative-to-accusative shift took place partly to bring case marking into line with pivot identification (see Dench 1982).

The accusative WHc languages have a productive passive derivation, which can help feed the S/A pivot. It is marked by derivational suffix *-ŋuli* (or *-ŋali* in some languages) to the verb; O goes into derived S function (with zero inflection) and underlying A is marked by *-ŋgu*, which is the ergative-instrumental inflection in non-accusative WHc languages (as in many other Australian languages). (Instrumental is marked in a different way in each of the accusative languages – by comitative *-ŋarni* in Panyjima, by proprietive *-marta* in Martuthunira, by locative *-la/-ŋka* in Ngarluma and by *-ŋgu/-lu/-rtu* in Yinjtjiparnrti. This diversity of marking is suggestive of a recent restructuring.)

The passive marker *-ŋuli* appears to be cognate with an inchoative derivational suffix *-ŋuli*, which forms intransitive stems from nominals in both the accusative and the non-accusative languages of the WH group. It may be that inchoative *-ŋuli* was generalised to form passive-like intransitive constructions from something like participial clauses which did preserve the original ergative inflectional system. (Or there may be some other explanation. The changes that have led to syntactic reorientation in these four languages are not yet fully understood.)

Interestingly, in the ACC languages of both NA and WHc groups (which are widely separated and lack both close genetic connection and areal contact) the O NP in an imperative clause has zero (nominative) inflection, rather than the accusative case found on O NPs in non-imperative main clauses. (There is an exception in NAa, Lardil, where accusative is included just on 1sg O in an imperative.) That is, in an imperative construction, O is marked in the same way as S, on an ergative basis. This is likely to be a relic of an earlier stage of the language, since imperatives typically preserve archaic patterns (Whitney 1889: 215; Watkins 1963, 1970; Kurylowicz 1964: 137).

(e) *Pitta-Pitta*. WAA1, *Pitta-Pitta*, is spoken a little to the south of Yukulta but is not closely related to it. In this language nominal inflections appear to mark both syntactic function and tense (Roth 1897: 7ff; Blake 1979b: 193):

	S	A	O	dative
(1) non-future	∅	-lu	-nha	-ku
(2) future	-ŋu	-ŋu	-ku	-ku

Now (1) has similar case marking to a plain transitive clause in other Australian languages, with ergative suffix *-lu* for A function, accusative *-nha* for O and zero for S, plus *-ku* for dative. Marking for clauses with future reference, in (2), is similar to construction type (2) for Yukulta. Like (2) in Yukulta, this is reminiscent of an antipassive construction, with A marked in the same way as S, and O in the same way as dative. (A difficulty here lies in explaining why S and A in (2) should be shown by suffix *-ŋu*; this awaits further study.)

A possible historical scenario is that this tense-determined case marking in Pitta-Pitta developed out of a productive antipassive derivation, via a stage similar to that in Yukulta. There could have been a tendency to use antipassive in certain semantic circumstances, and this developed into use in future tense. Then it became obligatory to use an antipassive construction in future and impermissible to use it in non-future. When this happened, antipassive was no longer a syntactic derivation; instead there were two construction types – an ergative one, (a), used in non-future and an accusative-type one, (b), in future clauses. However, there are doubtless other possible hypotheses concerning the origin of the Pitta-Pitta constructions; all should be seriously investigated.

(f) *Garrwa*. X2, Garrwa, is spoken to the south-west of Yukulta. From the limited data available (Furby and Furby 1977: 36–7) it appears that positive clauses have standard ergative(A)/absolutive(O) marking but in a negative clause the A takes absolutive case and the O dative. This is like constructions (1) and (2) in Yukulta, except that in Garrwa (2) is restricted to negative clauses (recall that negative past was one of the conditions for use of construction (2) in Yukulta). The origin of this system awaits detailed study; it could involve any of the routes suggested above.

(g) *Kalkatungu*. W1, Kalkatungu, has the profile of a Stage B^b/C-i language, with nouns and free pronouns showing ERG morphology. There are three sets of bound pronouns, all on an ACC pattern – one used for anaphoric cross-referencing, one in purposive subordinate clauses, and one in ‘lest’ subordinate clauses. Table 11.5 summarises the system, illustrating pronouns with the 1sg forms (Blake 1979a); nominals in A function take ergative case, which has a variety of allomorphs (see §5.4.3). (There is a further list of anaphoric bound pronouns in (43) of §8.8 above.)

It will be seen that bound pronouns in Kalkatungu are quite different in form from free pronouns. They are short (sometimes zero), suggesting a fair degree of antiquity. The bound pronouns differ functionally from bound pronouns in other Australian languages in that they are not prototypically used to code core arguments in a main clause,

Table 11.5 *Marking of A, S and O in W1, Kalkatungu*

	nominals	1sg free pronouns	1sg anaphoric bound pronouns	1sg purposive bound pronouns	1sg ‘lest’ bound pronouns
A	ergative	ɲathu	ø	-lhaa	-(k)unha
S	ø	ɲayi			
O			-ɲi	-aɲi	-kuɲi

but rather for anaphoric mention of the second occurrence of a topic, as in (Blake 1979a: 113):

- (20) mpaya kuntu ṅanhthamayi-nha, ṅurrkunha iti-nha-mpa=nhu
 2duA NOT find-PAST empty.handed return-PAST-PREF=2duSA
 you two didn't find any, [and] you two came back empty-handed

The clitic pronouns used in purposive clauses are exemplified in (Blake 1979a: 158):

- (21) mararri-yi ṅalhi iṅka a=lhi lha-yi
 goanna-DAT 1duSA go PURP=1duSA kill-ANTIPASS
 we two went to kill goannas

In each of (20) and (21) the topic is expressed by a free pronoun in the first clause and by a bound pronominal in the second clause. In (21) the clitic pronoun *-lhi*, 1duSA, is attached to the purposive clause marker *a-*.

Now Kalkatungu is entirely surrounded by languages which lack bound pronouns – K, Jd, WAa and WMb2–3. All the indications are that it had a full array of bound pronouns at an earlier stage and is now part-way through losing these, through diffusional pressure from neighbouring languages. (See §13.2 for the reasons there are for thinking that Kalkatungu has been in its present position for a long time, with its modern neighbours having moved into contact with it relatively recently.)

Languages typically retain archaic features in subordinate clauses, with innovations (here, loss of head marking) entering first through main clauses. I predict that bound pronouns would, in time, drop out altogether; Kalkatungu then reverting to an entirely dependent-marking profile. The suggested historical scenario is:

	nouns, etc.	free pronouns		bound
		sg	n-sg	pronouns
stage A	ERG	A/S/O	ACC	<none>
stage B	ERG		ACC	<none>
stage B ^b	ERG		ACC	ACC
current stage, B ^b /C-i	ERG		ERG	ACC
projected stage	ERG		ERG	<none>

I am suggesting that Kalkatungu progressed to Stage B and then developed ACC bound pronouns out of ACC free forms, like many other Australian languages. Following this, free pronouns would have been little used and ERG marking on nouns was extended to them (in the modern language n-sg free pronouns take ergative suffixes cognate with those on nouns). Then, under areal pressure from non-head-marking neighbours, Kalkatungu began to lose bound pronouns. It is now part-way through this process of loss. If the language had continued to be spoken, it is likely that bound

pronouns would in time have disappeared completely. The language would then have been fully ergative at the morphological level. As mentioned in §11.2, it is syntactically ergative, with an S/O pivot and an antipassive derivation to feed it.

This is very much a schematic account of possible past and future developments in Kalkatungu. The bound pronominal clitics are now quite different in form from the free pronouns. This can be taken as an indication of their antiquity but it also does not provide clear evidence that they have developed from the free pronouns found in the language today. There have undoubtedly been other developments, which would have interwoven with those suggested above. For example, the free pronoun paradigm may well have – at some stage – been reformed, either from within the language or through addition of a substratum from another language due to tribal merger.

W2, Yalarnnga, is grouped with Kalkatungu on areal grounds. There is no evidence that these two languages are closely genetically related but they do appear to constitute a long-standing areal group. The slim data which Blake (1979a: 139; 1989) was able to gather in Yalarnnga include a single bound pronoun, 2pl *-nhu*, which is used just on imperatives (a construction type which typically retains archaic features). Yalarnnga may be undergoing similar changes to Kalkatungu.

11.5 Summary

I suggested that the original stage of case marking mixed *ERG* and *ACC* patterns. Languages have shifted parts of their systems but in most cases they still maintain a mixed *ERG* and *ACC* profile. There are data on six languages which appear to be fully *ERG* and fifteen that appear to be fully *ACC* at the morphological level.

One block of languages has switch-reference marking, on an S/A basis. A few languages have an S/A pivot and a handful are known to have an S/O pivot. All those with an S/O pivot have an antipassive derivation that feeds it; only some of those with an S/A pivot have a pivot-feeding passive derivation. A number of other languages have a (prototypical or patientless) antipassive and/or a (prototypical or agentless) passive, but without any pivot-feeding function.

In §11.4 we looked at a number of types of change. In Martuthunira, Panyjima, Yintjiparnrti, Ngarluma and Tjurruru from group WHc, and in Lardil and Kayardild from subgroup NA, an entirely *ACC* morphological profile has evolved. Yukulta, also from subgroup NA, has a mixed profile that provides a clue to the changes undergone by Lardil and Kayardild. In Warrgamay a series of changes are underway which point in the same direction. Only in Kalkatungu are the changes of such a type that, if carried to conclusion, they would result in an entirely *ERG* profile.

As with most aspects of the study of the *c.* 250 languages of Australia, *ERG/ACC* morphological and syntactic profiles present a complex picture. Different languages are moving in different directions. There does appear to be something of an overall trend

towards a more fully ACC system, but there are also languages moving in the opposite direction. The great majority of languages retain both ERG and ACC elements in their grammatical profile.

It is likely that, as in many other areas of grammar and phonology (discussed throughout this book), the morphological and syntactic orientation of Australian languages goes through a cyclic development – from ERG to ACC, back to ERG, and so on. (This is exemplified by Kalkatungu.) However, unlike in other areas of grammar, we are lacking adequate information on the inter-clausal syntax of a sufficient number of languages to draw a full picture of the changes in ERG/ACC orientation. The discussion in this chapter has been based on information from those few languages for which explicit and reliable data have been made available.

Phonology

Australian languages show close similarities in their systems of consonant and vowel phonemes, in their canonical phonotactic structure and in stress placement; these are outlined in §12.1. Certain types of diachronic change tend to recur in different parts of the continent. The general picture is of overlapping diffusion areas for various features; and of changes engendered by the internal dynamics of a system taking place independently in scattered locations across Australia. Many of the changes are cyclic: a certain contrast may be innovated, then lost, then – a long time later – acquired once more, each development being a consequence of a rolling pattern of areal change.

There are two significant phonetic characteristics of Australian languages. Butcher (forthcoming) has pointed out that the lowering of the velum for nasal consonants tends to be delayed as long as possible. This has two main consequences. Firstly, there is relatively little phonetic nasalisation of a vowel preceding a nasal consonant in an Australian language. Among the various types of diachronic change, the development of nasal vowel phonemes scarcely features (these are reported just for one language, Ba6, Mpakwithi – Crowley 1981: 154–5). Secondly, in some languages the lowering of the velum is delayed past the commencement of the consonant articulation (this is especially so when there is no nasal consonant earlier in the word) resulting in a prestopped nasal; that is, the stopping commences prior to the nasal articulation. Prestopped nasals have allophonic status in some languages; in others, further changes have caused them to emerge as separate phonemes.

The other significant feature is that, in a stressed syllable, the pitch peak tends to occur relatively late in the syllable (this observation is also due to Butcher forthcoming). In connection with this, Blevins and Marmion (1994) have found that in WGb, Nhanta, if an initial syllable is stressed (as is found in most Australian languages), then stress will apply to the vowel and to the syllable-closing consonant, if there is one, but not to the syllable-initial consonant. This helps explain a recurring tendency to lose or lenite the initial consonant of a word. And also a tendency to strengthen the consonant or consonant cluster following a stressed vowel.

All Australian languages have bilabial and dorso-velar series of stop and nasal. They also have one or two series of laminal stop and nasal, and one or two series of apical stop and nasal. There is a lateral in at least one apical series and sometimes in all apical and laminal series. Most languages (even those with only one series of apical stop and nasal) have two apical rhotics. There is always a dorsal–labial semi-vowel; all languages have one, and a few have two, laminal semi-vowels.

§12.2 discusses the distribution and origin of the laminal contrast. Then §12.3 deals with the more difficult topic of the apical contrast in stops, nasals and laterals; whether this is related to the apical contrast in rhotics; and whether an apical contrast would have been found in earlier stages of the languages or instead developed recently.

The remainder of the chapter essentially describes changes to the canonical pattern – developing new allophones and new phonemes and/or altering the phonological template of a language. Some of these changes may develop a stop contrast or – along similar lines – fricative phonemes which contrast with stops. §12.4 discusses initial dropping and medial strengthening. §12.5 deals with changes affecting stop systems. §12.6 surveys languages which have developed glottalisation, either as a syllable prosody or as a glottal stop segmental phoneme. §12.7 discusses the varied types of assimilation and dissimilation, and briefly mentions other kinds of change. In §12.8 we consider changes to vowel systems which have led to the development of new vowel phonemes (additional to the standard three) or – in at least one instance – the reduction to a two-vowel system; this section also surveys languages with contrastive vowel length. Then, §12.9 discusses those languages in which every word ends in a vowel, and those in which every word ends in a consonant, together with the evolution of consonant clusters in word-initial and word-final position, and triconsonantal clusters in medial position.

The criteria for phonological word in Australian languages normally relate to placement of stress, phonotactics, allophony and the domain of application of phonological rules. Only a few grammars discuss this question and, as a result, I am not able to offer any generalisations here. In some languages it is necessary to recognise separate units of ‘grammatical word’ and ‘phonological word’. Dixon (1977a: 88–98; 1977b) shows how in G2, Yidinj, a grammatical word may consist of either one or two phonological words; Henderson (forthcoming) discusses criteria for phonological word and grammatical word in WL1, Arrernte, and the relationship between these two units. Fabricius (1998: 28, 51–2) discusses phonological word in relation to reduplication in Australian languages.

12.1 **Canonical systems**

The canonical maximal phoneme system of Australian languages is shown in table 12.1. This employs a practical orthography (using just letters from the roman alphabet, plus *ŋ*). Where they differ, phonetic symbols are shown in parentheses; these are IPA symbols

Table 12.1 Canonical phoneme system in Australian languages

		PLACE:	peripheral		non-peripheral (coronal)											
			bilabial	dorso-velar	lamino-		apico-									
					palatal	dental	alveolar	post-alveolar (retroflex)								
consonant	sonorant	liquid	rhotic		rr [r]				r [ɻ]							
			lateral													
			nasal		m		ŋ		nj [ɲ]		nh [ɳ]		n		m [ɳ]	
			stop		b/p		g/k		dj/tj [ɟ/c]		dh/th [d̪ʈ]		d/t		rd/rt [d̪ʈʲ]	
	sonorant	semi-vowel	w		y											
			u		i											
	vowel	high	a													
			low													

except that *y* is used for the laminal semi-vowel, and apico-postalveolar articulation (retroflexion) is shown by a dot under the letter, following the American convention.

All languages have at least the phonemes shown in table 12.1 except:

- Some languages have a single laminal series – see §12.2. Where this occurs I use the digraphs *lj*, *nj* and *dj/tj* for this series.
- Some languages have a single apical series for stops, nasals and laterals – see §12.3.1. Where this happens I use the letters *l*, *n* and *d/t* for this series.
- Almost all languages in the eastern third of the continent have just one lateral, with apico-alveolar articulation. Those in the remainder of Australia generally have a lateral in each non-peripheral series, although there are a number of gaps.

A single lateral is found in languages from groups A–T, excepting Ee, Jd, Je, Nd and Ne (which lie to the west of the single-lateral isogloss), some dialects of Ja1 (the isogloss goes through the middle of this language area, see §13.4), Eb1, Yir-Yoront (which appears to have recently innovated *rl* and *lj*, in addition to *l*), and probably also Ea2–3. There are just two languages outside the eastern strip for which a single lateral is reported – NB11, Wagiman, and the adjoining NHd2, Ngan.gi-tjemmerri.

- Just a few languages or dialects are reported to have fewer nasals than stops – see Hercus (1986: 4) on Ta1, Wemba-Wemba; Heath (1980b: 8) on NBb2, Warndarrang; and Kofod (1978) on ND2, Miriwung.
- A few languages have just one rhotic – which I write as *r* – and some have three; see §12.3.2.

- (f) WL2, Kaytetj, and some dialects of WL1, Arrernte, have undergone changes which have led to a system of just two vowels – a low vowel, written as /a/, and an unspecified vowel, written as /ə/. (One of several suggested analyses for NBd3, Aninhdhilyagwa, also recognises just two vowels.)

A particular feature of table 12.1 is the placement of high vowels in consonant series, with semi-vowels providing the link. Semi-vowel *y* involves raising the blade of the tongue and corresponds to the laminal series of stops, nasals and laterals. Semi-vowel *w* involves raising the back of the tongue and also (in many languages) rounding the lips; it relates to the bilabial and dorso-velar series of stops and nasals and is positioned below them. (See the instances of lenition given in table 12.5 of §12.4.1: *b* > *w*, *g* > *w*, *dj* > *y* and *dh* > *y*.)

High vowels *i* and *u* involve articulatory gestures similar to those for *y* and *w*. There are many kinds of link between *w* and *u* and between *y* and *i*; for example, metathesis rules (discussed in §12.4.4) where a vowel can become the corresponding semi-vowel, as in *muŋga* > *gwa* ‘eat’ and *yapi* > *pay* ‘forehead’ in Ba6, Mpakwithi (Crowley 1981: 160). There are sometimes also direct links between stop/nasal series and vowels, as in diachronic rules such as *a* > *ɔ* in the second syllable of a word beginning with *g* or *ŋ* (for example *ŋaba-* > *bɔ-* in Jb1, Mbabaram). The low vowel has no association with any of the parameters for classifying consonants; to show this it is set off by a double line in table 12.1.

Note that most languages have a single series of stops. In some languages these are articulated most like the English voiced stops and they are as a consequence generally written as *b*, *g*, *dj*, *dh*, *d* and *rd*. In others they are most like English voiceless stops and are written as *p*, *k*, *tj*, *th*, *t* and *rt*. The two orthographic conventions are equivalent. In this work I generally follow the convention employed in a particular language or in a particular area (although sometimes both systems have been used – by different people, or at different times – for a single language). For inter-language comparison and reconstructed forms I generally follow Dixon (1980) in using voiced symbols. Some languages do have two series of stops, one voiceless/geminate/fortis and the other voiced/non-geminate/lenis; in such languages the first series is generally represented by *p/t/k*/etc. and the second series by *b/d/g*/etc. (they are sometimes represented by double versus single letters, e.g. *pp* and *p*). See §12.5.

12.1.1 *Consonants*

We can consider the two dimensions of organisation for table 12.1 – place (for the columns) and manner (for the rows).

Place. It is not sufficient in Australian languages to describe consonants in terms of passive articulator. If a conventional front-to-back-of-the-mouth scheme were followed

we would have the order: *b*, *dh*, *d*, *dj*, *rd*, *g*. This would miss important associations – in all Australian languages – between *dh* and *dj*, between *d* and *rd* and between *b* and *g*. For our phonological description to have maximum explanatory power, we need to group sounds by active articulator, and then to further specify them by passive articulator. Ken Hale first recognised the necessity for stating both active and passive articulator in Australian language studies, in the 1960s (in unpublished materials); the first use in print appears to be O'Grady (1966).

Laminals – sounds made with the blade of the tongue as active articulator – form a natural class: both phonetically and phonologically, and both synchronically and diachronically. Some Australian languages have contrasting laminal series, as in table 12.1. In others there is a single series of laminal stop and nasal (and often also lateral); this may have both lamino-palatal and lamino-dental allophones, or just one or the other. See §12.2.

The two apical series, as set out in table 12.1, also form a natural class. Again, some languages show an apical contrast while others have a single apical series of stop, nasal and lateral (often with both alveolar and postalveolar allophones). The status of the apico-postalveolars (retroflexes) is something that has not yet been fully settled – whether we should recognise a distinct point of articulation, or a secondary feature associated either with an apico-alveolar segment or with a larger syntagmatic extent. This matter is discussed in §12.3.

Ladefoged and Maddieson (1996: 29–30) examine mean spectra of release bursts for the four non-peripheral stops in WL1, Eastern Arrernte, and comment on the natural grouping into laminal and apical sets: 'The spectra of the two laminal stops show a general tendency for amplitude to decrease monotonically as frequency increases. In contrast, the spectra of the two apical stops show a mid-frequency peak.'

The two series of phonemes articulated at the extremes of the mouth – bilabials and dorso-velars – also pattern together phonotactically and acoustically; the label 'peripheral' is convenient for referring to this class.

A further place of articulation has been suggested for WMa, Yanyuwa, and adjoining languages of the X and NCb subgroups – dorso-palatals, involving the back of the tongue touching the hard palate; see Dixon (1980: 141–2), Kirton and Charlie (1979) and Chadwick (1975: 4). However, several scholars suggest that these are best analysed as a sequence of laminal–palatal plus dorso-velar phonemes. Pensalfini (1997: 59–63) shows how in NCb1, Djingulu, a morpheme ending in *dj* followed by a morpheme beginning with *g* produces a sequence *djg* (this had been treated as a dorso-palatal stop by Chadwick). See also Butcher (forthcoming).

Manner. Stops tend to have straightforward articulation. The laminals, in particular, may involve some friction. The apico-alveolar, and sometimes also the apico-postalveolar, may be realised as a tap intervocalically.

As already mentioned, the velum tends to be lowered rather late for nasals, sometimes after the obstruction in the mouth has been established. Laterals tend to have a clear pronunciation; that is, they are not velarised when following a vowel, as in English.

The canonical system involves two rhotics or grooved-tongue sounds – both are apical sounds (involving the tip of the tongue), basically distinguished by the passive articulator. The alveolar rhotic is generally a trill or tap while the postalveolar rhotic is generally a continuant (or glide) but may sometimes be a trill or a tap. Some languages have three rhotic phonemes; articulatory descriptions are provided in §12.3.2.

The semi-vowels involve a part of the tongue approaching but not touching a part of the roof of the mouth. Each language has a dorsal–labial semi-vowel, *w*. This always involves the back of the tongue being raised towards the soft palate; in many – but not all – languages there is concomitant lip rounding. Almost every language has a single laminal semi-vowel, *y*, with the blade of the tongue raised towards the hard palate. The exceptions are languages with two laminal semi-vowels, one lamino-palatal (written as *y*) and the other lamino-dental (*yh*). The laminal contrast for semi-vowels is found in two areas, both in the west:

- (i) In NF1, Bunuba, and in the adjoining Unggumi dialect of NG1, Worrorra, where it appears to be an archaic residue;
- (ii) In WHc4, Yinjtjiparnrti. In this language there has been considerable lenition of stops; besides *p* > *w*, *k* > *w* and *tj* > *y* we also get *th* > *yh*, giving rise to the second laminal semi-vowel (O'Grady 1966: 91).

12.1.2 Vowels

The canonical vowel system has just three members: high front *i*, high back *u* (rounded in some languages but not in others) and low *a*. Some languages have added further vowels, typically mid-low front *ɛ* and/or mid-low back *ɔ* (written as *e* and *o* respectively in practical orthographies). Discussion of ways in which these extra vowels have evolved is in §12.8.2.

There are generally several possible phonological solutions for any set of phonetic data. Australian languages do show phonetic diphthongs and vowel sequences. However, the solution adopted by almost all Australianists is that these should be analysed as combinations of vowel(s) and semi-vowel(s) so that:

- (a) Every syllable involves just one vowel;
- (b) There are no sequences of vowels.

Some languages do have syllables of type V but these only occur word-initially and in most cases must be followed by a syllable of type CV(C).

There are many points of justification for this analysis. Consider the word for 'spear' in H1, Dyirbal, [baŋgar]. It could be analysed as ending in a semi-vowel, /baŋgay/, or

in a vowel, /bangaɪ/. But it takes locative allomorph *-dja*, which is similar to allomorphs used on stems ending in a consonant (homorganic stop plus *a*) and different from the allomorph on a stem ending in a vowel (*-ŋga*). Taking the [aɪ] to represent /ay/ thus simplifies the morphological statement.

Some linguists have experimented with writing 'i' for both /i/ and /y/, and 'u' for both /u/ and /w/. (Blake and Breen did this in their 1971 draft of a Pitta-Pitta grammar, but in the revision of this Blake 1979b followed the normal convention.) This cannot work for a language that allows sequences of semi-vowels (as many do). A word written according to this system as 'baiui', for instance, would be ambiguous between /baywi/ and /bayuy/.

In some languages a number of words may be pronounced with either initial [yi] or [i] and others with either initial [wu] or [u]. The neatest phonological solution is to assign forms /yi/ and /wu/ respectively. It is often the case that a semi-vowel can be dropped from pronunciation before a homorganic high vowel only in specific phonotactic circumstances. In H1, Dyirbal, for instance, this is only possible if the second consonant is not *l* or *y*; thus /wuba/ can be pronounced as [wuba] or as [uba] but /wula/ can only be pronounced as [wula], not as [ula] (Dixon 1972: 278).

A number of Australian languages do have contrastive length for some or all vowels. In some languages this appears to be an archaic retention, while in others it is plainly a recent innovation – see §12.8.4. WJb1, Warlpiri, is a rare (within Australia) example of a language which involves mora-counting, with long vowels counting as two moras and short vowels as one mora for allomorphic rules. For example, in Warlpiri, ergative is *-ŋgu* after a stem of two moras and *-lu* after one of three or more moras. In other languages long vowels count the same as short vowels for rules of stress placement and of allomorphy. For instance, in H2, Warrgamay, transitive verbs take *-ya* for positive imperative if they have two syllables and a zero suffix if they have three syllables, e.g. *wugi-ya* 'give-IMPERATIVE', *gungari-Ø* 'cut-IMPERATIVE'. The verb *bu:di-* 'take' involves a long vowel but its imperative is *bu:di-ya*. That is, all disyllabic stems behave in the same way, whether or not they involve a long vowel.

12.1.3 Phonotactics

Most Australian languages have no monosyllabic words at all (outside interjections). Others show a few; in some languages monosyllables must have a long vowel and/or a syllable-closing consonant. A number of languages have monosyllabic (bound) roots, but every inflected word must involve at least two syllables.

The canonical word pattern is disyllabic, beginning with a single consonant (not a vowel or a consonant cluster) and ending with either a consonant or a vowel (again, not with a consonant cluster). Between vowels there can be one or a sequence of two

consonants. This pattern can be shown as

$C_1V_1C_2C_3V_2(C_4)$	where there is a medial consonant cluster
$C_1V_1C_5V_2(C_4)$	where there is a single consonant medially

For longer words the element $C_2C_3V_2$ or C_5V_2 is simply repeated.

The later in a word a V-V sequence occurs, the more likely it is to be separated by just one consonant, rather than two.

There are of course variations on the canonical pattern. Some languages do show vowel-initial words, often as the result of ‘initial dropping’ – see §12.4. All words must end in a vowel in one group of languages, and with a consonant in another group – see §§12.9.1–2. Some languages allow a sequence of three consonants between vowels. And there are some languages which permit consonant clusters word-initially and/or word-finally, often as a consequence of diachronic changes – see §12.9.3 – for example *bamba* > *mba* ‘belly’ in Jb1, Mbabaram, and *kurruk* > *krruk* ‘blood’ in Q, Muk-thang.

Generally, all vowels can be found at both V_1 and V_2 positions. However, many languages with a length contrast only show this in V_1 position (which is generally the stressed syllable).

Virtually every language has homorganic clusters of nasal plus stop at $-C_2C_3-$. Some languages also have homorganic lateral plus stop at this position and a very few have homorganic lateral plus nasal.

There are, generally, different possibilities at each of C_1 , C_2 , C_3 , C_4 and C_5 . WHc2, Martuthunira, has a canonical phoneme system, as set out in table 12.1. Leaving aside homorganic nasal-stop clusters (*-mp-*, *-ŋg-*, *-njtj-*, *-nhth-*, *-nd-*, *-rnrnd-*), the possibilities in the various slots are (Dench 1995: 30–4):

C_5			C_1		C_3	C_2		C_4	
	rr	r				rr		rr	
lj lh	l rl					lj	l rl	lj	l rl
m ŋ	nj nh	n rn	m ŋ	nj nh	m ŋ	nj	n rn	nj	n rn
p k	tj th	t rt	p k	tj th	p k				
w	y		w	y	w	y			

The full set of consonant phonemes contrasts only at C_5 . At C_1 we get peripheral and laminal (but not apical) stops, nasals and semi-vowels, but no liquids. C_3 just has peripheral stops, nasals and semi-vowel plus the laminal semi-vowel *y*. For this language C_2 and C_4 coincide, with laterals and nasals in the two apical series and in the lamino-palatal series, plus apico-alveolar rhotic *rr*.

This is a fairly typical system. Generalising over the continent the patterns are as follows.

(i) C_5 . Normally, every consonant contrast is made in this position. Exceptions are reported for Mf, Bandjalang, where *d* and *dj* contrast at C_1 but are neutralised at C_5 and C_3 (Crowley 1978: 8–9); and Mg1, Gumbaynggirr, where *l* and *r* are said to contrast at C_2 and C_4 but not at C_5 , save between *i*(:) and *i*(:) (Eades 1979: 262).

(ii) C_1 and C_3 . The possibilities here are similar but are not usually identical. The recurrent tendencies are:

- Place: All peripherals occur, and are found in many words.
 Laminals always occur, in fairly many words; if there is a laminal contrast it is almost always made in initial position.
 Apicals occur initially in most languages, but only in a few words; if there is an apical contrast it is almost always neutralised in initial position; some languages are like Martuthunira in allowing no apicals initially.
- Manner: Stops and nasals always occur, and are found in many words.
 Semi-vowels always occur word-initially, in fairly many words, but are seldom found at C_3 position (a few languages have a small number of words with *w* at C_3 and very few languages have *y* in this position – Martuthunira is unusual in this respect).
 Liquids are rare; in about half the languages there are a few words beginning with the (neutralised) apical lateral, and in about half there are a few words beginning with the (neutralised) rhotic; laminal laterals are very rare word-initially (they occur in just a few languages and then in a very small number of words); liquids are almost unknown at C_3 position.

(iii) C_2 and C_4 . The possibilities here are generally similar (Martuthunira is unusual in having identical systems at C_2 and C_4). The recurrent tendencies are:

- Place: Apicals always occur, and are found in many words; if there is an apical contrast it is always maintained in syllable-final position for nasals and laterals (but for rhotics in only about half the languages).
 Laminals generally occur, in fairly many words; if a language has two laminal series, generally only one occurs in C_2/C_4 position (that is, the laminal contrast is here neutralised).
 Peripherals only occur in a minority of languages.
- Manner: Nasals, liquids and rhotics occur in almost all languages, and are found in many words.
 The laminal semi-vowel, *y*, is found at C_2 and C_4 position in many languages from the eastern part of the continent; the peripheral

semi-vowel *w* is found syllable-finally in rather few languages, and then in just a small number of words.

Stops only occur syllable-finally in some languages from groups A, B, E, Jb, Q, S–U, Y, WF–WM, NB–NK; note that in a fair number of these languages only a few words end in a stop.

With respect to place, the possibilities and preferences at C_1/C_3 and at C_2/C_4 are roughly inverted:

C_1/C_3		C_2/C_4
most favoured	PERIPHERALS	least favoured
next most favoured	LAMINALS	next most favoured
least favoured	APICALS	most favoured

The apicals are the least marked series and the peripherals the most marked, from an articulatory point of view. That is, the greatest movement of the vocal organs from rest position is required to articulate a peripheral sound and the least movement to articulate an apical sound (with the laminals falling between these). In other words, there is a preference for the most marked series in syllable-initial slot and the least-marked series syllable-finally. (This generalisation was given in all essential respects in Dixon 1980: 188; it was repeated, in modified form, by Hamilton 1989, 1996.)

Laughren (1984) provides a fascinating account of the speech style used for talking to babies in WJb1, Warlpiri. This employs just three stops, three nasals and one lateral where the adult speech style has five, five and three respectively. The two apical series and the one laminal series are, in baby talk, all replaced by the one laminal series, e.g. *wita* 'small' becomes *witja*. Most of the examples quoted are at positions C_1 and C_5 (Warlpiri has no C_4 slot, and heterorganic medial clusters become homorganic in baby talk). That is, the apicals, least favoured in C_1 position, are here eliminated and replaced by laminals.

The possibilities and preferences at C_1/C_3 and C_2/C_4 are less neat with respect to manner:

C_1/C_3		C_2/C_4
not universal and rare where they occur	LIQUIDS	universal and common
universal and common	NASALS	universal and common
universal and common	STOPS	areal (can be fairly common where they occur)
universal and common	SEMI-VOWELS	y is areal (and can then be common); w is rare (and limited, where it occurs)

These do not yield any simple hierarchy of markedness, as did the place specifications.

Australian languages typically have some phonological rules and some allomorphic specifications that are sensitive to the number of syllables in a form (an example from H2, Warrgamay, was given at the end of §12.1.2). When the normal conventions for describing the languages (principles (a) and (b) in §12.1.2) are followed, the number of syllables is easy to determine – it is the same as the number of vowels.

What can be difficult (or impossible) to determine on a principled basis is the boundary between syllables. For example, some languages allow only one consonant word-initially and one word-finally but up to three consonants between vowels. In words *galmbin* and *galnbin* we would take *l* as belonging to the first and *b* as belonging to the second syllable. But what of the middle consonant in the cluster? It is homorganic with (and could be said to have an association with) the following *b* in *galmbin*, but with the preceding *l* in *galnbin*. There appears to be no principled way to decide whether the middle consonant should relate to the first or to the second syllable. In most cases the actual boundaries of syllables are unimportant; all that is needed is to ascertain the number of syllables in a form.

12.1.4 Stress

In non-prefixing languages the canonical pattern is for stress to go on the first syllable of a root and of a suffix (especially a suffix of two or more syllables). This commonly yields a pattern of trochaic feet, each consisting of a stressed (S) followed by an unstressed (U) syllable. In some languages a word-final syllable may not be stressed, so that one gets trisyllabic words of the pattern SUU (e.g. H1, Dyirbal); in other languages a final syllable may bear stress, giving SUS (e.g. Dd1, Guugu Yimidhirr).

At an earlier stage vowel length only applied in the initial, stressed, syllable of a word; some languages retain this. Languages that have recently developed vowel length fall into two classes. In some of them a syllable containing a long vowel (wherever it comes in the word) must be stressed (Guugu Yimidhirr is also an example of this). In others, stress remains on the initial syllable even if there is a long vowel in a later syllable (e.g. the Ngadjan dialect of H1).

In some languages a trisyllabic word (without any phonological long vowel) has its middle syllable stressed, and phonetically lengthened, giving a pattern USU (e.g. H2, Warrgamay). In the Madhi-Madhi dialect of Ta1, stress goes on the middle syllable of a trisyllabic form only if this syllable begins with a non-peripheral segment (Hercus 1986: 115–16). Similar patterns are found in Ya1, Djapu (Morphy 1983: 25), and Yc1, Djinang (Waters 1980). In G2, Yidinj, the penultimate syllable of a word with an odd number of syllables is lengthened and then, under certain conditions, a final vowel is dropped, e.g. *malanu* > *mala:nu* > *malá:n* ‘right hand’ (forming a minimal pair with *málan* ‘flat rock’) – see Dixon (1977a: 39–68; 1977b).

Most prefixing languages also show stress on the initial syllable of a word, but some in groups WMa, NB, NC, NI, NK and NL show stress on the penultimate syllable. In many languages, from both prefixing and non-prefixing groups, there are rules for what to do with stress in morphological combinations (e.g. when two monosyllabic affixes come together, or after lenition rules have applied). See, for example, Nash (1985: 99–116) on WJb1, Warlpiri.

In almost every language, stress is predictable; that is, stress is not phonologically contrastive, serving to distinguish words. Jb1, Mbabaram, may be a counter-example in that, for example, some disyllabic words are stressed on the first and others on the second syllable, e.g. *búmba* ‘ashes’, *dhambú* ‘short’ (Dixon 1991b: 360 – note that this is based on work with the last speaker, who was consistent in this matter). But no minimal pairs of words, distinguished just by stress, were obtained in the small Mbabaram corpus.

Evans (1995c: 753) mentions two other languages as having contrastive stress. In fact, NBf4, Ndjebbana, has a contrast which involves a combination of vowel length and stress ‘neither of which can . . . be shown to be primary’ (McKay 2000: 175). And the supposed contrast in Bc3, Wik-Mungkanh (see Sayers 1976b: 287), may be explainable in terms of consonant clusters and epenthetic vowels. Alpher (p.c.) suggests that Eb2, Koko Bera, may show contrastive stress; a definitive analysis of this language has not yet been produced.

Appendix D in Goedemans (1998: 235–50) is a fairly reliable classification of Australian languages by stress types (and includes information on both primary and secondary stress).

As mentioned at the beginning of this chapter, Blevins and Marmion (1994: 197) report that in WGb, Nhanta, ‘phonetic realization of . . . stress was restricted to the tonic vowel and following consonant. As a result, the onset component of the stressed syllable was shortened. In other words, within syllables with main stress, lengthening of the tonic vowel was accompanied by complementary shortening of onset consonants’. Detailed study of other languages is required, to see if these remarks apply more widely. It is likely that they will. Certainly, Blevins and Marmion’s observation helps explain some of the diachronic changes which have applied, in Nhanta and in a wide range of other languages – see §12.4.

12.2 Laminals

Every Australian language has laminal sounds, made with the blade of the tongue as active articulator. There are basically two varieties: lamino-palatal, in which a fair area of the tongue makes contact with the hard palate and/or the base of the alveolar ridge; and lamino-dental, in which the blade makes contact with the teeth. Generally lamino-

dental involves contact with both upper and lower teeth, which are slightly apart, the tip of the tongue being in the region of the lower teeth ridge – this is, strictly speaking, a lamino-interdental. In some languages the blade of the tongue only touches the top teeth. In a few languages, the tongue tip protrudes between the teeth. See the literature survey in Butcher (forthcoming).

Some languages have a single laminal series of stop and nasal (and sometimes also lateral). This can have either palatal or dental pronunciation, or it may have both, as conditioned variants. It is instructive to compare articulation of the single-laminal series in H1, Dyirbal, in its southern neighbour H2, Warrgamay, and in Warrgamay's southerly neighbour H3, Nyawaygi. In Dyirbal the pronunciation is always palatal. In Warrgamay it is generally palatal but dental allophones are heard, before *a* and *u*. In Nyawaygi the major allophones are dental, although palatal pronunciation is occasionally heard, especially before *i*. There can be variation within a single language. Hercus (1986: 73, 106) describes how in the Wergaya dialect of Ta1 the single laminal series has palatal articulation, whereas in the Madhi-Madhi dialect it is generally interdental.

Many Australian languages show two series of laminal phonemes, one lamino-palatal and one lamino-dental or lamino-interdental. Like virtually every other parameter in Australian linguistics, the distribution of single-laminal and double-laminal languages has an areal basis – see map 12.1. Double laminal languages are found in four regions:

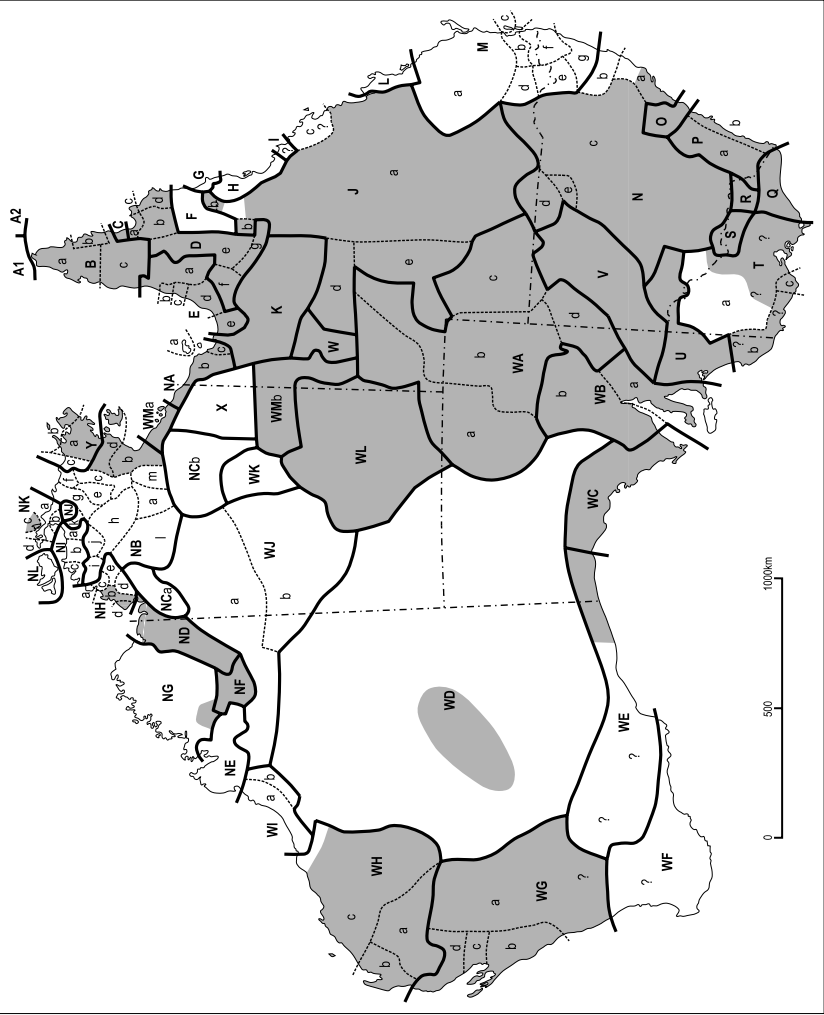
- (i) The largest is a solid block from north to south in an east-central area, snaking up the eastern side of Arnhem Land. It includes some or all languages from groups B–E, J–K, N–W, Ya/b, WA–WC, WL, WM, NA, NBb and NBd, plus WE1.

Note that in NBb, lamino-dentals are rather rare and appear to occur only in loans. This suggests that there may originally have been two regions, one consisting of Y and NBd and the other consisting of the remaining languages except for NBb. The two languages in NBb (Marra and Warndarrang) were located between the two regions and – rather recently – would have adopted interdentals through loans.

- (ii) There is a block along the west coast, including languages from groups WG and WH (but not WHc9–10), plus two dialects of WD (which may or may not have been contiguous to WG/WH).

Note that data is scanty on languages in the far south-west and along the Bight (WF and WE2/3) joining these areas; on the slim information available it is unlikely – but by no means impossible – that they also had a laminal contrast. This would have served to link together (i) and (ii) into a single area.

- (iii) A small block in the central north-west, consisting of one dialect from NG1, the whole of subgroups NF and ND, plus Nhd1 and Nhb.
- (iv) The fourth region consists just of NKc, Marrgu.



Map 12.1 Languages with a laminal contrast

There is a single laminal series in languages over the rest of the continent: almost all of the Western Desert, the far north-west, Arnhem Land (apart from its eastern extreme), an area in western Victoria, and two blocks on the east coast, one northern and the other central.

If we search for a single historical scenario that will explain the present distribution of laminals, there are two opposing possibilities. The first is that at an earlier stage languages across the continent had a laminal contrast, and this has been lost from the languages in some regions. The second is that at an earlier stage there was a single laminal series and that languages in four regions have developed a contrast between two laminal series. Under either hypothesis the change would have begun in just a few languages, and then diffused from these nodes over the languages in a continuous area.

In Dixon (1970) I presented evidence in favour of the second hypothesis. This was repeated in Dixon (1980: 153–4) and has been supported by later work – see, for example, Hercus (1994: 27–9) on WAa3, Arabana/Wangkangurru. My idea was that there was originally one laminal series with allophones as follows:

lamino-palatal before *i* (and *e*, where this occurs)

lamino-(inter)dental before *u* (and *o*, where it occurs)

There are five types of evidence for this hypothesis.

(a) *Allophonic distribution in single-laminal languages.* If a language has both types of allophone for a single series of laminal stop and nasal (and sometimes also lateral) then the general tendency is to get palatal before *i* and dental elsewhere (as described above for Warrgamay and Nyawaygi).

(b) *Phonotactic distribution in double-laminal languages.* In most (but not all) double-laminal languages there is a strong association between lamino-palatal phonemes and a following *i*, and between lamino-dentals and a following *u* or *a*. For example, counts of initial C₁V₁- syllables in the vocabularies of NBd1, Ngandi (Heath 1978b), and WHc3, Panyjima (Dench 1991), yield:

	NBd1, Ngandi			WHc3, Panyjima	
	V ₁			V ₁	
C ₁	<i>a, u, o</i>	<i>i, e</i>	C ₁	<i>a, u</i>	<i>i</i>
(a) palatal	91	49	(a) palatal	64	38
(b) dental	89	17	(b) dental	37	4
ratio (a) : (b)	1.02	2.88	ratio (a) : (b)	1.73	9.5

It will be seen that the ratio ‘palatal : dental’ is much greater before *i* and *e* than before *a, u* and *o* – 2.88 as against 1.02 for Ngandi and 9.5 as against 1.73 for Panyjima.

The hypothesis is that originally we had (illustrating for stops) the following sequences:

[dha] [dhu]
[dji]

with [dh] and [dj] as allophones of a single phoneme. Then some or all of [dja], [dju] and [dhi] were introduced, and with them a phonemic contrast. There are various ways in which this could have happened. One mechanism would be borrowing from another language (or even another dialect of the same language) which has different allophonic orientation. Suppose that language A has a single laminal series always pronounced as palatals but a neighbouring language, B (also with a single laminal series), has allophone [dh] before *a* and *u*. Language A might have a word /djaba/, [dja] 'belly' and B might have a word /djaba/, [dhaba] 'honey'. If A borrows the word for 'honey' from B, it may retain the phonetic form; this contrasts with 'belly' so that (with this reinforced by a number of similar loans) we now have a phonemic contrast between /djaba/ 'belly' and /dhaba/ 'honey' in language A; that is, a contrast between /dh/ and /dj/.

In Dixon (1980: 154) I pointed out that the double-laminal language WMa, Yanyuwa, has sequences /dha/, /dhu/, /dja/, /dju/ and /dji/ but no /dhi/ at all word-initially (and only four instances word-medially). A similar situation appears to hold in WC, Wirangu, and the adjoining WE1, Mirning – there were probably two laminal series, but no examples of /dh/ before /i/.

(c) *Conventions for tabooing*. When someone dies, their name is likely to be tabooed for a while, and also any vocabulary item considered to be similar to it. The interesting point concerns speakers' perceptions of what counts as similarity. In the example given under (d) in §2.1.4, when a Yolngu man called Bitjingu died, the word *bithiwul* 'no, nothing' dropped out of use. That is, the lamino-dental stop *th* was here considered as equivalent to the lamino-palatal stop, *tj*; this provides clear evidence that the two laminal series are accorded a close connection by speakers.

(d) *Comparative reconstruction*. When we compare cognates which include laminal sounds, between single-laminal and double-laminal languages, we get a picture illustrated by the following example. Here *nj* represents the laminal nasal in the Ngadjan dialect of H1, which has a single laminal series, and *nj* is the lamino-palatal and *nh* the lamino-dental nasal in WHb2, Thalantji, a language with two laminal series.

CORRESPONDENCES					
	Ngadjan	Thalantji	single-laminal language	double-laminal language	environment
'see'	nja(gi)	nha(ku)	nj	: nh	/ -a
2pl	njurra	nhurra	nj	: nh	/ -u
'sit'	njina	njina	nj	: nj	/ -i

The correspondence set $nj : nh$ occurs before a and u and the correspondence set $nj : nj$ before i ; they are thus in complementary distribution. Applying the comparative method, this leads to the reconstruction of a single laminal nasal (and similarly, a single stop), with allophone $[nj]$ before i and $[nh]$ before a and u .

(*e*) *Position of neutralisation.* The idea that there was originally a phonetic distinction between dental and palatal allophones conditioned by the following vowel – and that this later developed into a phonological contrast – is supported by the position of neutralisation. As mentioned in §12.1.3, if a language has a laminal contrast this is generally shown in word-initial position, where there is a following vowel which would have provided the original conditioning environment; there is generally no laminal contrast in word-final position, where there is no following vowel.

It is rare to find a language with a laminal contrast which does not display this in initial position. There may, however, be partial neutralisation. Austin (1981a: 18) states for WAb2, Diyari, ‘when a word which begins with a laminal stop contains a lamino-palatal stop, nasal or lateral (either singly or in a cluster) later in the word, then the initial th and tj are in free variation. That is, there is no contrast in this environment.’ Donaldson (1980: 51–9) discusses various kinds of conditioning factors for neutralisation of laminals in Nc3, Ngiyambaa.

There is, then, persuasive evidence for a laminal contrast having evolved recently. But this conclusion must be treated with caution. Recall that there are four regions in which languages have a laminal contrast. We have so far only referred to languages from the two larger areas, west and east-central (which may have joined up in the south-west). A rather different picture emerges when we examine the small area consisting of NHb, NHd1, ND, NF and one dialect of NG1. Counts of initial C_1V_1 -syllables in the vocabulary of NF1, Bunuba (Rumsey 2000), give:

NF1, Bunuba

C_1	V_1	
	a, u	i
(a) palatals	65	28
(b) dentals	27	7
ratio (a) : (b)	2.4	4.0

The difference between the two ratios here is not so pronounced as the differences given above for Ngandi and Panyjima.

As stressed throughout this book, Australian languages have been in the continent for tens of thousands of years, and there must have been a great deal of change during this period. Much of it appears to be cyclic. It is likely that the gain and loss of a laminal contrast (at the phonological level) is another instance of a cyclic process. Bunuba

presents an impression of a language which has had a laminal contrast for a long time. (Note that it also has a laminal contrast in semi-vowels, which has a low functional load; this appears to be an archaic feature that is now being lost.) Other languages – such as WMa, Yanyuwa, and WAa3, Arabana/Wangkangurru – give the appearance of having gained a laminal distinction recently.

There is evidence that some languages on the periphery of a double-laminal region are losing this distinction. The Yolngu languages, Y, constitute a close-knit genetic subgroup, and a laminal contrast can be reconstructed for proto-Y. This contrast is retained in the Ya and Yb branches (these are bordered to the north and east by the sea and to the south by languages of the NBd group which also have a laminal contrast). But it has been lost from the languages of the Yc branch; these adjoin languages of subgroups NBc and NBf, which lack a laminal contrast. It seems clear that this lack has diffused eastwards from NBc and NBf into Yc.

Chapter 4 presented a set of lexical forms which occur across several regions of the continent. Some of them are given with initial *dh*; this is generally realised as the lamino-dental stop in a language with a laminal contrast (and similarly for *nh*). It is noteworthy that some languages in the WH areal group, which have a laminal contrast, show a lamino-palatal stop in some of these lexemes. For instance, item (5) from §4.2.4, **dhurna* ‘yamstick’ occurs as *djurna* in WH, while item (42) from §4.2.7, **badha*- ‘bite’ is *badja*-. This could be taken to suggest that, at a stage not too far in the past, languages of the WH group had a single laminal series (as indeed WHc9, Nyamal, and WHc10, Ngarla, do today) with a laminal contrast having been introduced rather recently.

It is likely that, a very long time ago, there was a single laminal series of phonemes, with palatal and dental allophones, and that this developed into two contrastive laminal series of phonemes in the languages of a certain region or regions. Some languages had a laminal contrast and others lacked one. This areal distribution will have been continually shifting. A language with no laminal contrast may gain one, either due to diffusional pressure from its neighbours or just by internal development. A language with a laminal contrast may lose this, again due to diffusional pressure or just to internally motivated change. As tribal groups and languages shift locations, so the regions with and without a laminal contrast will shift. It is likely that the two small areas of languages with two laminals – NKc, and NHb/NHd1/ND/NF/NG1 – are each relics of what were once larger areas, which have contracted. And it is likely that the two large regions with a laminal contrast are now expanding on some fronts (for example, in WH) but contracting on others (for example, where subgroup Yc has recently lost the distinction).

It is oversimplistic to look for a ‘simple solution’ to the laminal question – did all Australian languages once lack a laminal distinction with this being recently innovated in those languages that now have it, or did all languages once have the distinction with this being lost in those languages which now lack it? Some languages which have the

distinction may have had it for a long time and now be in the process of losing it, while other languages with the distinction have undoubtedly innovated it recently. The present situation is best viewed as the end-product of tens of thousands of years of cyclic oscillation between having and not having a laminal contrast at the phonological level, with some waves of diffusion spreading the contrast and others (in different places and at different times) spreading a loss of the contrast.

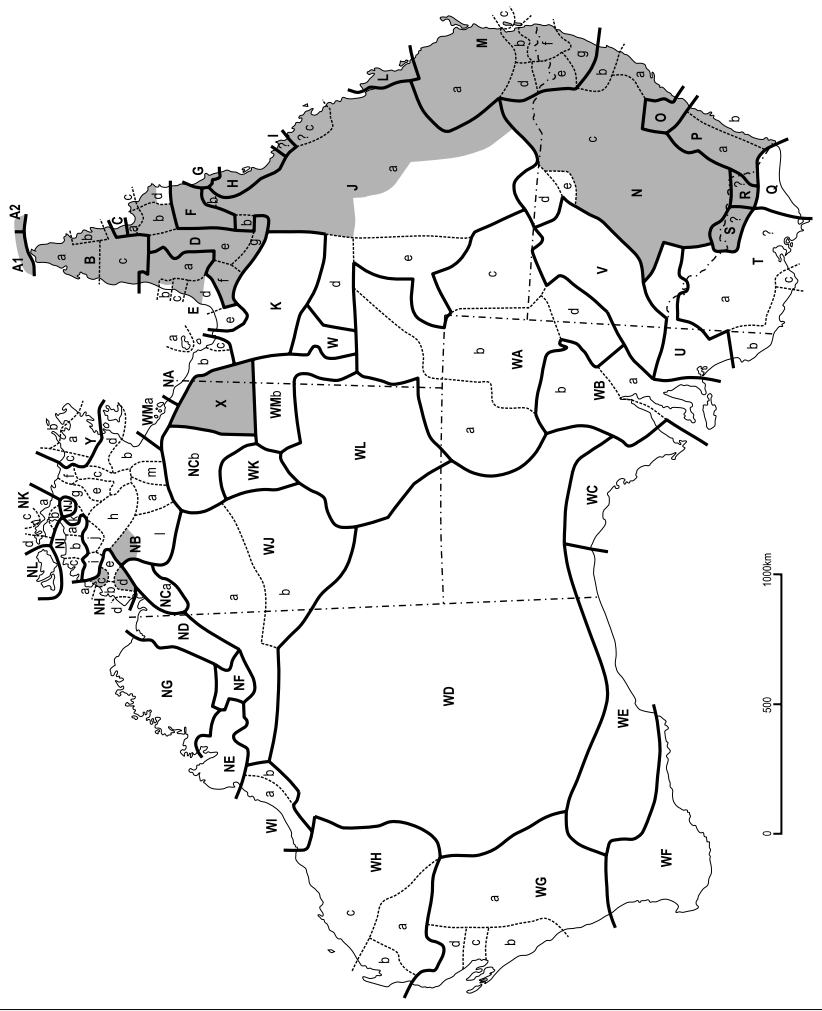
12.3 *Apicals, including rhotics*

Most Australian languages have a contrast between two apical (or tongue-tip) series of stops and nasals (and often also of laterals). This is missing from three regions:

- (i) The eastern fringe of the continent. There is a single apical series in all but one of the languages from groups A–D, Ea–c, Ed1, F–H, Jb, L, M, Na–c, O, P, R, S; the exception is Eb1, Yir-Yoront, which appears to have recently innovated a second apical series, at least partly through loans. (The special case of Dd1, Guugu Yimidhirr, is mentioned at the end of §12.3.1.) The apical isogloss runs through the middle of subgroup Ja – see §13.4. (Ba5–8 have innovated a series of apical stops with retroflex off-glide, described under (a) in §12.4.3, but this is rather different from the standard apical contrast.)
- (ii) Subgroup X, consisting of X1, Waanji, and X2, Garrwa.
- (iii) Three languages from a small region in the central north-west: NB11, Wagiman, NHd2, Ngan.gi-tjemerri, and NHc, Malak-Malak. (NB11 borders NHd2 and NHc is a little way apart.)

That is, languages with an apical contrast constitute a continuous area, and those lacking it make up three areas – see map 12.2. In double-apical languages there is an apico-alveolar series, where the tongue tip comes into contact with the alveolar ridge; and an apico-postalveolar (or apico-domal, or retroflex) series where the tongue tip is bent back to touch either the back of the alveolar ridge or the hard palate. (Or the tongue tip may be turned back further so that it is the underside of the tongue which makes contact; this is a subapical or a sublaminal sound.) Languages with a single apical series sometimes have apico-alveolars and apico-postalveolar allophones.

In Dixon (1980: 155–6) I suggested a development for apicals in Australian languages similar to that for laminals. The idea was that there was originally a single apical series, with postalveolar allophones after *u* and alveolars elsewhere. This then developed into a phonological contrast. As evidence I noted that some modern languages with a single apical series maintain the suggested original allophony; that in languages with an apical contrast there is typically a statistical association of postalveolars with preceding *u*; and that this would explain the fact that an apical contrast is generally shown word-finally (where there is a preceding vowel) but is neutralised word-initially (where



Map 12.2 Languages lacking an apical contrast in stops and nasals

no vowel precedes). I also presented some sets of cognates where the correspondence between a postalveolar phoneme from a double-apical language and the apical from a single-apical language is found after *u*, and that between an alveolar and the single apical is found after *i* and *a*, suggesting that there was originally a single apical series, with postalveolar allophone after *u* and alveolar elsewhere. However, further work does not support this distribution of correspondence sets – see §12.3.3.

In fact, the apical problem is much more complex, and there are a fair number of quite different kinds of possible solution to it. (I shall suggest, at the end of this section, that they may each have a degree of validity.) There is also the question of rhotics, which Australianists (even those who choose not to recognise a class of rhotics as such) consistently place in the apico-alveolar and apico-postalveolar columns in their tables of phonemes. We need to ask whether the recurrent contrast between two rhotics is essentially the same as the contrast between two apical series of stops, nasals and laterals. This will also be discussed in §12.3.3.

We shall first consider what the nature of the apical contrast is. Apico-postalveolars (or retroflexes) are typically treated as a distinct ‘place of articulation’ in Australian languages, as in most other languages in which they occur. An alternative is to regard retroflexion as a secondary feature of an apico-alveolar sound, or as a prosodic feature applying across a domain of more than one segment. This approach would treat retroflexion as similar in nature to aspiration, or glottalisation, or nasalisation.

The next subsection discusses some of the significant characteristics of apical stops, nasals, and laterals. §12.3.2 then deals with rhotics. §12.3.3 enunciates the questions which need to be posed concerning apicals, and assesses the various possibilities for historical development.

12.3.1 *Stops and nasals (and laterals)*

We shall here briefly survey: (a) phonotactics, and initial neutralisation; (b) extension of retroflexion to a preceding vowel; (c) association with an adjacent *u*; (d) prosodic treatment; (e) correlation with voicing; and (f) association with rhotics.

(a) *Phonotactics, and initial neutralisation.* Apico-alveolars have similar pronunciation across languages, with the tip of the tongue touching the alveolar ridge close behind the upper front teeth. However, articulation of the apico-postalveolars (or retroflexes) varies considerably. Hercus (1986: 10) describes how in Ta1, Wemba-Wemba, ‘the occlusion is made by contact between the underneath of the tip of the tongue and the front of the hard palate’. In contrast, Rumsey (2000: 41) states that for NF1. Bunuba ‘the tip of the tongue either extends straight up and contacts a small part of the mid-palate, or is pointed backwards so that there is a small area of contact between the bottom of the tongue and the mid-palate’. Butcher (1995, forthcoming) describes his own palatographic research and also provides a good survey of the literature.

Some Australian languages are like Martuthunira, exemplified in §12.1.3, in permitting no apical consonants in word-initial position. Most languages do show initial apicals but they have a low frequency. Almost every language with an apical contrast has this neutralised in the word-initial slot. That is, there is here a single apical stop archiphoneme, corresponding to apico-alveolar and apico-postalveolar stops in medial position (and similarly for nasals and laterals).

Butcher (1995, forthcoming) shows, by palatographic investigation, that in an initial apical the contact always involves the tip of the tongue, never the underside, even when the retroflex series has sublaminal articulation non-initially. He also demonstrates that the place of apical contact, in the neutralised word-initial position, is prototypically mid-way between those of the alveolar and non-alveolar sounds non-initially; an initial apical can potentially range over the combined possibilities of non-initial alveolars and postalveolars.

Some grammars state that an initial apical archiphoneme typically has retroflex articulation when following a word (within the same phonological or grammatical construction) which ends in a vowel, and alveolar elsewhere – see Heath (1981a: 11) on NBb1, Marra; Merlan (1983: 9) on NBc2, Ngalkan; Merlan (1994: 16) on NB12, Wardaman; and Sharpe (1972: 17) on NBm, Alawa. In grammars of some other languages it is suggested that initial apicals always have retroflex pronunciation.

It was shown, in §12.1.3, that in initial position the commonest series is peripheral, then laminal, then apical; that is, what is most marked phonetically (from the viewpoint of ease of pronunciation) is most common initially. It is in keeping with this principle that an initial apical archiphoneme should typically be accorded phonetically the most marked pronunciation, apico-postalveolar (or retroflex). Discussing WL1, Arrernte, Henderson (1998: 86) shows that in slow and exaggerated speech – as in teaching a second-language learner – what is phonologically an apico-alveolar is often given retroflex pronunciation (and also that, in casual speech, a retroflex may be accorded alveolar pronunciation).

(b) *Extension of retroflexion to a preceding vowel.* A particularly important feature of apico-postalveolar sounds in Australian languages is that the preceding vowel has a retroflex quality. Indeed, the perceptual clues to the presence of a retroflex are often mostly in the articulation of the preceding vowel, and only to a limited extent in the articulation of the consonant itself. (See, for example Blake 1979b: 190 on WAa1, Pitta-Pitta; Douglas 1964: 16–17 on WD, the Western Desert language; O'Grady 1964: 12 on W1a1, Njangumarta; and Oates 1967: 40.)

This provides at least a partial explanation for why the apical contrast occurs in medial and final position (where there is a preceding vowel) but not initially. It also correlates with the observation that a neutralised apical in word-initial slot tends to have

retroflex pronunciation after a word ending in a vowel. (However, it fails to explain the observation that in some languages the neutralised apical in word-initial position appears to have retroflex articulation in all circumstances.)

Retroflexes are common in the languages of India. Interestingly, both in Sanskrit and in proto-Dravidian there were very few retroflexes word-initially (see Schwarzschild 1973, who discusses the development of initial retroflexes in Middle Indo-Aryan). Most Dravidian languages have developed initial retroflexes by a variety of mechanisms, including metathesis and assimilation (for instructive accounts see Rao 1990/1 and Krishnamurti forthcoming).

Dravidian languages are like Australian in that the retroflexion of a consonant extends into the preceding vowel. Emeneau (1970/1994: 194) states 'in any Dravidian language any vowel before a retroflex consonant has an allophone which shows, either in its latter portion or throughout, some retroflexion.'

(c) *Association with an adjacent u*. I have commented on the position of the tip and blade of the tongue when making a retroflex sound. The shape of the back of the tongue is also relevant. Data are available on this for retroflex consonants in Indian languages. Ladefoged and Maddieson (1996: 27) give X-ray tracings for the articulation of retroflex stops in Hindi and Telugu that show the back of the tongue raised towards the soft palate. Emeneau (1970/1994: 194) comments on the retroflexion of a vowel before a retroflex consonant: 'this retroflexion involves both a turning up and back of the tongue-tip and, most importantly, a retraction of the body of the tongue . . . which approximates the formation of the back of the tongue in back vowels, rounded or unrounded'. It appears that no X-ray photographs have been made of the shape of the back of the tongue during retroflex articulation in Australian languages. However, it is likely to be similar to that described for Indian languages. Indeed, it may be that turning the tongue tip up to make a retroflex sound naturally engenders the raising of the back of the tongue. Thus, in association with the tendency for retroflexion to be shown in the vowel preceding a retroflex consonant, there is also a predilection for this vowel to be high back, i.e. *u*. (The reader can test for themselves that it takes less effort to pronounce a sequence [uɖ] than [id] or [aɖ].)

Scanning grammars of Australian languages, there are recurrent comments on an association between retroflex consonants and the vowel *u* – sometimes a preceding *u*, sometimes a following *u*, sometimes just an adjacent *u*. Looking first at the single-apical language H2, Warrgamay, there is a postalveolar allophone of the apical stop which only occurs after *u* (Dixon 1981a: 16). In the Angkamuthi dialect of Ba2, Uradhi, the apical stop 'can have a slight rhotic release, together with a slight retraction of the tongue towards a retroflex articulation, when there is a following /u/' (Crowley 1983: 316).

In the double-apical language WHc3, Panyjima, there is an association between *i* and alveolar, and between *u* and postalveolar. Dench (1991: 131) reports 'there is a

strong tendency for postalveolars to be fronted to alveolar articulation following the high front vowel /i/ and, to a lesser extent, preceding this vowel. Further, there is a tendency for the alveolar stops and nasals to be backed to postalveolar articulation following or preceding the back vowel /u/, especially when this vowel is itself in the environment of a preceding or following velar consonant'. Dench also notes that this has led to some rephonemicisation. For example, *murru-rni* 'back-HENCE' underwent vowel assimilation to become *murrirni* (this form is found in the neighbouring language WHc4, Yinjtjiparnrti) with the *rn* (now in the environment *i-i*) becoming *n*, giving *murrini* 'behind' in Panyjima.

In some languages on the eastern fringe of the double-apical area, a conditioning factor for the development of postalveolars can be shown to involve *u*. The changes that have applied in Ed2, Kuthant, include *n* > *rn* when next to *u* (together with vowel dropping and other changes involving vowels). Thus **manu* > *ma:rn* 'neck' and **guna* > *ö:rn* 'faeces'; compare with *djina* > *i:n* 'foot', where *n* is retained (Black 1980: 200). In the Gunja dialect of Ja1, we also find **n* > *rn* and also **l* > *rl*, when adjacent to *u*, e.g. **guna* > *gurna* 'faeces' and **galun* > *garlu* 'testicles'.

There are also various mentions in the literature of the single apical lateral, /l/, having a postalveolar allophone; this is always conditioned, at least in part, by *u*. Examples include Mf, Bandjalang (Crowley 1978: 10), and Ja2, Biri (Beale 1974: 3; repeated in Terrill 1998: 10). Also see Cook (1987: 26-7) on vowel conditioning of apicals in NB11, Wagiman.

There is also a statistical association, in double-apical languages, between *u* and following retroflex consonants. For instance, an examination of the apicals in intervocalic position in a dictionary of the Pintupi dialect of WD (Hansen and Hansen 1992) gives:

	APICO-ALVEOLAR	APICO-POSTALVEOLAR	TOTAL
after <i>u</i>	94	105	199
after <i>a</i> or <i>i</i>	296	187	483
total	390	292	682

We find that $199/682 = .292$ of the apicals occur after *u*, and that $292/682 = .428$ of the apicals are postalveolar. If there were no association, we would expect the number of *u*-plus-postalveolar sequences to be $682 \times .292 \times .428 = 85.2$. The actual number is 105. That is, we get a positive association of $105/85.2 = 1.23$ between the vowel *u* and a following apico-postalveolar (or retroflex).

(d) *Prosodic treatment*. I mentioned earlier the desirability of examining various alternatives to the accepted treatment (in Australian and also in other languages) of retroflex as a distinct 'place of articulation'. W.S. Allen (p. c., quoted in Masica 1991: 94) suggested that, for Indo-Aryan languages, the distinctive quality of retroflexes arises 'more from the shaping than from the position of the tongue'. Allen (1953: 32, 52)

states 'to consider the retroflex articulations on the same terms as the velars, palatals, dentals or labials is, even from the point of view of the Indian descriptive framework, not entirely justified . . . The retroflex series involves a special process rather than a place of articulation'. That is, retroflex can be considered as a feature associated with an apical segment rather than as a special type of segmental phoneme. But we have seen that retroflexion typically extends over the preceding vowel; that is, it could be considered a prosodic feature, extending over a VC sequence. Or it may, perhaps, have greater syntagmatic extent.

Evans (1991: 41–4; 1995c: 739–40) describes retroflexes for NBg1, Mayali, in a quite different way from other accounts of Australian languages. Retroflexion is here a prosodic feature, applying to a complete syllable. If a syllable is marked as retroflex then the retroflexion applies to every apical segment, at the beginning and/or at the end, e.g. (here using a dot below the letter for retroflexion) we can have a retroflex syllable *ḍid* or a non-retroflex syllable *did* (but no syllable of the type **ḍid* or **ḍid*, where only one of the apicals is retroflexed). If there is no apical segment, retroflexion can be realised just on the vowel, or else a retroflex rhotic may be heard before, after or in the middle of the vowel. Thus /bək/ 'death adder', with syllabic retroflexion, has been heard as [bɛ.ɪk], [bɛ.ɪk], [bɛ.ɪk] or just as [bɛk]. Evans states that native speakers, taught to indicate retroflexion by the letter 'r' (normally, within a digraph), find it hard to know where to put the 'r'. In agreement with the varied phonetic possibilities, they will write 'brek' or 'berk' or 'berek'. This is all as would be expected, if retroflexion is a prosody of the syllable.

It would be worth investigating whether Evans' treatment of Mayali might be appropriate for other Australian languages. The reason why it has not been suggested for other languages may be attributable to a tendency to orientate a description for a new language along similar lines to earlier descriptions of other Australian languages (with apico-postalveolar as a separate series of phonemes).

There are hints in the literature of a similar phenomenon elsewhere. For instance, Merlan (1994: 45) mentions a 'retroflex-spreading phenomenon' in NB12, Wardaman. When there is a retroflex segment or cluster in a word 'preceding apical(s) may anticipate that retroflexion to some degree. Thus, in a word like /walbarndan/ 'plain', one may encounter realisations [walbarndan] but also commonly [warlbarndan].'

(e) *Correlation with voicing*. There is in some languages a strong tendency for the apico-postalveolar stop to have a voiced articulation, while the other stops are generally voiceless. See, for example, Hercus (1994: 37) on WAa3, Arabana/Wangkangurru: 'intervocalic plosives are unvoiced except for the retroflex *rd*, which is always voiced'. For WHc4, Yinjtjiparnrti, Wordick (1982: 11) reports that all consonants except for *rt* (and sometimes *rr*) 'are pronounced as if they were geminate (doubled) in medial position between vowels'.

Now in §12.5 we discuss languages which have two series of stops. One of these is variously described as voiceless or geminate or fortis, and the other as voiced or non-geminate or lenis. The quotations from Hercus and Wordick suggest an association between voiced/non-geminate/lenis and retroflexion. For Ya1, Djapu, Morphy (1983: 13) recognises seven stops, six in a fortis and one in a lenis series. The lenis member is apico-postalveolar, providing another correlation between postalveolar and lenis/voiced/non-geminate.

(f) *Association with rhotics*. There is often a perception of auditory similarity between retroflexes and rhotics; this may relate, in part, to the shaping of the tongue in retroflex articulation, noted under (d) above. In Sanskrit, retroflex consonants evolved by a number of routes, one of which is apico-alveolar rhotic plus dental stop becoming a geminated retroflex stop, e.g. *varti* > *vaṭṭi* 'wick' (Masica 1991: 176).

The standard Australianist orthographic convention, followed here, of representing apico-alveolars (retroflexes) by a digraph with first element *r* (i.e. *rd*, *rn*, *rl*) exploits this perception of similarity between rhotics and retroflexes. Native speakers are, in general, happy with this convention.

We noted under (d) that Evans treats retroflexion as a syllable prosody in NBg1, Mayali. Representing this by *ɹ*, a syllable such as /bek^ɹ/ can be pronounced (and written) as [b^ɹɛk] or [bɛ^ɹk] or [bɛ^ɹɛk]. That is, retroflexion is here written with a rhotic symbol, detached from any other consonant.

There have also been suggestions (in languages where retroflexion is not seen as a prosody) that an apico-postalveolar could appropriately be regarded as a sequence of rhotic plus apical. That is (here using phonetic symbols rather than those from the practical orthography): *d* = *ɹ* plus *d*, *n* = *ɹ* plus *n*, and *l* = *ɹ* plus *l*. For example, in her grammar of Alawa, Sharpe (1972: 17) writes: 'Difference between alveolar and retroflexed alveolar consonants was hard to either hear or see in some words. In other words, the retroflexed off-glide on the preceding vowel was marked enough to suggest that the retroflexed consonant was really a sequence of the semivowel /ɹ/ [i.e. /ɹ̥/] and an alveolar consonant'.

Following Oates (1967: 36–40), Osborne (1974: 10) treats apico-postalveolar stop, nasal and lateral in NL, Tiwi, as a sequence of *ɹ* plus alveolar consonant. The only justification given is that this assists one morphological segmentation. But in fact the segmentation involves recognising a few roots as ending in a consonant (*ɹ*) whereas every other root (and every word) in the language ends in a vowel.

Breen (1992: 18) gives a stronger argument for similar treatment of retroflexes in Ee, Kukatj, a language which has three rhotics – alveolar trill *r*, alveolar tap *ɾ* and postalveolar continuant *ɻ*. There is an unusual rule of verb reduplication of the form (where L is a liquid):

CVL- → CLVL-

Compare (i) and (ii), involving lateral *l* and tap *r*, with (iii), the only example in Breen's data of a retroflex following the first vowel in a verb root:

(i)	milmel-	reduplicated	mlilmel-	'to suck'
(ii)	yirŋk-		yirŋk-	'to talk'
(iii)	thaŋ-		thraŋ-	'to stand'

Line (iii) can be explained, Breen suggests, by taking /ŋ/ to be an underlying sequence of /r/ plus /n/. Note that there is independent evidence of the contrast between alveolar tap /r/ and postalveolar continuant /ɻ/ being neutralised before a consonant.

Treating an apico-postalveolar as an inherent sequence of two consonants would help explain Wordick's observation – quoted under (e) above – that in WHc4, Yinjtjipamrti, all stops, nasals and laterals except *rt* have a lengthened pronunciation between vowels; postalveolars would scarcely have a lengthened pronunciation if they are actually a sequence of two segments. This is a point on which spectrographic study would be welcome.

Ee, Kukatj, is on the eastern fringe of the double-apical area; its postalveolars have a restricted distribution, contrasting with the apico-alveolars only after a short non-central vowel. It may be that there was originally a sequence of *r* plus apical consonant (such a sequence is unusual in Australian languages; see §12.1.3 and §12.3.3) and this is in the process of being reanalysed as a new retroflex series of consonants, as the characteristic of having two contrasting apical series diffuses eastwards.

Dd1, Guugu Yimidhirr, is spoken on the east coast, right in the middle of a single-apical area. Haviland (1979a: 37) reports that a small number of words show an apico-postalveolar stop or nasal. These are sometimes articulated as single sounds but at other times they sound like a sequence of the retroflex rhotic continuant plus apico-alveolar stop or nasal. It is hard to decide whether it is more appropriate to treat these, phonologically, as a separate series of stops (with very low functional load) or as a rhotic-plus-stop/nasal sequence. This may, similarly to Kukatj, indicate the first appearance of an apico-postalveolar series; and, if so, it demonstrates one possible route through which an apical contrast may evolve.

12.3.2 *Rhotics*

The canonical Australian phonological system has two rhotics or grooved-tongue sounds. Their pronunciation varies a good deal from language to language and it is necessary to specify both manner and place of articulation. The basic parameter of variation concerns where the tip of the tongue is located. One rhotic is further forward, with the tongue tip against the alveolar ridge, while the other rhotic is further back, with the tongue tip turned back to some degree, so that it is against the base of the alveolar ridge or the hard palate.

The manner of articulation of the front or alveolar rhotic (written *rr* in the practical orthography in general use in Australia, and followed through most of this volume) is generally a trill, sometimes a tap or flap. There is more variation in pronunciation of

the back or postalveolar rhotic (written *r*); it is generally a glide or continuant but can be a trill. In G2, Yidinj, for example, *rr* is an apico-alveolar trill (sometimes reducing to a single tap). The unmarked pronunciation of *r* is as an apico-postalveolar continuant; however it can be realised as an apico-postalveolar trill. Thus *badja-rr* 'leave-IMPERATIVE' and *badja-r* 'leave-NON.PAST' differ in that the final segment of the first is a trill with the tongue vibrating against the middle of the alveolar ridge, while the final segment of the second can be a trill with the tongue vibrating against the base of the alveolar ridge (Dixon 1977a: 33). (Note that in much work on Australian languages the terms 'tap' and 'flap' are used interchangeably, as are 'glide' and 'continuant'. Here I generally follow the terminology of the source materials.)

Most Australianists recognise a class of rhotics, written as a row in their statement of consonant phonemes, as in table 12.1. The relevant section is repeated here as (I).

(I)	apical			
	peripheral	laminal	alveolar	postalveolar (retroflex)
	rhotic		<i>rr</i>	<i>r</i>
	semi-vowel	<i>w</i>	<i>y</i>	

However, a few scholars refrain from putting together *rr* and *r* as a phonological class and prefer a diagram like (II).

(II)	apical			
	peripheral	laminal	alveolar	postalveolar (retroflex)
	trill/tap/flap		<i>rr</i>	
	glide	<i>w</i>	<i>y</i>	<i>r</i>

Examples of this are O'Grady (1966) on languages of the WH group; Hale (1973b) on WJb1, Warlpiri; Goddard (1983: 20) on WD, Yankuntjatjarra; and McGregor (1990: 36) on NF2, Guniyandi. Note that analysis (II) is presumably only plausible in languages for which *r* is always realised as a continuant, never as a trill or flap.

Both of these analyses have points of merit. In languages in which *r* always has continuant pronunciation, it shows one type of phonetic similarity with *rr* – the grooved contour of the tongue – and another type of phonetic similarity with *w* and *y* – the continuant manner of articulation. The ideal phonological chart (which would require more than two dimensions) would code both kinds of similarity.

There is considerable evidence favouring (I), where a choice has to be made between (I) and (II). As shown under (i) below, in a number of languages there has been a diachronic change with *rr* and *r* falling together as a single rhotic. In H3, Nyawaygi, *d* has become *r* in the environment *V-u* and *rr* elsewhere (except after *n*, when *d* remains as is). In G2, Yidinj, a dissimilation rule is triggered by the presence of either rhotic in a verb root (Dixon 1977a: 99–100; see §12.8.2 below). In WL1, Arrernte, 'se-

quences of two identical rhotics separated by /ə/ do not occur within or across morphemes'; if a sequence of two *rr*'s is generated across a morpheme boundary, separated only by /ə/, the second *rr* dissimilates to become *r* (Henderson 1998: 120). For a number of lexemes in H1, Dyirbal, one dialect may show final *rr* where another dialect has *r*, e.g. *djudjurr/djudjur* 'umbilicus'. Data like these show that, in many languages, *rr* and *r* form a natural class.

There are certainly reasons for grouping together rhotic and semi-vowels in some languages from outside Australia. For the Kolokuma dialect of Ijọ (spoken in Nigeria), for instance, Williamson (1965: 20) groups the sole rhotic with *w* and *y* since all three 'become nasalized in the vicinity of a nasal'. McGregor (1988) and Goddard (1983: 21) present as evidence for (II), firstly phonetic similarity, and secondly the fact that *r*, *w* and *y* show some phonotactic similarities.

McGregor (1988: 172–3) also points to morphophonemic alternations *w* ~ *b*, *w* ~ *g*, *y* ~ *d*, *y* ~ *dj* and *r* ~ *rd* in NG2, Ungarinjin (see Rumsey 1982a: 17, but note that Rumsey himself follows alternative (I) rather than McGregor's (II)). This does group together *r* with *w* and *y*. However, in G1, Djabugay, there has been a process of initial lenition in some words, with *b* > *w*, *g* > *w*, *dj* > *y* and *d* > *rr*. WMa, Yanyuwa, shows changes *g* > *w*, *b* > *w*, *dj* > *y*, *dh* > *lh* and *d* > *rr*, while the changes in Ed, Norman Pama, include *g* > *w*, *b* > *w*, *dj* > *y* and *d* > *rr* (see table 12.5 in §12.4.1). That is, Djabugay, Yanyuwa and Norman Pama show an association of *w* and *y* not with *r* but instead with *rr*. There are undoubtedly a number of types of association of each rhotic with various other consonants, across the languages of Australia. Over and above this, there is no doubt whatsoever that it is appropriate to recognise a class of rhotics in Australian languages (as, indeed, in languages from other parts of the world – see, for instance, Lindau 1985; Ladefoged and Maddieson 1996: 215–45; and Dickey 1997).

The notable point of similarity between treatments (I) and (II) is that – whatever the row assignment – *rr* is almost always placed in the apico-alveolar and *r* in the apico-postalveolar (retroflex) column. That is, there is an implicit assumption that the contrast *rr* : *r* is parallel to *d* : *rd*, *n* : *rn* and (where it exists) *l* : *rl*. Whether or not this assumption is justified will be examined in §12.3.3, together with discussion of the various scenarios for the development or loss of apical contrasts in Australian languages. Before embarking on this, we survey languages with non-canonical systems of rhotics.

As already stated, the great majority of languages have two rhotics – one further forward (always a trill or a tap) and one further back (generally a continuant, sometimes a trill or a tap). However, there are about a dozen languages or dialects with a single rhotic, and about twenty with three rhotics (the two canonical phonemes, plus an additional rhotic, whose identity varies from language to language) – shown in map 12.3. We survey these in turn.

(i) *Languages with just one rhotic*. There is a single rhotic in A1, The West Torres Strait language (and also in A2, The East Torres Strait language). A1 has sometimes been included in an Australian genetic family; however, the evidence points to its being a Papuan language, with Australian substratum.

Surveying the other languages with a single rhotic we find:

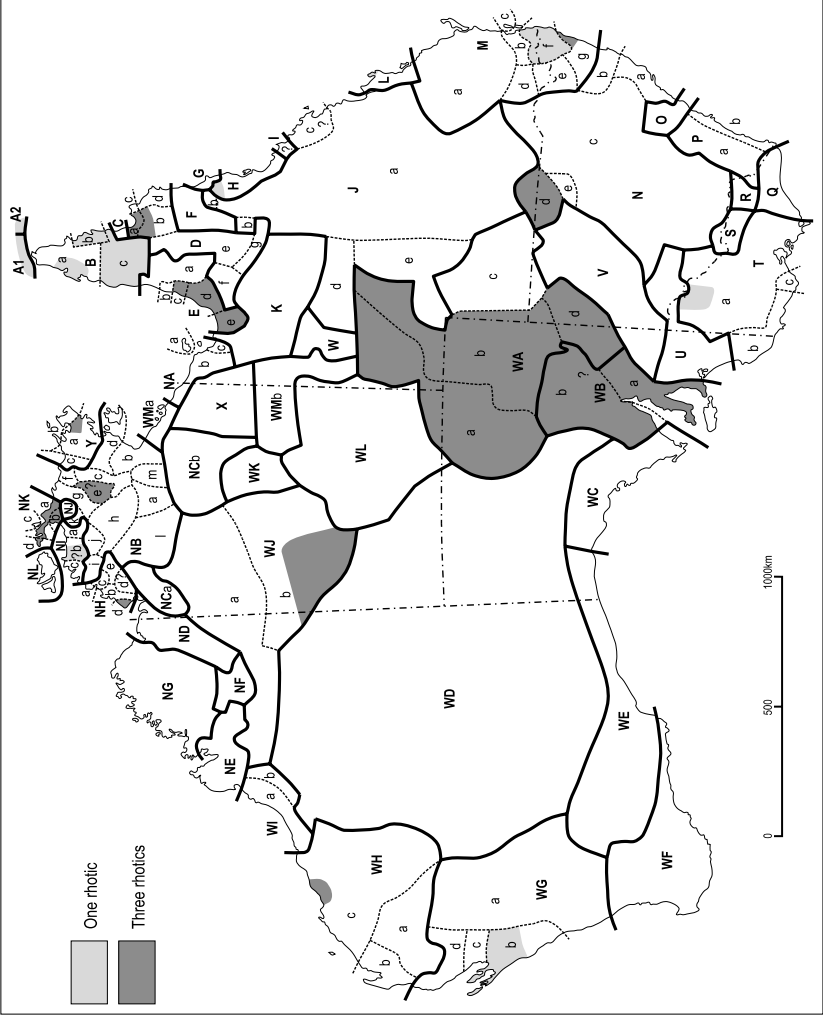
(1) They are almost all in the single-apical area for stops and nasals. One exception is the Madhi-Madhi dialect of Ta1, which has two apical series but is on the fringe of the double-apical area. Another is the northern dialect of WGb, Nhanta, which is on the west coast and squarely within the double apical area (but note that Nhanta has [r] as an allophone of /t/). It has been suggested that N1b2, Wuna (which is also in the double-apical area), has a single rhotic; however the data on this language are extremely slim so that no firm judgement is possible.

(2) In virtually every language an earlier stage with two rhotics can be posited, together with diachronic rules leading to the loss of one rhotic. In each language it is *r* which has been lost, becoming *t* or *y* or a glottal stop (ʔ), or merging with *rr*, or just being dropped (shown as becoming *ø*, zero). The summary of changes that have taken place, and the environment for each, is in table 12.2. A number of comments are needed on table 12.2:

- Ba4, Luthigh dialect. Alongside *r* > ʔ, we also have *t* > ʔ.
- Ba6, Mpakwithi dialect. Crowley (1981: 157–62) reports *r* > *t*, then all *t* > ʔ, and following this *y* > *r*. In addition, *rr* has changed, sporadically, to either *th* or *y*.
- Bb, Umpila. We also find *rr* > *y* finally, but *rr* retained in other positions.
- Bc, Wik subgroup. All languages show many examples of *r* > ʔ and also *t* > ʔ intervocally, in addition to the loss of *r* from final (and probably also initial) position.

Table 12.2 *Diachronic changes leading to loss of r, and the environments in which they apply*

	<i>r</i> > ʔ	<i>r</i> > <i>ø</i>	<i>r</i> > <i>rr</i>	<i>r</i> > d/t	<i>r</i> > <i>y</i>
Ba4, Luthigh dialect	everywhere				
Mpalitjanh dialect		V:–		elsewhere	
Ba6, Mpakwithi dialect				everywhere	
Ba8, Aritinngithigh				everywhere	
Bb, Umpila	–#, V–V				–#, –C
Bc, Wik subgroup	V–V	elsewhere			
H1, Ngadjan dialect		–#, –C	elsewhere		
Mf, Bandjalang			everywhere		
Ta1, Madhi-Madhi dialect		–C(C)	V–V		–C
WGb, Nhanta, northern dialect				everywhere	



Map 12.3 Languages with one, or with three, rhotic phonemes

- H1, Ngadjan dialect. The changes here were: (a) a vowel became phonetically lengthened before *r*; (b) *r* then dropped from the end of a syllable and merged with *rr* elsewhere; (c) the conditioning factor having been lost, vowel length became phonologically contrastive. There is now a single rhotic phoneme (written as *R*); it can be pronounced as apico-alveolar continuant or tap. Thus, for example *djadjar* > *djadja:r* > *djadja*: ‘bird nest’ (compare with *djadja* > *djadja* ‘baby’) and *djura* > *dju:ra* > *dju:Ra* ‘crawl’ (compare with *djurra* > *djuRa* ‘rub’). See Dixon (1990a).
- Ta1, Madhi-Madhi dialect. The changes that have occurred are inferred from study of Hercus’ (1986) comparative vocabularies of this and other dialects of the language. There are examples of *r* > *rr* (mostly between vowels), *r* > *y* (mostly before *C*) and *r* > *ø* (all before *C* or a *C* cluster).

Note that in the case of Mpakwithi, Ngadjan, Madhi-Madhi and the northern dialect of Nhanta, we get a single rhotic in just one dialect of a language, but two rhotics retained in other dialects. In the case of Ba4, the two dialects Luthigh and Mpalitjanh have each lost *r*, but through different kinds of change.

For some languages there is limited material available, so that it is difficult to tell how many rhotics there were (the canonical two, or just one, or possibly three). These include I, Ma1, and O-R.

(ii) *Languages with three rhotics*. Some languages have a third rhotic, in addition to an apico-alveolar trill and an apico-postalveolar continuant. The nature of the third rhotic varies, with the possibilities being set out in table 12.3. For some languages, the diachronic changes by which the third rhotic developed can be traced. (Note that the contrast between three rhotics, whatever the phonetic value of the third one, generally occurs in limited phonotactic environments and has a very low functional load.)

In table 12.3, and in discussion of it, standard phonetic symbols are used rather than the practical orthography employed elsewhere in the volume.

The possibilities are discussed one at a time.

Addition (a), involving an apico-alveolar voiceless trill /ɾ/. This is represented by Da1, Morroba-Lama, Da2, Lama-Lama, Db1, Rimang-Gudinhma, from the north-east, and Mg2, Yaygirr, from the central-east.

Crowley (1979: 373) suggests the change /ɹ/ > /ɾ/ /V:- in Mg2, Yaygirr, and then loss of the vowel length; for example *ni:ɹum* > *niɾum* ‘cold’. He goes on to speculate the vowel length would first have been lost, *ɹ* geminated, and then *ɹɹ* > *ɾ*. This is muddled: firstly, vowel length can scarcely condition a change AFTER it has been lost; and surely ALL medial *ɹ* should then become *ɾ*.

Table 12.3 Types of third rhotic

	apico-alveolar	apico-postalveolar
voiced trill	CANONICAL /r/	addition (d): /ɾ/
voiceless trill	addition (a): /ɽ/	
(voiced) tap or flap	addition (b): /ɾ/	addition (e): /ɽ/
(voiced) continuant	addition (c): /ɻ/	CANONICAL /ɻ/

Addition (b), involving an apico-alveolar tap or flap /ɾ/. This is found in two regions: (1) Ec, Ed and Ee in the north-east; and (2) WAa, WAb, WAd and probably also WB (and perhaps also Nd) in the east-centre.

Hercus (1994: 45–7) explains how in WAa3, Arabana/Wangkangurru, the three rhotics (apico-alveolar trill *r*, apico-alveolar flap *r* and apico-postalveolar continuant *ɻ*) only contrast intervocalically after a stressed vowel. In intervocalic position after an unstressed vowel there is a contrast between two rhotics (one alveolar, which can be realised as a trill or a flap, and one postalveolar, a continuant). Before consonants there can be a single rhotic, generally pronounced as an alveolar trill (sometimes a flap). Breen (1992: 16–20) discusses the low functional load of the contrast between three rhotics in Ee, Kukatj, and their neutralisation in some environments.

In his first work on WAb2, Diyari, Austin (1978a: 49–62) recognised the same three rhotics as does Hercus for Arabana/Wangkangurru, again contrasting just between vowels. Diyari has a contrast between voiced and voiceless stops, just for apico-alveolar and apico-postalveolar. The voiced stop /d/ only occurs after /n/ or /l/ and is then realised as [d], or with trilled release as [dʳ] (the allophones differ between dialects). However, in his published grammar, Austin (1981a: 17–19) treats the trill [r] as an allophone of /d/, leaving as rhotic phonemes the alveolar flap /ɾ/ and postalveolar continuant /ɻ/. Interestingly, /d/ is often articulated as a tap intervocalically. We thus have the following phones, with boxes enclosing phonemes on Austin's (1981a) analysis:

	apico-alveolar	apico-postalveolar
voiceless stop	[t]	[t]
voiced stop	[d], [dʳ]	[d]
voiced trill	[r]	
voiced flap	[ɾ]	[ɽ]
voiced continuant		[ɻ]

Since [d] ~ [dʳ] is in complementary distribution with both [r] and [ɾ], an alternative solution would be to treat [ɾ] as an allophone of [d] (paralleling [ɽ] as an allophone of [d]), then retaining /ɾ/ as a distinct rhotic phoneme (as in other languages).

WAb2, Diyari, has exactly the same rhotic sounds as WAa3, Arabana/Wangkangurru, and also WAa1, Pitta-Pitta, but these languages have a single series of stops.

There is no /d/, contrasting with /t/ just after a nasal or lateral, with which either [r] or [ɾ] could be associated. It is possible that, at an earlier stage, languages of the WA group had a stop contrast [t]/[d], [t̪]/[d̪] and just the two canonical rhotics, with /d/ having a flap allophone [ɾ] between vowels. When the voicing contrast was lost, the [t]/[d] contrast could have been neutralised after a consonant, but the [ɾ] allophone of /d/ would have remained between vowels, creating a third rhotic. However, there may well be other possible historical scenarios; this is a matter which requires detailed study.

Addition (c), involving an apico-alveolar continuant /ɹ/. Walsh (1976a: 24, 30) reports this for NHd1, Murrinh-patha. However, Street and Mollinjin (1981) recognise just two rhotics for this language.

Addition (d), involving an apico-postalveolar trill /ɽ/. This is suggested for NBe, Dalabon, by Capell (1962a: 93); however, just two rhotics are reported for this language by Sandefur and Jentian (1977). It has also been suggested for WHc5, Ngarluma, and for WHc6, Kariyarra, by O'Grady, Voegelin and Voegelin (1966: 96).

Addition (e), involving an apico-postalveolar flap /ɸ/. In many languages from Australia, and also from other parts of the world, an apical stop can have a tap allophone, typically between vowels. In H2, Warrgamay, the sole apical stop /d/ can be pronounced as [ɾ] intervocally (as can the alveolar rhotic /r/). In WHc2, Martuthunira, the apico-postalveolar stop /t/ can be pronounced as a voiced retroflex flap [ɾ] between vowels (Dench 1995: 26). (Further examples for a range of languages are given in Breen 1997.)

At an earlier stage, the western dialect of WJb1, Warlpiri, had /t/ realised as [ɾ] initially and intervocally. This has taken on the status of a distinct phoneme after the introduction of loans from neighbouring languages (and more recently from English) that have an apico-alveolar stop with stop allophone in these positions (e.g. *wapiti* 'yam species' from WD, the Western Desert language, and *kati* 'card' from English). As a result, /t/ and /ɾ/ are now in contrastive distribution. (The eastern dialect of Warlpiri did not have this allophony of /t/, and has just two rhotics.) See Laughren (ms.).

Some languages of Y, the Yolngu subgroup, have a stop contrast for all six places of articulation – *b*, *g*, *ɟ*, *d* and *ɖ* in addition to *p*, *k*, *c*, *t* and *ɬ*. In Ya1, Djapu, *b* and *g* have lenited to *w*, and *ɟ* and *ɖ* to *y*, with *d* also being lost. We are left with *ɖ*, which is generally articulated as a flap. Morphy (1983: 13–18) treats *ɖ* as a stop, since it patterns phonotactically with stops. An alternative analysis would be to treat it as a third rhotic. (The development of the third rhotic in this instance is similar to that tentatively suggested under (b) above for languages in groups WA and WB.) A retroflex flap is also reported for languages of subgroup NK (see Capell and Hinch 1970: 17–18; and Evans 2000a).

The phonetic range of a rhotic phoneme tends to vary, depending on what other rhotics that language has. Thus, the canonical alveolar rhotic tends to be a trill but may also be realised as a tap if there is no contrasting alveolar tap phoneme. Similarly, the canonical postalveolar rhotic is generally a continuant but may also be realised as a trill or tap if there is no contrasting postalveolar trill or tap phoneme. For example, languages of subgroup Ed have two rhotic phonemes in the alveolar column, /r/ and /r/, but only one in the postalveolar column. The latter may be realised as a flap or as a glide (Black 1980: 144).

It was mentioned that most of the languages with one rhotic (for which we have reliable data) are in the single-apical area. In contrast, those with three rhotics are spread across the continent. On the west side of the Cape York Peninsula there are some languages in subgroup B with just one rhotic, and some in groups Ec, Ed and Ee with three. However, these are separated by groups Ea and Eb, with two rhotics. That is, as we go down the coast there is a gradual progression: one rhotic, then two, then three. (But note that on the central-east coast we find Mf, Bandjalang, with just one rhotic, next to Mg2, Yaygirr, with three.)

From here on I revert to use of the practical orthography, using /rr/ and /r/ for [r] and [ɹ] respectively.

12.3.3 *The apical problem*

It is not possible, at this time, to provide a sure answer to the question of what is the essential nature of the apical contrast in Australian languages, and what its history is. But we can attempt to state the essence of the problem, and make some suggestions as to its solution.

(I) *Nature of the apical contrast.* The following questions need to be addressed in order to achieve an understanding of the nature of types of apicals in Australian languages.

Question 1. Is apico-postalveolar (or retroflex) best viewed as a distinct place of articulation – as has traditionally been assumed in Australian studies – or as a secondary feature? If it is a secondary feature, does it just apply to an apico-alveolar segment, or to this plus a preceding vowel, or to a complete syllable, or to some larger unit (a foot or a word)?

It is likely that this question will require varying answers in different languages. There is need for intensive study of the data from a selection of languages, all approached within the same parameters.

Question 2. It seems clear that the apical contrast applies equally to stops, to nasals and (in many languages) to laterals. But people who produce grammars of Australian languages typically write the rhotic *rr* in the apico-alveolar column and the rhotic *r* in the apico-postalveolar column (this applies both to those who place these two phonemes in one row marked 'rhotic', and to those who place *r* in a row with *w* and *y*). Is this a valid practice? Does *r* relate to *rr* in the way that *rd* does to *d*, *rn* does to *n* and *rl* does to *l*?

Question 2 needs to be posed at several levels. First, phonetically. In single-apical languages, *r* is typically described as a 'semi-retroflex continuant'. Does *r* in a single-apical language have similar articulation to *r* in a double-apical language? Retroflex colouring of a vowel immediately preceding *rd*, *rn* or *rl* has been widely reported. Does this also apply to a vowel before *r*? These are questions which, so far as I am aware, have not yet been asked. They require detailed study.

Phonotactically, some languages allow no apicals initially, and in those that do apicals are rare initially. In almost every case the apical distinction is neutralised in initial position. Similarly, some languages allow no rhotics initially and where these do occur they feature in only a small number of words. And there is generally only one rhotic, *r*, allowed in initial position; that is, the contrast between the two rhotics is not made initially. In addition, none of the apical phonemes and neither rhotic is generally found as the second element of a medial cluster (save for an apical stop in a homorganic nasal-stop cluster and sometimes in a homorganic lateral-stop cluster). These are all points of similarity.

At word-final position differences emerge. Virtually all languages with an apical contrast show this in final nasals and laterals, but only about 40 per cent of languages allow both rhotics to appear word-finally. However, where stops are permitted in word-final slot, only about 50 per cent of double-apical languages show an apical contrast in final stops, making the rhotic figure appear a little less anomalous.

In WL, Arrernte, there has been a diachronic change $VCi > V^{\circ}Ci$ applying if *C* is an apical stop, nasal or lateral ($^{\circ}C$ indicates a prepalatalised consonant). It does not apply if *C* is a rhotic (Koch 1997: 280). This could be taken as one reason, in this language, for not placing rhotics in the same apical series as stops, nasals and laterals.

Question 3. Under (c) in §12.3.1, I commented on the association between retroflexes and a preceding (and/or a following) *u*. Is there a similar association between the retroflex rhotic, *r*, and *u*?

There is one instance of a diachronic change which is related to this question. In H3, Nyawaygi, *d* has become *r* medially before *u* but has become *rr* medially before *i* and *a* and initially before all vowels (Dixon 1983: 439). This shows an association between the postalveolar rhotic and a preceding *u*.

Question 4. Under (e) of §12.3.1, I commented on the association between retroflexion and voicing. Is there a similar connection between *r* – as opposed to *rr* – and voicing?

Table 12.3 shows that some languages have a voiceless alveolar trill phoneme, but none have a voiceless postalveolar rhotic. This provides a slight and indirect connection.

Question 5. Under (f) in §12.3.1, I drew attention to an interpretation of postalveolar stop, nasal and lateral in terms of rhotic plus alveolar. Does this relate just to the postalveolar rhotic *r*?

The information given under (f) of §12.3.1 on each of NBm, Alawa; NL, Tiwi; Dd1, Guugu Yimidhirr – and also on NBg1, Mayali – relates just to *r*, not to *rr*.

(II) *Possible historical scenarios.* We can consider two polar alternatives. One is that the apical contrast is ancient, and may have at one time applied to all Australian languages, but has been lost in some areas. The other is that it is a recent innovation, and is now spreading. For each scenario we need to consider whether the two canonical rhotics should be regarded as representing the same apical contrast as stops, nasals and laterals, or as something rather different.

First scenario: apical as an ancient contrast. The most extreme hypothesis is to regard NBg1, Mayali – described under (d) in §12.3.1 – as representing an archaic system, and to treat the rhotics as being like stops, nasals and laterals. The scenario runs as follows:

- (1) Originally retroflexion was a syllable prosody. Each syllable was specified as *+/-* retroflex, retroflexion being realised in the quality of the vowel, and as a secondary feature on any apical (stop, nasal, lateral or rhotic) in syllable-initial or syllable-final position.
- (2) The scope of the prosody contracted and only applied to a VC sequence where C is an apical. This is more or less the situation in most modern languages which show an apical contrast.
- (3) The contrast was lost on laterals, but retained on stops, nasals and rhotics. A few languages or dialects (e.g. the Bidjara dialect of Ja1) show this pattern.
- (4) The apical contrast was then lost from stops and nasals, just being retained on rhotics. Most of the languages in the eastern portion of the continent show this pattern.
- (5) Finally, the last vestige of an apical contrast, that between the two rhotics, has been lost from about a dozen languages or dialects, almost all in the east.

Support for part of this scenario comes from the fact that almost all the languages (for which there are reliable data) with a single rhotic lie in the single-apical area for stops, nasals and laterals. That is, the contrast between alveolar and postalveolar rhotics is most likely to be lost in areas where there is no contrast between alveolar and postalveolar stops and nasals. One exception, the Madhi-Madhi dialect of Ta1, is spoken near

the fringe of the double-apical area; it may be that here the apical contrast is being lost first from rhotics, and would then be likely to spread to stops, nasals and laterals. (The other exception is the northern dialect of WGb, Nhanta, squarely within the double-apical area.)

There are many possible variations on this scenario. We could opt for a segmental, rather than a prosodic, origin for retroflexion, and suggest that the original system had a contrast between two apical series. In this view the retroflexion on a preceding vowel would be simply a phonetically conditioned allophone (just as, in many languages outside Australia, a vowel generally has a degree of nasalisation when next to a nasal consonant). Retroflexion would then have moved in two directions, becoming a syllable prosody in Mayali (and perhaps in further languages) and being lost from other languages.

In either of these views, we need to ask how retroflexion first developed (whether as a prosody or as a segmental feature). It could be that there was an apical contrast in the language spoken by the first people to arrive in Australia, perhaps fifty thousand years ago. But this would simply defer the question – how then did the contrast arise in this language?

All of this variation on the first scenario has treated the rhotic contrast as related to the apical contrast for stops, nasals and laterals. But what if it is not really related? Languages on the eastern fringe of the continent tend to have simpler phonological systems than those elsewhere – just one laminal and one apical series. It could be a pervasive tendency towards paradigmatic simplicity that causes the rhotic contrast to be lost or neutralised in some eastern languages and dialects, not the spreading of apical loss from stops, nasals and laterals to rhotics.

Second scenario: apical contrast as a recent innovation. The contrary historical perspective is to suggest that an apical contrast developed recently in some languages, and diffused to others. In this view, languages which today lack an apical contrast in stops, nasals and laterals have never had one. Since a rhotic contrast is found in all regions (and for those languages with a single rhotic we can reconstruct how this developed from an earlier two-rhotic system) this implicitly assumes that the contrast between rhotics is – at least historically – different from the apical contrast for stops, nasals and laterals.

In §6.5.2 we reconstructed an earlier stage of verb forms in which roots ended in a vowel or in *y*, *l*, *rr*, *ŋ*, *m*, *n* or (tentatively) *nj*. Now modern languages with an apical contrast show both *n* and *rn*, and both *l* and *rl*, in word-final position. The fact that there is no evidence for final *rn* or *rl* on earlier forms of verbs (only *n* and *l*) could be taken as pointing towards there having been a single apical series at that point of time.

We now need to ask how, in this scenario, the apical contrast could have evolved. There are two obvious possibilities – relating to rhotics, and relating to *u*. (I also pointed

out, in (e) of §12.3.1, a correlation between retroflexion and voicing. The significance of this is not at present understood, and I do not here offer any suggestions as to how this correlation can help explain the origin and/or spread of the apical contrast.)

(a) *Relating to rhotics.* In (f) of §12.3.1, it was described how in some languages apico-postalveolar stop and nasal may have developed from, or may be interpreted as, a sequence of the postalveolar rhotic *r* plus an alveolar stop or nasal. Could not a similar development have taken place in other languages, and be the point of origin for retroflexes? (Recall that in Indo-Aryan languages, one route for the development of retroflexes is from rhotic plus dental.) We could suggest that there would have been sequences of *r* plus alveolar stop, nasal or lateral, which developed into postalveolar stop, nasal or lateral.

Arguments against this as the only (or main) avenue for the evolution of retroflexes include:

- We would then expect single-apical languages to maintain sequences of rhotic plus alveolar. In fact they do not. Right across the continent, in both single-apical and double-apical languages, consonant clusters of rhotic plus alveolar are extremely rare. (WHc2, Martuthunira, is unusual in contrasting a sequence of *r* plus alveolar *t* with apico-alveolar *rt*, [t̪]. Dench 1995: 35–7 provides an insightful discussion of alternative ways of analysing this.)
- This idea presupposes that there would have been a lot of apicals at C₃ position in C₁V₁C₂C₃V₂(C₄). Since, as shown in §12.1.3, C₃ and C₁ have similar possibilities, we would then expect that a plethora of apicals would show up at C₁. They do not; some languages have no apicals initially and for those that do have them, initial apicals feature in just a few words.
- This hypothesis does explain why we have an apical contrast medially, where consonant clusters are permitted, but not initially, where there are no clusters. However, it does not explain why, in almost every language with an apical contrast, this is found – for nasals and laterals – word-finally, a position in which there are generally no consonant clusters.

The sum of these objections makes the hypothesis that most or all retroflexes developed recently from *r* plus alveolar appear none too appealing.

It may, however, provide a partial explanation for the origin of retroflexes in some languages. Besides the data given under (f) in §12.3.1, we can note McKay's (2000: 175) report that in NBf4, Ndjebbana, an unstressed vowel may be lost and a resulting sequence of rhotic plus alveolar *n* replaced by a postalveolar nasal *rn*, e.g. *ba-rra-nmarramarló-ŋa* ('3AugS-REALIS-SWIM-REMOTE') 'they two swam' becomes *barnmarramarlóŋa* (note that this involves the alveolar rhotic *rr*).

(b) *Relating to u.* §12.2 presented sample cognates showing that the correspondence set *nh* (in a double laminal language) : *nj* (in a single laminal language) is found before *a* and *u* whereas *nj* : *nj* is found before *i*. This points to there having been originally a single laminal nasal with allophone [nj] before *i* and [nh] elsewhere (and similarly a single laminal stop).

In Dixon (1980: 155–6), I presented similar evidence that the distribution of correspondence sets *rd* : *d* / *rn* : *n* and *d* : *d* / *n* : *n* point to one apical stop and nasal, with postalveolar allophones after *u* and alveolar allophones elsewhere. Further work does not support this. For instance, the 1980 cognate list had ‘raw’ as *gunga* in single-apical and as *gurnga* in double-apical languages. In fact, ‘raw’ is *gurnga* in one double-apical language, WJa1, Walmatjarri, but *gunga* in others (e.g. languages from group WI).

Using the abbreviation *RD* for the correspondence set *rd* (in a double-apical language) : *d* (in a single-apical language), *D* for *d* : *d*, *RN* for *rn* : *n*, and *N* for *n* : *n*, we find the following occurrences of the correspondence sets:

RD, RN in

guNRNDu ‘penis’

baNRNDi- ‘to smell’, waNRNDi- ‘to climb’ – see (50) and (8) in §4.2.7

wiRNba- ‘to whistle’ – see (63) in §4.2.7

D, N in

guNDa- ‘to cut’, guNa ‘faeces’ – see (28) in §4.2.7; (5) in §4.2.2

ŋaNa 1pl.exc, dhaNa 3pl – see (a) and (e) in §7.3.1

dhiNa ‘foot’, biNa ‘ear’ – see (3) and (15) in §4.2.2

That is, both types of correspondence sets are found after all three vowels. There is, from comparison of cognates, no clear evidence for one original apical series, with allophones conditioned by the preceding vowel.

This does not mean that the idea of a connection between retroflexion and *u* should be discarded. Languages on the edge of the double-apical area often invest the apical contrast with a limited function. In these cases most retroflexes do occur after *u* and most alveolars after *a* and *i*; there are just a few exceptions and these necessitate the recognition of two phonemic series. There is undoubtedly a connection, although not a straightforward one.

A realistic scenario. There are some sounds that occur in the great majority of the world’s languages; these tend to be rather stable. Other types of sounds, or secondary features, are found in relatively few languages, and these are most likely to be changed or lost. They include sounds like apico-dental fricatives (English *θ* and *ð*) and features such as aspiration, glottalisation and nasalisation. Retroflexion is only found in limited areas of the world and is an unusual feature. It can readily diffuse over a linguistic area (as in South Asia and most of Australia) but it is also at high risk of being lost.

People – speaking languages – have been in Australia for about fifty thousand years. Retroflex sounds may have been in use for all or most of this time. They may have developed in one place, at one time, and then diffused into neighbouring languages. Over the millennia there is likely to have been a steady ebb and flow. Retroflexes may be lost from one language and this loss can diffuse. But this tendency for apical neutralisation may be overtaken by another diffusional wave, of having an apical contrast, coming from a different geographical direction. (This is similar to the cyclic scenario suggested in §12.2 for laminals.)

In comparative linguistics one looks for the simplest possible solution to a set of data. But in the case of the apical contrast there is – as has been shown – no one obvious, simple solution. All of the scenarios that have been put forward have something in their favour, but none can be fully defended against the rest. They may each have applied, at some stage(s), and in some place(s).

When a linguistic feature diffuses over an area, the normal happening is for a language to take over the feature, but not the forms, from a neighbour. Languages across a wide area of north Australia have developed noun classes, but in each case they have developed the actual class prefixes from their own resources. Languages across an area in the centre and west have developed switch-reference markers; only the category has diffused, actual forms evolving separately in each language, from the language's own internal resources. In South Asia, the Indo-Aryan and Munda languages developed a retroflex series, to become more like their Dravidian neighbours. They achieved this not by any significant borrowing of words from Dravidian languages, but by setting off within themselves a series of changes that gave rise to retroflexes.

Similarly in Australia: if retroflexion diffuses, then each language will innovate retroflex consonants in its own way – some perhaps through rhotics, some in association with *u*.

The apical contrast is currently found in languages over a continuous area from the west coast to a jagged isogloss just to the east of the Gulf of Carpentaria. There is evidence that this area is contracting in the west and expanding to the east.

Dealing first with contraction in the west, it was mentioned under (c) in §12.3.1 that there is a tendency in WHc3, Panyjima, for alveolars to become postalveolars when next to *u*, and for postalveolars to become alveolars next to *i*. That is, a phonemic difference appears to be moving in the direction of allophony, conditioned by the adjacent vowels. (We also noted in §12.3.2 that the rhotic contrast has been recently lost from WGb, Nhanta, also on the west coast.)

Looking now at the eastern fringe of the double-apical area, we can note:

- (a) The Maric proper subgroup, Ja, is likely to have originated on the east coast (probably somewhere in the vicinity of Mackay) and then expanded over a considerable area in central and southern Queensland – see (b) in

§13.3. The Marrganj and Gunja dialects of language Ja1 have recently come into contact with languages which have an apical contrast (for example Nd, Muruwari) and they have, by internal change, innovated the contrast themselves. As described under (c) in §12.3.1, apico-postalveolars have developed after *u*, e.g. **guna* > *gurna* 'faeces'.

- (b) In north-west Queensland, apico-postalveolars appear to be well established in the NA and K subgroups, and have recently been extended into the adjacent Ee, Kukatj, and Ed2, Kuthant. As mentioned under (f) in §12.3.1, Breen suggests that in Kukatj, retroflexion can be related to rhotic *r* plus an alveolar phoneme. Again under (c) in §12.3.1 it was pointed out that in Kuthant, the development of retroflexes has been conditioned by an adjacent *u*, e.g. **guna* > *ö:rn* 'faeces'.

It will be seen that, as the double-apical isogloss moves east, each language develops the contrast in a different way, from its own internal resources.

Dd1, Guugu Yimidhirr – spoken on the east coast, in the middle of the single-apical region – was mentioned under (f) in §12.3.1. This language appears to be developing retroflexes, out of sequences of *r* plus alveolar. The contrast has also developed very recently in Eb1, Yir-Yoront, another language which lies some way from the double-apical isogloss. Alpher (1991: 120) suggests that loans have played a major role in this development. There was originally a single apical series with predominantly retroflex articulation, e.g. *ṇaḍ* 'fish'; then loans from English brought in apico-alveolars, e.g. *yad* 'yard'.

There is also the small area south-west of Darwin, where some languages of the NH group, and the adjacent NB11, Wagiman, appear to lack an apical contrast. More work is needed on this area.

In summary, it is most likely that there has been an apical contrast in Australian languages for a very long time. There will have been a steady ebb and flow, with the region(s) in which this contrast is found shifting, as one trait of areal diffusion (for either gain or loss of the contrast) expands, until it is rebuffed by a diffusing trait – with the opposite value – coming from another direction. It is not sensible to ask whether, at an earlier stage, either all languages showed or all languages lacked an apical contrast. It is likely that, at any specific time during the past tens of millennia, some languages had this contrast. But which ones had it would be continually changing, as areal traits diffused and as the languages themselves gradually shifted position. Like many other features of the Australian linguistic area, the changes are likely to have been cyclic over a long period of time – gain of an apical contrast in a given region, then loss, then gain again (with the configuration of languages shifting throughout).

More light may be shed on this question when detailed phonetic and phonological studies are undertaken on the five questions posed at the beginning of this subsection.

The discussions of laminals, in §12.2, and of apicals, in §12.3, have applied to stops and nasals. All languages have an apico-alveolar lateral; some languages with two apical series of stops and nasals extend this to laterals, and some languages also have one or two laminal laterals. It seems that in many ways lateral apicals and laminals behave like the corresponding stops and nasals. However, rather few cognates involving laterals can be assembled between languages (note that many languages allow no lateral in initial position, with those that do having only a few lateral-initial words). I have not here attempted the difficult task of a full assessment of the nature and development of laterals in the languages of Australia. (See O'Grady 1966 for an insightful account of changes affecting laterals in languages of group WH.)

In some of the languages of subgroup NK there is a further, unusual, series of phonemes – flapped laterals; see Evans (2000a).

12.4 Initial dropping and medial strengthening

This and the next five sections essentially describe diachronic changes which have affected the canonical phoneme system and phonotactic pattern of some languages. The changes are roughly separated by section, but there is inevitably a certain amount of overlapping (which is fully cross-referenced).

In this section word structure is represented by $C_1V_1C_2V_2$; that is, $-C_2-$ is here a sequence of one or two (or, sometimes, three) consonants, and corresponds to $-C_2C_3-$ and $-C_5-$ in the formulas employed in §12.1.3.

At the beginning of this chapter I mentioned a recurrent property of Australian languages whereby the pitch peak tends to come relatively late in a stressed syllable. In connection with this, Blevins and Marmion (1994) noted – for WGb, Nhanta – that in a stressed syllable, stress is restricted to the tonic vowel and following consonant, and does not include the syllable-initial consonant. It was also noted that in the canonical pattern it is the first syllable in a word which is stressed.

As a consequence we find the following tendency:

(A) C_1 may be omitted. For example:

- (1) *párnrti- > árnrnti- 'to smell' in WGb, Nhanta
- (2) *gali > ali 'water' (stress placement not known) in the Keppel Island dialect of L1, Darambal

In some languages the omission is sporadic; in others systematic. In some, all initial C_1 are omitted; in others, only consonants at certain places of articulation.

Following change (A) there is a further tendency, found in some languages:

(B) Stress may shift from V_1 to V_2 . For example:

- (3) *mínha > inh^yá 'meat' in Da2, Lama-Lama

(Note that this also includes a palatal off-glide ^y added to C₂ from *i* at V₁.)

This leads into a further tendency:

(C) Once V₁ loses stress it may be reduced in one of several ways. Most typically, long vowels at V₁ are shortened and short vowels at V₁ are dropped. For example, in Ba7, Ngkoth:

- (4) *ká:way > awáy 'east' *mínja > njá 'meat'

Some languages show just change A, others A plus B plus C (we have no instance of A and B having applied without some type of change C).

Note that there are many instances of Australian languages (both those which have and those which have not undergone initial dropping) simply losing a length distinction at V₁; that is, long and short vowels simply fall together.

Changes A and C produce shorter words. They generally also have the further effect of increasing the number of paradigmatic choices available at C₂ and/or at V₂. Before changes A–C applied, some of the phonemes at C₂ and/or at V₂ could have had allophones conditioned by what was at C₁ and/or at V₁. When these conditioning environments were lost, what were allophonic variants then became phonologically contrastive.

For example, C₂ was conditioned by C₁ in Ea2, Olgolo. If C₂ was a nasal it had prestopped pronunciation if C₁ was a stop or *w* and V₁ was short; thus /bama/, [ba^hma] 'man', /wuna-, [wu^dna-] 'to lie down'. All C₁ were dropped, and length was lost at V₁. Then:

- (5) */báma/ > /á^hma/ 'man' but */ḡáma/ > /áma(ḡarr)/ 'mother'
 */wúna-/ > /ú^dna-/ 'to lie down' */bí:nja/ > /ínja/ 'aunt'

Once C₁ had dropped (and length had been lost at V₁), what had been phonologically conditioned allophones at C₂ became contrastive phonemes, e.g. /m/ and /^hm/. (Olgolo is unusual in being one of the few languages in the world where every word begins with a vowel. However, as noted at the end of §10.4, generic nouns are in the process of being reduced to be a consonantal prefix, regaining a CVCV- word structure.)

In an earlier stage of Jb1, Mbabaram, /a/ at V₂ had allophone [ɔ] if C₁ was *g* or *ḡ*, e.g. /ḡaba-, [ḡabɔ-] 'to bathe'. Once C₁ dropped, then the allophone [ɔ] lost its conditioning environment and became a contrastive vowel phoneme:

- (6) */ḡába-/ > /bɔ-/ 'to bathe' but */nága/ > /gá/ 'east'

We also encounter what has been described as metathesis between V₁ and C₂. This is in fact best dealt with as a type of 'copying'. If C₂ is preceded by *u* or *i* then it can have a ^w or ^y as (allophonic) off-glide. Once V₁ is dropped, the off-glide becomes phonologically contrastive. Thus in Ba9, Mbiyowom:

- (7) *múkú > k^wúr 'mother's older brother' but *pákay > ká 'down'

Now in Australian languages – as in many other languages – sequences of vowel plus consonant tend to have equal strength. That is, a long vowel tends to be followed by a short consonant whereas a short vowel will tend to be followed by a consonant which has longer articulation. When the conditioning factor – of vowel length at V_1 – is lost, then the consonantal length at C_2 (previously allophonic) becomes phonologically contrastive. A long or geminate consonant is then generally interpreted as voiceless and a short or non-geminate consonant as voiced.

This may be found in languages which just lose contrastive length at V_1 without any initial dropping (of C_1 or C_1V_1) as in Bc4, Kugu-Muminh:

- (8) *kú:ku > kúgu ‘language speech’ but *tháku > tháku ‘left hand’

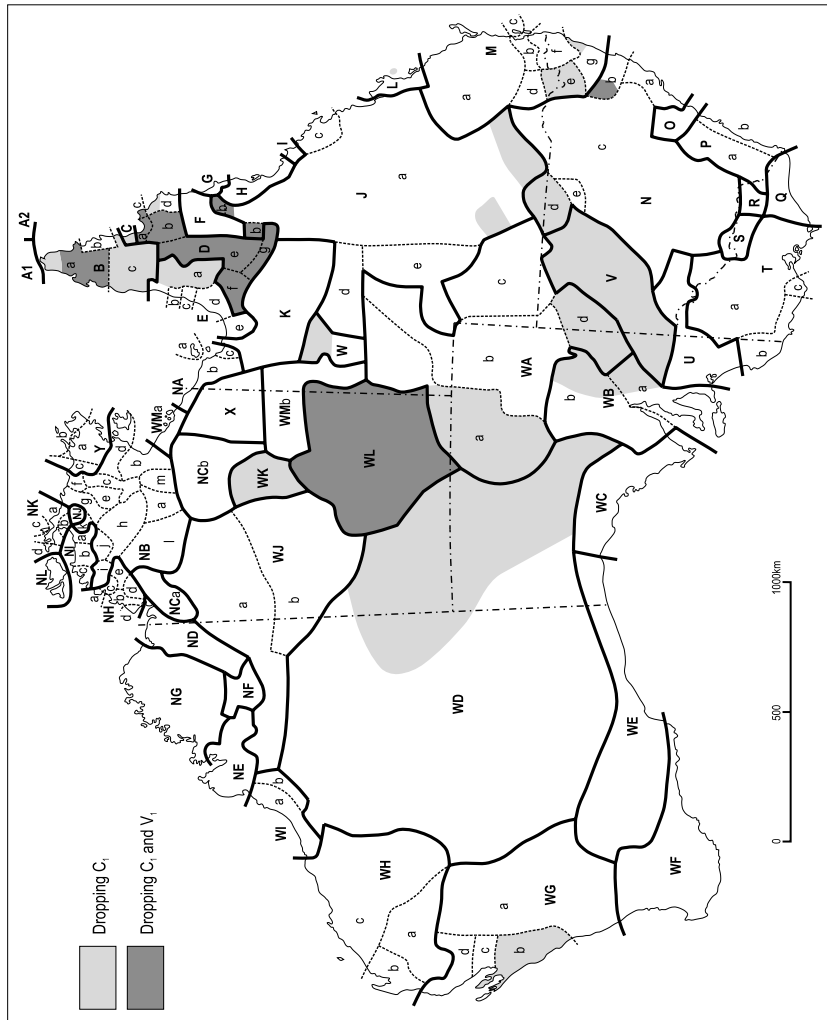
The change is frequently encountered in initial-dropping languages. There is a variant on the pattern just described in which a stop after an (erstwhile) long vowel becomes a (voiced) fricative, whereas a stop after a short vowel remains as a stop. We thus get the loss of vowel length at V_1 engendering the innovation of a stop/fricative contrast at C_2 , as in Ba4, Mpalitjanh:

- (9) *tjǐ:par > iβá(đu) ‘south’ but *tjǐpa > ipá ‘liver’

We will now discuss these changes in more detail. §12.4.1 deals with initial consonant omission and lenition. §12.4.2 discusses vowel shortening and omission at V_1 . §12.4.3 deals with paradigmatic amplification at C_2 . §12.4.4 discusses vowel copying and metathesis, from V_1 over C_2 . §12.4.5 deals with changes at V_2 that are a consequence of C_1 omission and/or changes to V_1 . Finally, §12.4.6 briefly surveys the pervasive character and areal basis for these changes. Map 12.4 shows the geographical distribution of C_1 and C_1V_1 initial dropping.

The discussion above, and in the following subsections, is based on the standard sources. The complex and intertwined diachronic changes in subgroup B were demonstrated in a series of brilliant papers by Hale (1964, 1976b, c, g); see also Crowley (1981, 1983) on Ba6 and Ba2 respectively, and Smith and Johnson (2000) on Bc4. The changes in Jb1, Mbabaram, are described in Dixon (1991b); those in Nb2, Nganjaywana, are in Crowley (1976); those in WGb, Nhanta, are in Blevins and Marmion (1994); and those in WL, the Arandic languages, are in Koch (1997), with amendments in Breen and Pensalfini (1999). Note that the subsections below only summarise some of the main, recurrent types of change. For a full statement of all changes, reference should be made to the primary sources.

There have been pervasive initial-dropping changes in languages of group D. However, the data (and analysis) on most of these languages are slender, save for a preliminary report by Rigsby (1976) on De1, Kuku-Thaypan. I am thus able to provide only minimal exemplification from the languages of group D.



Map 12.4 Languages with initial dropping

pronouns, kin terms and interjections (Hercus 1994: 32). In WGb, Nhanta, besides the regular loss of *p* from all types of words, there is loss of *k*, *m*, *th* and *y* from a number of kin terms and from 'dog' (Blevins and Marmion 1994: 199–200). Pronouns and kin terms (and 'dog') are commonly used in address. They, and interjections, are likely to be utterance-initial, an environment in which initial dropping is most likely to take place.

It will be seen, from table 12.4, that dorso-velar consonants (stop, nasal, semi-vowel) are most at risk of being dropped from *C*₁ position, followed by labials and laminals. That is, a consonantal series which is most frequently found in *C*₁ position (see §12.1.3) is most likely to be dropped from that position.

For all of the languages shown in table 12.4 (except for Ba2, Uradhi – Hale 1976c: 44; but see Crowley 1983: 322 for a different analysis of this language), stress remains on *V*₁. This supports the hypothesis followed here that the shift of stress from *V*₁ to *V*₂ is not a necessary preliminary to loss (or lenition) of *C*₁, but that the omission of *C*₁ will generally be the first in a series of diachronic changes and then, as a later change, stress may shift to the second syllable (pace the opinion expressed in Dixon 1980: 197). This is presented as the prevailing pattern of change in Australian languages; there may, of course, be some languages which follow an alternative order, with the first change being a shift of stress from *V*₁ to *V*₂.

There are a number of languages in which initial stops are lenited, typically to semi-vowels (for the peripheral and laminal series). Some languages just show initial lenition. In others, some stops are omitted, some lenited, and some retained. A sample set of languages with initial lenition is given in table 12.5.

For the Norman Pama subgroup, Ed, Black (1980: 204) discusses the conditioning factors, in terms of the vowel at *V*₁, for changes which have occurred at *C*₁.

The Guyani dialect of WBb2 retains initial stops. However, in the Adjnjamathanha dialect there has been systematic loss of every initial stop: *th* (and probably also *tj*) has become *y*, *k* was simply dropped and *p* has become [v] (which may be an allophone

Table 12.5 *Examples of lenition of initial stops*

	g/k	b/p	dj/tj	dh/th	d/t	
Ba2, Uradhi	w	w	y, l			sporadic
Bb, Umpila	w		y			sporadic
C, Umbindhamu	ʔ	w, ʔ	y		ʔ	sporadic
Ed, Norman Pama	w, ɣ	w, β	y, ɔ̃		rr	conditioned
W1, Kalkatungu	w	w	y			sporadic
WBb2, Adjnjamathanha	(ø)	v	y	y		systematic
WMa, Yanyuwa	w	w	y	lh	rr	extensive

of the same phoneme as [p] in medial position). All words now begin with a vowel, semi-vowel, nasal or [v].

In WMa, Yanyuwa, the changes also appear to have been fairly systematic; for example, only about 7 per cent of words in the Yanyuwa dictionary commence with *b* as against about 19 per cent for *w* and about 18 per cent for *m*. (Many of the words that do begin with stops may be recent loans.)

12.4.2 Loss or shortening of first vowel

There are a few examples of V_1 being lost and C_1 retained, producing an initial cluster C_1C_2 . These are discussed in §12.9.3, together with the formation of final clusters.

It is likely that at an earlier stage there was a length distinction at V_1 position in a wide range of Australian languages. This contrast is today retained in a sprinkling of languages from the periphery of the continent. For example, the recurrent verb root *nha:(ŋ)-* 'see, look at' retains its long vowel in languages such as Dd1, Guugu-Yimidhirr, Ea1, Kuuk Thaayorre, H3, Nyawaygi, Ma4, Waga-Waga, Mf, Bandjalang, O1, Dharuk, and Ya1, Djapu. Other languages have silently lost the length contrast in initial stressed syllables, without this loss engendering any further changes. The change has probably diffused over a large (and continuous) region of the continent.

A number of languages from the Cape York Peninsula region appear to have retained the length distinction at V_1 position until quite recent times. When this was lost, it led to the creation of a voiced/voiceless stop contrast, or else a fricative/stop contrast. In Bc4, Kugu-Muminh, this change was not linked to loss of C_1 or of V_1 , as illustrated in (8) above. However for Jb1, Nb2 and most languages from subgroup Ba, loss of length at V_1 was one of a series of linked initial-dropping changes. We first had loss of C_1 , then shift of stress from V_1 to V_2 , and then reduction of V_1 – typically loss of a short vowel at V_1 and replacement of a long vowel at V_1 by a short vowel, as illustrated in (4).

There are two points on which languages vary, concerning omitting a short vowel and replacing a long vowel by a short one at V_1 . The first is the nature of the vowel which replaces a long vowel. In Jb1, Mbabaram, all long vowels are replaced by short *a*, e.g.

- (10) *djí:barr > abérr 'south'
 *gú:gar > ag^wár 'big black goanna'

In the Awnghthim dialect of Ba6, all long vowels at V_1 are replaced by a central vowel [ə], which contrasts with its absence (and is in complementary distribution with each of the non-central vowels occurring non-initially). Thus:

- (11) *ká:la > əlá 'mother's younger brother'
 *tjálan > lán 'tongue'

However, a long vowel at V_1 is simply shortened, and retains its quality, in other languages of subgroup Ba, and in Nb2, Nganjaywana. For example:

- (12) Ba5, Yinwum $*pí:nja > ínja$ 'father's older sibling'

- (13) Nb2, Nganjaywana $*mí:gin > ígína$ 'star' (stress positioning inferred)

(Note that Nb2 adds *-a* to each consonant-final word.)

The second point of variation is that there can be restrictions on the omission of a short vowel at V_1 . In Jb1, Mbabaram, a short vowel is omitted if C_2 is a single consonant or a homorganic nasal-stop cluster, but is retained before a heterorganic cluster. For example:

- (14) $*djúmbi > mbí$ 'penis'

- $*gúrrburu > arrbúr$ 'full'

Nb2, Nganjaywana, has a similar restriction, retaining a short vowel at V_1 if C_2 is a heterorganic cluster or if it is *r*. Thus:

- (15) $*wámbunj > mbúnja$ 'kangaroo'

- $*djúrrguŋ > urrgúŋa$ 'mopoke owl'

- $*wíruŋ > irúŋa$ 'section name'

In the Linngithigh dialect of Ba6, a short vowel was retained at V_1 if C_2 was *y*, *w*, *r* or *rr*.

Other languages of the Ba subgroup tend to simplify a heterorganic cluster at C_2 when it comes into word-initial position through loss of a short vowel at V_1 . In Ba7, Ngkoth, we find:

- (16) $*kálma- > má-$ 'to arrive'

- $*kúlŋkul > ŋkúl$ 'heavy'

It will be seen that when what was C_2 becomes word-initial then a homorganic nasal plus stop is, generally, the only cluster which is acceptable. Other types of cluster are avoided either by retaining a vowel at V_1 , or deleting the first element in the cluster, as in (16).

It appears that in De1, Kuku-Thaypan, all V_1 have been lost, both short and long, as in (Rigsby 1976):

- (17) $*kú:ku > wu$ 'language, speech'

- $*pí:pa > β^ye$ 'father'

12.4.3 Changes affecting C_2

There are a number of changes which have affected C_2 in initial-dropping languages.

- (a) In some languages a nasal–stop cluster at C_2 gains a trill release if C_1 was a labial. For example, in Ba7, Ngkoth:

(18) *wanta- > ntʳa- ‘to put, leave’

- (b) As mentioned at the beginning of this chapter, a pervasive feature of Australian languages is the late lowering of the velum in the production of nasal consonants. In languages from a number of regions, nasals may have a prestopped allophone at C_2 (if C_1 is not also a nasal), with the stopping preceding the nasal articulation. Hercus (1994: 37) describes and exemplifies this for WAa3, Arabana/Wangkangurru; for example /thina/, [thi^dna] ‘foot’, but /minha/, [minha] ‘what’.

What is simply an allophonic alternation in Arabana/Wangkangurru has become a phonemic contrast in languages which have lost C_1 . An example from Ea2, Olgolo, was given at (5) above. This change has also applied in WL, the Arandic languages, spoken immediately to the north of Arabana/Wangkangurru. For example:

(19) *kuna > a^hnə ‘faeces’ compare with: *nhina- > anə- ‘sit’

(Hercus 1994: 37–44 provides a useful survey of prestopping in languages from a central region; see also Evans 1995c: 734–5. Prestopping is also reported in languages from groups B, L–N, V, WG and WM.)

- (c) The third type of recurrent change at C_2 is the development of a contrast between voiced and voiceless stops, or between stops and fricatives. As illustrated in (8) and (9) this may be a consequence of the loss of vowel length at V_1 . It is discussed further in §12.5.

In WGb, Nhanta, a liquid assimilates in manner to a following stop, e.g. *-lk-* > *-tk-*; there can then be place assimilation, *-tk-* > *-kk-*. In the Purduna dialect of WHb1, and in the Tharrkari dialect of WHa, a nasal assimilates in manner to a following stop; this also produces heterorganic stop clusters, e.g. *-nk-* > *-tk-*, and sequences of like stops, e.g. *-ŋk-* > *-kk-*. These changes thus produce long (or fortis or voiceless) stops, which contrast with short (or lenis or voiced) stops. They are also discussed in detail in §12.5.

I began §12.4 by drawing attention to the domain of stress within a syllable in Australian languages – it generally applies to the vowel and to the following consonant, but not to the syllable-initial consonant. Butcher (forthcoming) comments that while in

languages outside Australia stress typically involves lengthening the vowel of the stressed syllable, in Australian languages 'stress is commonly manifested through a lengthening of the coda consonant of the stressed syllable'. Many of the changes which have applied are a consequence of these properties – both the dropping of C_1 and the various kinds of change which strengthen C_2 .

12.4.4 *Vowel copying and metathesis*

In languages where a short vowel at V_1 is omitted, its quality may be reflected in a ^{w} or ^{y} off-glide on C_2 . It is likely that the off-glide began as an allophonic feature of C_2 , conditioned by an i or u at V_1 , and then became phonologically contrastive after the loss of V_1 . This is illustrated for Ba9, Mbiywom, at (7) above, and for Nb2, Nganjaywana, in (20):

- (20) *wigay > g^yaya 'food'; *gugaŋa > g^waŋa 'child'

It was mentioned in §12.4.2 that, in the Awngthim dialect of Ba6, long vowels at V_1 all become a central vowel [ə]; however, the quality of the original vowel is reflected in off-glides. For example:

- (21) *pi:mu > əm^yu 'father's sister'; *ku:tji- > əð^wi- 'two'

There are typically restrictions on off-glide copying. Generally, this does not take place when $V_1 = V_2$; that is, we do not get $-C_2^wu-$ or $-C_2^yi-$ sequences. In Nb2, Nganjaywana, for example, one finds *mubul > bula 'anus, stomach' (rather than b^wula). However, copying is permitted when $V_1 = V_2$ in Ba8, Aritinngithigh, and in Ba9, Mbiywom. For example, *pugku > ŋk^wu 'knee' in Aritinngithigh and > ŋg^wu in Mbiywom.

There can also be restrictions on the type of consonant at C_2 that may accept off-glides. In Nb2, Nganjaywana, ^y is found after b and g , and ^w after b , d , g and l . In Jb1, Mbabaram, only a ^w off-glide is reported, and that only after g , d and n . However, many of the languages in subgroup Ba appear to permit both off-glides after all types of consonant.

The examples given above are best described as 'copying' rather than metathesis (interchange of V_1 and C_2). However, in some languages a full vowel (not just an off-glide) is placed after C_2 ; that is, $C_1V_1C_2V_2$ > $C_2V_1V_2$. This has a stronger claim to be called metathesis. We get a sequence of two vowels; a high vowel from the sequence is then interpreted as a semi-vowel. For example, *kali > lay 'to go' in Ba7, Ngkoth.

In De1, Kuku-Thaypan, examples of metathesis include (Rigsby 1976) *patin > tain 'skin'. In this language, some vowel sequences resulting from metathesis have given rise to new mid-vowels, through changes such as $ua > o$, as in *kuman > muan > mon 'thigh'. In the Mpakwithi dialect of Ba6, metathesis has led to the development of several new vowels, by changes such as $au > o$, $ua > o$, $ai > æ$, and $ia > e$; details are in Crowley (1981: 160). There is further discussion of the augmentation of vowel systems in §12.8.2.

Consider the different forms in two dialects of WF, Nyungar, from the far south-west:

(22)	north-western dialect	kartu	kapi	tjita	puya	kutji
	eastern dialect	kort	kep	tjert	p ^w oy	k ^w etj
		'wife'	'water'	'bird'	'smoke'	'bone'

We can take the north-western forms as original, with the eastern dialect undergoing phonological changes that led to the development of new vowels *e* and *o*, plus the introduction of a rounding off-glide, ^w, on consonants at C₁. Now the original sequence V₁ – V₂ has become a new (off-glide plus) V₁ according to the following changes:

au > o	ai > e	ia > e
ua > ^w o	ui > ^w e	

There are several ways in which these changes could be explained. One would be through metathesis and then blending of vowel sequences, e.g. *kartu* > *kaurtu* > *kort*. (Note that this would be metathesis in the opposite direction from that in the preceding examples.) An alternative would be copying of V₂ into V₁, and then blending of V₁ and loss of V₂, e.g. *kartu* > *kaurtu* > *kort*. Perhaps the most plausible scenario is for there to have originally been phonetic assimilation of V₁ to V₂, with /kartu/ being [kɔrtu]; at this stage /a/ had allophone [ɔ] when the following vowel was *u*. Final vowels were then neutralised and omitted, so that what was an allophonic distinction took on the status of a phonemic contrast, /kartu/, [kɔrtu] becoming /kort/, [kɔrt]. In similar fashion, the ^w off-glide would have progressed from being a predictable allophonic feature to having phonemic status. (See (56) under (g) in §12.9.2; and Dench 1990, repeated in Blevins and Garrett, 1998.)

12.4.5 Changes at V₂

There are a number of languages in which V₂ assimilates (in whole or part) to V₁, or vice versa. For example, in WK, Warumungu, the dative suffix **-gu* is simply -gV, repeating the last vowel of the root. In some of the initial-dropping languages the various changes have engendered a number of further vowel contrasts in the V₂ slot.

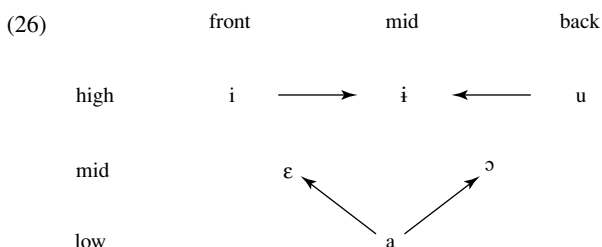
In the last subsection it was shown how the choices at V₂ can be increased by metathesis and then blending, e.g. *ua* > *o*, *ia* > *e*. In some languages, changes at V₂ are conditioned not just by V₁ but by a combination of C₁ and V₁. At an earlier stage, Jb1, Mbabaram, would have had just three vowels (with a length distinction in the initial, stressed syllable). The following changes then applied.

- (a) The vowel *a* at V₂ was raised to the back low mid vowel ɔ when the word began with a dorso-velar stop or nasal (*g* or *ŋ*), or with *wu*- (but not when it began with *wa*-). One example was given at (6); others are:

- (23) *ganda- > ndɔ- 'burn'; *wuna- > nɔ- 'lie down'; *gudaga > dɔg 'tame dog'

- (b) The vowel *a* at V_2 was raised to the front low mid vowel ε when the word began with the lamino-palatal stop *dj* (or perhaps with *nj* or *yi*; there are no examples of these in the data). For example:
- (24) *djana- > nɛ- 'sit'; *djagay > gɛy 'sand goanna'; *djiba > bɛ 'liver'
- (c) The vowel *u* at V_2 became the high central unrounded vowel ɨ when C_1 was a laminal (*dj*, *nj* or *y*) and the vowel *i* at V_2 became ɨ when C_1 was a dorso-velar (*g* or *ŋ*) or the dorsal-labial semi-vowel (*w*). For example:
- (25) *djambul > mbɨl 'two' *gabirri > birr 'emu'
 *njadju- > djɨ- 'cook' *ŋadjin > djɨ 'my'
 *yundu > ndɨ 'you' *wanji > njɨb 'what'

The development of the three new vowels can be tabulated:



Interestingly, words in which vowel copying has given rise to an off-glide ^w do not show raising of *a* at V_1 to ɔ when the word began with *g*-, *ŋ*- or *wu*-, e.g. *gunggar* > *ŋg^war* 'north' (rather than *ŋg^wɔr*).

In Ba5, Yinwum, there have been more complex changes at V_2 , conditioned by both C_1 and V_1 . For example, *u* > *e* at V_2 if C_1 was a laminal and V_1 was also *u*, e.g. *tjuku* > *ke* 'tree' (see Hale 1976b: 12; and Dixon 1980: 201). Similar changes have applied in Ba7, Ngkoth, and Ba9, Mbiywom.

12.4.6 An overall perspective

It has for some time puzzled Australianists why the phenomena of initial dropping should occur – presumably independently – at several locations across the continent. An explanation is provided by the observation that the pitch peak occurs relatively late in a stressed syllable (when compared to languages from other continents). This leaves the initial consonant relatively weak in articulation, and at risk of being dropped. As exemplified in §12.4.1, dropping of some or all consonants at C_1 is a widespread feature; and in a number of languages where C_1 is not dropped, it is lenited to a

semi-vowel or liquid. Once C_1 is dropped then the initial syllable is weakened and there is a tendency to shift stress from V_1 to V_2 . This in turn can lead to the loss or shortening of the vowel at V_1 .

Once a change has taken place in one dialect or language it tends to diffuse. The Ba subgroup provides an interesting case study. Proto-Ba, as reconstructed by Hale, had a canonical phonemic system, phonotactics and stress placement, as set out in §§12.1–4. The various changes (described above) have taken place independently in each language, after the time of proto-Ba. Compare the reflexes of **kutaka* ‘dog’ in individual languages (Hale 1976b: 24; cf. Dixon 1980: 195):

- (27) **kutaka* ‘dog’ > *utaya* in Ba2, Uradhi
 uʔa in Ba4, Luthigh
 t^wa in Ba5, Yinwum
 ʔ^wa in Ba6, Awngthim
 t^wo in Ba9, Mbiywom

We find loss of C_1 in Ba2 and Ba4 but of C_1V_1 in the other languages. There is copying of *u* at V_1 onto C_2 as an off-glide *w* for three languages, and in Ba9 we also get *w**a* > *w**o*. The final *-ka* is lost in four languages and in Ba2 the *k* becomes *ɣ* (see §12.5). And there has been a change *t* > *ʔ* in Ba4 and Ba6 (see §12.6).

Interestingly, the greatest number of changes have applied in languages Ba5–9, from a central part of the Ba region, with fewer changes in the most northerly languages, Ba1–4, and the most southerly one, Ba10. It is likely that one dialect of a central Ba language began initial-dropping changes, and that these changes diffused into neighbouring dialects and languages, being applied in slightly different ways (and perhaps in slightly different orders) in each case. (Note that in some languages there are minor differences between dialects.)

What is likely to have happened is that multilingual speakers would have, to some degree, imitated the surface forms of words in a neighbouring language, and this imitation would have led to their making changes in their own language, similar to those which provided the surface forms in the neighbour.

Nb2, Nnganjaywana, has undergone profound changes; as shown in table 12.4, there has been sporadic loss of initial consonants in its northerly neighbour Me, Yugambal. The changes undergone by Jb1, Mbabaram, are similar to those in its near-neighbour Jb2, Agwamin, although the data available on Agwamin are slight; this is likely to have been another instance of diffusion.

The other location for intensive initial dropping, and associated changes, is WL, the Arandic languages. Some of the changes here are similar to those found in Nnganjaywana, Mbabaram, the Ba subgroup and languages from group D; for example, pre-stopping of a nasal at C_2 when C_1 is not a nasal; loss of C_1 ; and stress shifting to V_2 . WL

does, however, show some changes which are strikingly different from those found elsewhere. For example:

- $C_2i > {}^yC_2i$, prepalatalisation of C_2 before i (this applies to a C_2 which is an apical stop, nasal or lateral), e.g. *ɲali* > *a^ylɔ* 'we two'.
- a at V_1 becomes u after w at C_1 (which is later dropped), e.g. *waku* > *ukə* 'arm'.

A full account of the changes that have applied to WL languages is in Koch (1997; see also Breen and Pensalfini 1999).

There has been diffusion of some of the more superficial changes to languages surrounding WL. In some neighbouring dialects of WD, the Western Desert Language (to the west), initial y has been omitted from a number of words. As shown in §12.4.1, there has been loss of an initial nasal from some words in Waa3, Arabana/Wangkangurru (to the south). And there are a number of words commencing with a vowel in WK, Warumungu (to the north).

Several of WL's neighbours have phonetic pre-stopping of medial nasals. This appears to be a well-established feature in the region (as in some other regions) and would have been in place before the initial-dropping changes commenced in WL. It became phonologically contrastive just in WL, after initial-dropping changes eliminated the conditioning environment.

In summary, the shared phonetic characteristic of Australian languages – having a late pitch peak in a stressed syllable – has led to similar changes taking place independently in geographically separated languages. These changes then tend to spread. Neighbouring languages, because of their phonetic make-up, are receptive to diffusion of the changes (through speakers' imitation of patterns of pronunciation).

It is likely that most or all of the sequences of change described in this section have taken place relatively recently (since they can be clearly recovered by reconstruction). Given more time they would doubtless diffuse further.

12.5 Stop contrasts, and fricatives

As stated in §12.1, the canonical consonant system in Australia has a single series of stops and no fricatives. There are, however, about sixty languages which have two series of stops, or a contrast between stops and fricatives. (A handful of languages are reported to have two series of stops plus a number of fricatives; these are discussed later in the section.)

Several kinds of phonetic label have been applied to stop contrasts in Australian languages. The various labels correlate in the following way (the code letters are used in table 12.6):

(28)	FIRST SERIES	SECOND SERIES	CODE LETTER
	fortis (or tense or strong)	lenis (or lax or weak)	f
	long (or geminate)	short (or non-geminate)	l
	voiceless	voiced	v
	aspirated	non-aspirated	a
	(voiceless) stop	(voiced) fricative	
	(voiceless) stop	(voiced) semi-vowel, tap or trill	

Sounds in the first series are characterised by greater, and those in the second series by lesser, intra-oral pressure. In labial articulation, for example, there is a greater pressure build-up between the closed lips for a sound of the first series than for one of the second series. The labels fortis/lenis are always applicable to describe the contrast between the two series (tense/lax, or strong/weak, are sometimes used, but are essentially synonyms of fortis/lenis).

In some languages, fortis stops have a longer closure than the lenis variety; that is, fortis stops are here long and lenis stops short. The labels geminate/non-geminate are sometimes used; these are essentially synonyms of long/short.

In a number of languages the lenis sounds are characterised by glottalic vibration; that is, lenis sounds are voiced and fortis sounds voiceless. In some languages the fortis/lenis contrast is associated with both length and voicing. Aspiration is a further feature which can be associated with the fortis series (accompanying either length or voicing or both, but never being the main discriminatory feature).

Stops in the second series often have fricative allophones. In some languages they have become fricatives, so that instead of a contrast between two series of stops, there is now a contrast between stops (generally voiceless in these languages) and fricatives (generally voiced). An alternative diachronic shift, shown in the last line of (28), is for the peripheral and laminal stops of the second series to merge with semi-vowels, and sometimes for the apicals to become trills or taps.

It will be most convenient, in this section, to use voiceless symbols (*p, k, t*, etc.) for a single stop series, and for the lenis series where there is a stop contrast, with doubled letters (*pp*, etc.) for the fortis series when there is a contrast. Some sources use *p*, etc. for the fortis and *pp*, etc. for the lenis series.

12.5.1 Historical development, and loss

In some languages – particularly those of the NH group – a stop contrast (sometimes with the addition of fricatives) is probably an ancient feature. In other languages a stop contrast has plainly developed recently, and its path of origin can be reconstructed. The most common of these paths are described below.

(1) A relic of a lost length distinction in the preceding vowel slot. At Stage I we have length as a phonologically contrastive property of vowels with the following stops then being allophonically conditioned by this – a short stop after a long vowel and a long stop after a short vowel. At Stage II vowel length is lost and consonant length becomes contrastive. Thus (using *k* as representative of the class of stops):

(29)	Stage I	Stage II
	/V:k/, [V:k]	/Vk/, [Vk]
	/Vk/, [Vk:]	/Vk:/, [Vk:]

This development has applied in some languages from subgroup Ba, in Bc4, in WMb3 and probably in some other languages (see discussion below).

Note that there are some languages (e.g. subgroup Y) which show a stop contrast and have retained the length contrast for vowels at V₁.

(2) A sequence of two identical stops is formed by one of a number of means. These include:

- A non-stop at the end of a syllable assimilates in manner to a following stop. This can yield a heterorganic stop cluster, e.g. *-nk-* > *-tk-*, and also a long stop, e.g. *-ŋk-* > *-kk-* (which will then contrast with a single stop). A development of this kind is attested for WGb and for dialects in WHa/b. Wood (1978: 100) suggests a similar change, *-ʔk-* > *-kk-*, for Yb2, Gaalpu.
- If two identical stops come together across a morpheme boundary they form a long stop. This is attested for languages in groups Y and NB.

There are thus various paths by which a stop contrast can develop. Indeed, one might state that languages in the Australian linguistic area demonstrate a tendency to develop a stop contrast, partly as a result of the strengthening of C₂, discussed in §12.4.

They also show a tendency to lose such a contrast. Lenis stops, especially those which involve voicing, tend to develop fricative allophones. These may become dominant, and take over, so that we get a contrast between stop (generally voiceless) and fricative (generally voiced). This could be characterised as a voicing contrast, with stop/fricative as a secondary feature; but it is, in fact, always described as a stop/fricative contrast, with voicing as a secondary feature. It is attested for languages in subgroup Ba, among others.

Another recurrent development is for peripheral and laminal lenis stops to lenite and merge with the corresponding semi-vowels. That is (using voiced symbols for lenis stops):

b > w, g > w, dj > y, dh > y

This has applied in some languages, leaving a stop distinction just for one or two of the apical series (e.g. some dialects of Ya1). In other languages the apical stop contrast is also lost, with *d* and/or *rd* becoming a tap or trill. An apical stop can either

merge with an existing rhotic or else produce a new rhotic phoneme (see the discussion of languages with three rhotics under (ii) in §12.3.2).

This provides another example of the types of cyclic change which characterise the long-standing Australian linguistic area. A stop contrast may be innovated, kept for a while, and then lost, with the second stop series being merged with sonorants. In some regions this may happen quite quickly; for instance in the *Purduna* dialect of WHb1 it appears that some lenis stops lenited to semi-vowels almost as soon as a stop contrast was created (this may have been due to areal pressure from neighbouring dialects, which lack such a contrast). In other languages a stop contrast may persevere for a long period – such that its initial origin is not recoverable – and be lost only gradually.

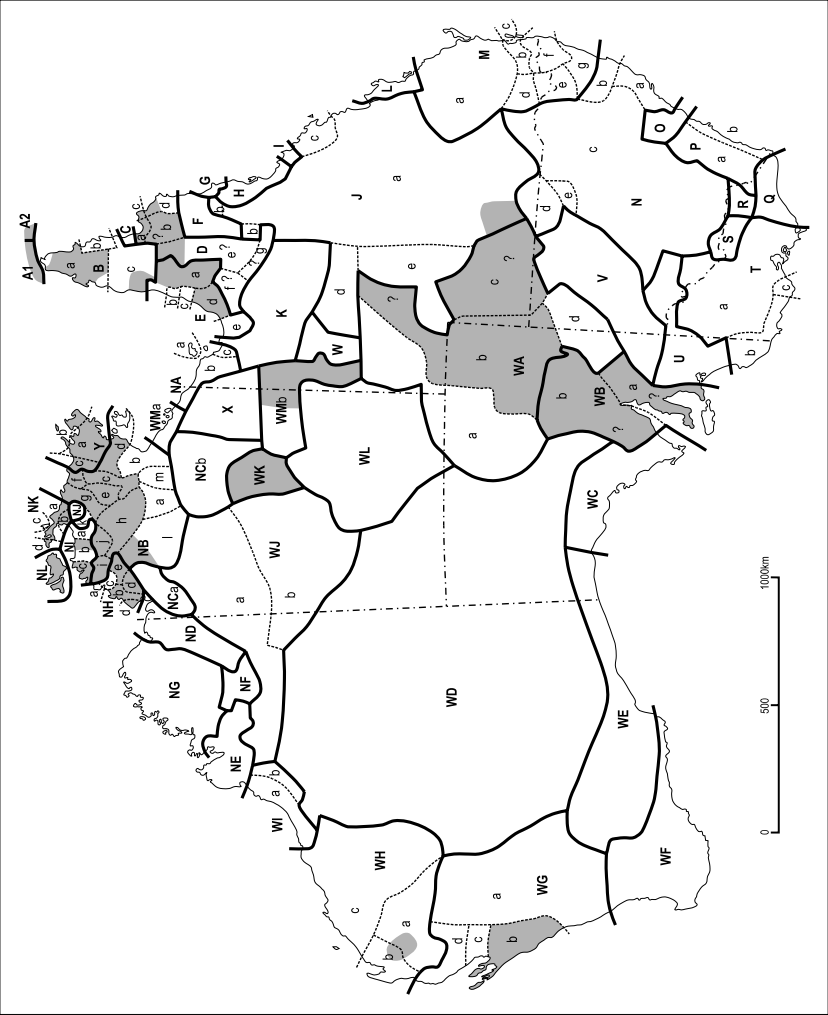
12.5.2 *Occurrence*

Table 12.6 summarises the groups, languages and dialects which have a stop contrast, or a stop/fricative contrast (or both); these are shown in map 12.5. (Note that Austin 1988c provides a partial survey of Australian languages with a stop contrast; see also Butcher and Reid 1989.) Table 12.6 is organised as follows:

- The first column identifies areal groups of languages with an obstruent contrast, by capital roman numbers.
- The second column lists the groups and/or languages and/or dialects in each area.
- The third and fourth columns show how many apical and laminal series there are.
- The fifth column shows how many places of articulation the stop contrast applies to. This is indicated by ‘all’ followed by a number referring to the number of places of articulation in the language, or by voiced letters indicating the places of articulation involved, e.g. ‘b, d, g’.
- If a language has fricatives instead of, or in addition to, a second series of stops, these are indicated in the sixth column. (A digraph beginning with *r* indicates retroflex pronunciation, as elsewhere in this book; otherwise standard IPA symbols for fricatives are employed.)
- The seventh column summarises what the sources say about the nature of the stop contrast, using the code letters from (28). It should be noted that a fair number of sources simply describe the contrast as voiced/voiceless (or else simply use voiced and voiceless symbols, without any comment). In some cases this is surely because voicing is the best-known type of stop contrast across the world’s languages. Other sources provide useful phonetic discussion and assess the various parameters involved. (There are some grammarians who do not explicitly mention that there is a stop

Table 12.6 *Distribution of stop contrasts, and fricatives*

area	groups/ languages/ dialects	apical series	laminal series	second stop series	fricatives	type	distribution if other than medial or original medial
I	A1, West Torres	1	1	all 4	s, z	v	& initial
	A2, East Torres	1	0	all 3	s, z	v	& initial
II	Ba2-8	1	2	—	β, γ, ð	—	
	Ba9, Mbiywom	1	2	all 5	β, γ, ð	v	
III	Bc4, Kugu-Muminh	1	2	all 5	—	v	
IV	Da-b	1	2	all 5	β, γ, ð	v	
	Dc1, Flinders Is.	1	2	b, g, d	ð	v	
	Dd2, Barrow Pt.	1	2	—	γ, ð	—	
	De, Thaypan/Mini	1	2	(allophones)	β, γ, ð	(v)	
V	Ea2-3	1	2	all 5	β, γ, ð	v/a	
VI	Ed1, Kurtjar	1	2	—	β, γ, ð	—	
	Ed2, Kuthant	1	2	—	γ	—	
VII	Ja1, Marrganj, Gunja	2	2	all 6	(allophones)	f/l/v	
VIII	Y, Yolngu subgroup	2	2	all 6	—	f/l/v/a	
IX	WA, WB groups	2	2	all 6	—	l/v	
X	WGb, Nhanta	2	2	all 6	—	l/v	
XI	WHa/b	2	2	all 6	—	l/v	
XII	WK, Warumungu	2	1	all 5	—	l/v/a	
XIII	WMb2/3	2	2	all 6	(γ)	v	
XIV	NBc	2	1	all 5	—	f/l/v	
	NBd1/2	2	2	all 6	—	f/l	
	NBe-j	2	1	all 5	—	f/l/v	
	NB11, Wagiman	1	1	all 4	—	v	
	N1b1, Limilngan	2	1	b, g, dj, rd	—	f	
XV	NHb1, Emmi	2	2	all 6	β, rz	v	& initial
	NHb2-3	1	2	b, dj, d	all 5	l	& initial
	NHd1, Murrinh- patha	2	2	all 6	(allophones)	v	& initial
	NHd2, Ngan.gi- tjemerri	1	1	b, d	all 4	l/v/a	& initial
	NHe1, Matngele	2	1	b, g, d, dj	—	v	& initial
	NHe2, Kamu	2	1	all 5	—	f/l/v	



Map 12.5 Occurrence of stop contrasts and fricatives

contrast, but their transcriptions include both single and double stops, showing that they are implicitly recognising one.)

- Most of the obstruent contrasts are only found in medial position, either between vowels or between a consonant and a vowel. In initial-dropping languages the contrast may be at what used to be medial position, but can now – after the initial-dropping changes – be word-initial. The final column indicates what the distribution of the contrast is, if it occurs in a position other than medial or original medial.

A commentary will now be provided on the rows in table 12.6.

(I) Group A is included for completeness. Although spoken in Australia, A2, East Torres, has no similarities to Australian languages. A1, West Torres, is (like A2) a Papuan language but it does have a marked Australian substratum; see §4.3.3. Interestingly, there are a couple of words in West Torres where *s* appears to correspond to *dj* or *dh* in mainland languages – *sib* ‘liver’ (cf. *djiba*) and *san* ‘foot’ (cf. *dhana/djina*).

(II) There are good data (from Hale and Crowley) on seven of the ten languages in subgroup Ba. There is probably a single stop series, and no fricatives, in Ba10, Andjith (in the extreme south-west of the region), and in Ba1, Gudang (in the extreme north, adjacent to group A). There are slim data on these two languages, and on Ba3, Wuthati, which is probably similar to its better-described neighbours Ba2, Uradhi, and Ba5, Yinwum.

It is likely that proto-Ba had a single laminal series; modern languages have developed a laminal contrast. We also have the following changes, which are variants of change Type (1) in §12.5.1:

- (30) after a long vowel at V_1
 in Ba4, a stop
 in Ba5, Ba8 and Ba9, a homorganic nasal plus stop
 in Ba2 and Ba6, a stop or a homorganic nasal plus stop
 becomes the corresponding fricative

That is, $(m)p > \beta$, $(\eta)k > \gamma$, $(n)ʈj > \delta$. Note that the proto-Ba reconstructions include no instance of *t* or *nt* after a long vowel. (Crowley 1981: 153 reports a fourth fricative, $\mathfrak{z}$, for the Mpakwithi dialect of Ba6, but with no suggestions as to its possible historical origin.)

These changes were illustrated for Ba4, Mpalitjanh, in (9) of §12.4. Further examples can be given from Ba2, Uradhi (Hale 1976c; Crowley 1983: 333):

- (31) *pa:ŋkal > ayal ‘shoulder’
 *ka:lka > alyə ‘fall, die’
 *pi:ku > wiɣu ‘rib’

Just in Ba2, Uradhi, we find a stop becoming a fricative after the second vowel of a word, e.g. **kutaka* > *utaya* 'dog'. (All of the other languages in subgroup Ba appear to have lost the third syllable of this word – see (27) in §12.4.6.)

The changes set out in (30) have not applied in Ba7, Ngkoth. Here *rr* > *ɣ* at the end of a word, e.g. *ɣa:murr* > *amoy* 'armpit'. There are other instances of *ɣ*, and also instances of *β* and *ð*, but these appear to be entirely in loans from neighbouring languages which have undergone the changes in (30).

Ba9, Mbiywom, appears to have developed *β*, *ɣ* and *ð* by the changes in (30). In addition it has full series of voiceless and voiced stops. Hale (1976b: 20) speculates that in at least one word *dj* may come from *y* (but there are also words where *y* is retained). This requires further study.

(III) Bc4, Kugu-Muminh, has also undergone similar changes. Here a stop which comes between vowels – or after a nasal – at *C*₁ is voiced if *V*₁ was a long vowel. In addition to example (8) in §12.4, there are the following (Hale 1976g):

- (32) **wa:tja* > *wadha* 'crow' **katji* > *katji* 'far'
**mu:njtji-* > *munjdji-* 'swim' **panjtji-* > *panjtji-* 'burn'

Note that Bc4 is not contiguous to languages in subgroup Ba which underwent the changes in (30).

(IV) Of the languages in group D, only Dd1, Guugu Yimidhirr, maintains a canonical phonological profile. Languages in groups Da–b and De–g have undergone some initial dropping.

Only for De1, Kuku-Thaypan, do we have a clear statement of the phonology and a preliminary investigation of diachronic changes. Rigsby (1976) describes a series of voiceless, tense stops, and a second series consisting of *β*, *ɣ* and *ð*; these are 'generally voiced lenis spirants, but /*β*/ and /*ɣ*/, at least, have voiced stop allophones after /*n*/ and perhaps elsewhere'. The etymologies which Rigsby provides include:

- (33) **pi:pa* > *β^ye* 'father'; **pa:tji* > *ði* 'cry'

These suggest that a change of Type (1) has applied. There are also examples of *k* > *w* /*V*:- (e.g. **kuuku* > *wu* 'speech, language') suggesting that in De1 lenis stops have lenited to fricatives in some words and to semi-vowels in others. De2, Aghu Tharnggala, appears to be very similar to Kuku-Thaypan (Jolly 1989).

Information on other languages in group D is partial and has not always been fully checked. For Da1, Morroba-Lama, Ogilvie (1994) gives five voiceless and five voiced stops plus fricatives *φ*, *β*, *χ*, *θ*, *ð* and *f*; it is unlikely that all of these are phonologically contrastive. For the other languages in groups Da and Db, two stop series plus

fricatives β (or ϕ), γ (or χ), δ (or θ) and sometimes also f have been posited (see Laycock 1969, Sommer 1976, Godman 1993). Sutton (p.c.) reports a second stop series including at least b , d , g , and also δ , for Dc1, the Flinders Island language; here the lenis stops have developed from medial nasals. Sutton (p.c.) also reports a fricative series with at least γ and δ for Dd2, Barrow Point language; these generally reflect earlier k and th following long stressed vowels which have since become shortened.

(V) For Ea2, Oykangand, and Ea3, Ogh-Undjan, Sommer (1969: 37; 1997) reports two series of stops plus fricatives β (with allophones $/\beta/$, $[v]$, $[\phi]$ and $[f]$), γ (with allophones $[\gamma]$ and $[\chi]$) and δ . There is no information on diachronic change, but note that the first word in the name of Ea3 is $/o\gamma/$, plainly a reflex of $*kuuku$ 'language'; i.e. $k > \gamma /V:-$ in at least this word.

(VI) For Ed1, Kurtjar, Black (1980: 194, 204) suggests that the evolution of the three fricatives was conditioned by the following vowel. There are examples of $p > \beta /-a$, of $k > \gamma /-a, -i$, and of $tj > \delta /-a, -u$. For the closely related Ed2, Kuthant, Black recognises just one fricative, γ (and this was only found in the speech of some consultants). Due to loss of final vowels, stops and fricatives contrast at what was medial position but now comes at the end of the word, e.g. $i:\beta$ ($< *pi:pa$) 'father' and $i:p$ ($< *papi$) 'father's mother'.

(VII) In just two of the dialects of Ja1, Marrganj and Gunja, there are two series of stops. Breen (1981a: 283) mentions that b , g and dh are frequently lenited to fricatives and d to a tap.

No explicit information is given on the origin of the contrast. However we can note $padi-$ 'cry', cognate with $pa:ti-$ in languages with a length contrast in vowels (e.g. H2, Warrgamay), suggesting path of origin (1). Note also that these dialects do show heterorganic stop sequences $-db-$, $-dg-$, $-dp-$ and $-dk-$ (although the initial d is here realised as a trill or tap); homorganic stop clusters could have led to the evolution of a stop contrast by path (2) from §12.5.1.

(VIII) It is likely that the proto-language for Y, the Yolngu subgroup, had a stop contrast at each place of articulation in medial position only. This system is maintained in most modern languages and dialects but in some (e.g. the Gaalpu dialect of Yb2 and the Djapu dialect of Ya1) the stop contrast is maintained only for apico-postalveolars. The peripheral and laminal stops have lenited to semi-vowels. (There is little attestation of the apico-alveolar stop.)

Butcher's (forthcoming) instrumental work shows that, in the Y subgroup, the stop contrast is realised by both length and voicing; this is in contrast to languages from group NB where it is predominantly length, and those from group NH where it is pre-

dominantly voicing. Note that Yolngu languages maintain contrastive length in the first, stressed syllable.

Some of the occurrences of a long consonant at medial position come from concatenation of one morpheme ending with a certain stop and another beginning with the same stop (see the example quoted in Dixon 1980: 216). As mentioned above, Wood (1978) suggests assimilation of *-ʔk-* to *-kk-* as another path of origin. Several sources provide detailed discussion of the stop contrast in Yolngu languages; see Lowe (1975), Wood (1978), Waters (1980), Morphy (1983), Wilkinson (1991: 65–70) and further references therein.

(IX) A stop contrast probably applies at all six places of articulation in WAc1, Wangkumara, WAc2, Galali, and WAb1, Yandruwanhdha; it appears to apply medially, either between vowels or after a nasal or liquid. The contrast is made just in the two peripheral and the two laminal series in the Yaluyandi dialect of WAb3, and just in the two apical series in the Ngamini dialect of WAb3 and in WAb2, Diyari.

The languages in group WAa do not show a stop contrast. I hypothesised – under (ii-b) in §12.3.2 – that these languages may originally have had a stop contrast at the apico-alveolar position, and that the original /d/ is today reflected in the third rhotic, apico-alveolar tap /r/.

For WBB2, Adnjamathanha, Schebeck (1974: xvi) recognises a stop contrast just at apico-postalveolar position. However, a voicing contrast at all six places is reported by McEntee and McKenzie (1992), and by Butcher (p.c.). The other languages in group WB may also have had a stop contrast; they are known only from nineteenth-century materials.

There is no clear information on the history of the stop contrast in groups WA and WB – whether it originally applied to all languages in the region and has been progressively lost from some, or whether it began for one place of articulation in one dialect and has spread to other places and other dialects and languages cannot be known.

(X) WGb, Nhanta, has undergone a series of recurrent changes. Liquids have assimilated in manner to a following stop, e.g. *yirrka* > *yitka* ‘coals’. There has also been some assimilation in place of articulation, e.g. *witku* > *wikku* ‘belly’ (speakers alternate between *witku* and *wikku*). This produces a contrast, in intervocalic position, between long (voiceless) and short (voiced) stops, e.g. *nhakka* [nhaka] ‘see-PRESENT’ and *nhaka* [nhaga] ‘see-IMPERATIVE’.

(XI) In the Purduna dialect of WHb1 and in the adjacent Tharrkari dialect of WHa, nasals have assimilated in manner to a following stop, producing a sequence of two identical stops (fortis, voiceless) which contrasts with a simple stop (lenis, voiced);

that is, there is now a voiceless/voiced contrast. Some of the voiced stops have lenited to semi-vowels. In Tharrkari all *b* have become *w*, leaving a stop contrast at only five places of articulation. In addition, *dj* has become *y* when next to *i*, and some *g* have become *w*. In Purduna all *dj* and *dh* have become *y*, leaving a stop contrast at only four places. In addition, most *b* and *g* have become *w* (it appears that *b* and *g* are generally retained in a word that commences with *w*). Examples include (Austin 1981d):

(34)	original form		Tharrkari		Purduna	
	puka	>	puga		puwa	'bad, rotten'
	wiki	>	wigi		wigi	'saliva, split (sic)'
	wi:ŋka	>	wi:ka		wi:ka	'to pull'

The original forms are retained unchanged in other dialects and languages of subgroups WHa/b.

(XII) WK, Warumungu, has a stop contrast at all five places of articulation and this applies at certain word-medial positions. A stop is almost always long in C_2 position after a short stressed vowel (another example of the strengthening of consonants after a stressed vowel). Many suffixes have allomorphic variants that just differ in the length of stop, depending on what sort of stem they are added to. The origin of the stop contrast in this language deserves detailed study; it probably relates to whether or not a root was borrowed (and from where) and also to morphophonological rules in an earlier stage of the language.

(XIII) For WMb3, Warluwara, Breen (1971) reports minimal pairs such as [pantu] 'waist' and [pa:ndu] 'butt of tree'. This could be treated as a phonological length contrast at V_1 , with a stop following a nasal at C_2 having allophones conditioned by the preceding length (a voiceless stop after a short vowel and a voiced stop after a long vowel). Alternatively, the stop contrast could be taken as basic, with length on the preceding vowel being allophonic, conditioned by the nature of the stop. (Breen ms. recognises tense/lax contrasts for all six stops, for two of the laterals and for *r* and *y*. He also discusses a dorso-velar voiced fricative, χ , which appears to have marginal phonemic status.)

Breen reports that the neighbouring language, WMb2, Bularnu, has a similar stop contrast, but here it is found intervocally as well as after a nasal.

(XIV) All of the languages in NBC-j (excepting only NBd3, Aninhdhilyagwa, on the eastern fringe of the area) plus NB11, Wagiman, have a stop contrast at all places of articulation. The adjacent language Nib1, Limilngan, is reported to have a contrast at all places save apico-alveolar.

Note that this region abuts onto both region VIII, with subgroup Y, and region XV, with groups NHb, NHd and NHe. That is, VIII, XIV and XV form one continuous area. They are here treated separately because of the different structural occurrences of the contrast, and their different phonetic natures, in the three regions.

The distribution of the stop contrast is remarkably uniform within region XIV; in almost every language it is just found medially, between vowels and after a non-nasal consonant. Butcher (forthcoming) has undertaken instrumental study of six languages in groups NBf-h and finds that the major feature is that the fortis stop is longer than its lenis congener. This contrasts with languages of group NH, where voicing is the main factor, and with subgroup Y, where both length and voicing play a role.

There are a number of clues in the literature to ways in which this contrast developed, or was reinforced. In some languages the same stop may occur on either side of a morpheme boundary, producing a long stop. Compare *takana* 'take it' and *tanpakkana* 'take it for me' in NBc1, Rembarrnga. These are analysed as (McKay 1975: 19):

- (35) (a) ta-ka-na
3minO+2minA-take-IMP
(b) tan-pak-ka-na
1minDAT+2minA-APPLIC-take-IMP

R. Green (1995: 12) provides cognates between languages from subgroup NBf, including:

(36)	NBf1, Burarra	NBf2, Gurrgoni	
	wɛŋga-	weggu-	'speak'
	bunga-	buggu-	'fall'
	bɛŋga-	beggu-	'come out'

The change -ŋg- > -gg- will have helped strengthen the functional load of the stop contrast in Gurrgoni. All in all, it is likely that several diachronic mechanisms came together to establish this stop contrast, and to maintain it.

There have been a number of instrumental studies and detailed discussions of the stop contrast in languages from this region. See especially McKay (1980, 1984), Jaeger (1983), Merlan (1983: 2-5), Eather (1990: 13-35) and R. Green (1995: 9-16).

(XV) Within the NH group there is neither a stop contrast nor any fricative phonemes in NHc, Malak-Malak, or in the Patjtjamalh dialect of NHa. Other languages have a second, contrasting, stop at some or all places of articulation and/or a number of contrasting fricatives. It is noteworthy that in most of these languages obstruent contrasts are found medially and also initially.

In some instances voiced stop and fricative are allophones of a single phoneme. For instance, NHd2, Ngan.gi-tjemerri, is reported to have three contrasting labials (*p*, *b* and *ɸ*), three apico-alveolars (*t*, *d*, *s*) but just two laminals (stop *tj* and fricative *sj*). At the dorso-velar position [g] and [ɣ] are allophones of one phoneme, contrasting with /k/. In NHd1, Murrinh-patha, several of the lenis stops have fricative allophones.

Butcher's (forthcoming) instrumental study of the NHd languages shows that voicing is the primary parameter here (contrasting with length for NB, and both length and voicing for Y).

The number and complexity of the stop and fricative phonemes in NH languages, and their occurrence at initial position in some languages, suggests that these contrasts are very well established. Unlike for some of the other regions, there are no clues as to how the contrasts would have developed.

For a small number of other languages a single fricative is reported – *y* for the NK subgroup and for NL, Tiwi, and *β* for Nlc, Larrakiya. There are two further reports of a stop contrast. Holmer (1983: 448) reports a stop contrast in L1, Darambal, apparently just at intervocalic position; this needs to be fully checked. And Hosokawa (1991: 62) suggests that NE1, Yawuru, has a distinction between fortis and lenis stops just in word-final position, e.g. *wirrp* 'smashing', *wirrb* 'opposing'. This too requires further checking.

There are further types of stop which each occur in a limited set of languages. For some languages a medial sequence of homorganic nasal plus stop has been treated as a unit phoneme; this is simply an alternative descriptive convention. There is more justification for recognising a series of prenasalised stops in languages in which these occur word-initially, e.g. Ba4–6, De and NBm. For NBm, Alawa, Sharpe (1972: 14–16) provides justification for distinguishing between prenasalised stops when they occur in medial position and nasal-stop clusters.

Evans (2000a) gives details of a series of sounds variously described as flapped laterals or prelateralised stops for languages in NK, the Mawung-Iwaydja subgroup. Austin (1988d) describes trill-released stops in some languages of group WA. He suggests that they originated in WAb1, Yandruwanhdha, and then diffused into WAb2, Diyari, WAb3, Ngamini, and WAc1, Wangkumara. Series of prestopped nasals have also been recognised for languages of groups Da, Ea and WL – see (5) in §12.4.

We have seen that some of the obstruent contrasts are recent, whereas others appear to be well established. We have been able to delineate some of the paths by which such a contrast evolved. We have also noted that there is a tendency for it to be lost, with the second series of stops merging with semi-vowels and liquids.

This is plainly another example of the cyclic nature of changes which languages of the Australian area show, with respect to many parameters. Over the tens of thousands

of years that the languages have been in the continent, an obstruent contrast will have evolved in one dialect of one language, and then diffused over a certain region. It could then be lost, either by internal change or by diffusional pressure from neighbouring languages which lack such a contrast (or due to both of these factors, one reinforcing the other).

At any time in the past, it is likely that there were some languages with an obstruent contrast and others lacking such a contrast. The location(s) of the contrast will have shifted, as groups of languages moved around the cycle of change with respect to this property, and as languages shifted their own relative and absolute locations.

12.6 Glottals

Some Australian languages have glottal stop as a segmental phoneme; in each case it is due to a recent phonological change. In the central north we get a different phenomenon – glottalisation as a prosody of the syllable. These will be discussed in turn.

(a) *Segmental glottal stop*. Many Australian languages have glottal stop as a non-contrastive phonetic feature. For example, Osborne (1974: 11) reports that in NL, Tiwi, a glottal stop can only occur in sentence-final position (and can signal the end of a sentence). In NBB2, Warndarrang, a vowel-final word, pronounced in isolation, may optionally add a phonetic glottal stop (Heath 1980b: 9).

The glottal stop as a phoneme has developed in a handful of languages, one in the south-west and the others from the far north-east.

- (1) In the Luthigh dialect of Ba4 and in several dialects of Ba6 we find $t > ?$ /V-V and also some examples of $r > ?$ /V-.
- (2) In Bb, Umpila, $r > ?$ is found initially and medially. We also find examples of $p > ?$ following l or rr and sporadic instances of $t > ?$ and $p > ?$ intervocalically.
- (3) All languages in the Wik subgroup, Bc, show a fair number of examples of $t > ?$ and $r > ?$ intervocalically; the change might thus be attributed to the proto-Bc stage.
- (4) In C, Umbindhamu, some p , t and k have been retained and some have been replaced by $ʔ$, e.g. *kuuku* > *ʔuuku* ‘language’.
- (5) Da1, Morroba-Lama, is also reported to have a glottal stop phoneme, but its origin has not yet been studied. There is also a glottal stop phoneme in Ea1, Kuuk Thaayorre and in Eb1, Yir-Yoront.
- (6) Blevins and Marmion (1994, 1995) discuss the changes that have given rise to a glottal stop in WGb, Nhanta. These include $y > ʔ$ before i , and $w > ʔ$ before u (speakers vary, e.g. ‘south’ may be *iyu* or *iʔu*). There are also instances of $ʔ$ after r (perhaps replacing an original p or k in this position).

The property of having a glottal stop is, of course, likely to diffuse. It is probable, for instance, that it diffused between dialects of Ba4 and Ba6 (perhaps also including the adjoining C and Da1, and Bb which is almost adjacent). Hale (1976b) reports that there are some words with a glottal stop in Ba7, Ngkoth, but these are all loans (predominantly from Ba6).

(b) *Glottalisation prosody*. Glottalisation features as a syllable prosody over a continuous block of languages in the central north. Interestingly, all but one of these lie in region VIII or region XIV – which are adjoining – of languages with a stop contrast (see table 12.6). In summary:

- (i) Glottalisation prosody but no stop contrast – NBa, Mangarrayi.
- (ii) Glottalisation prosody and stop contrast – Ya–b, NBc, NBd1, NBe, NBg, NBh, NB11.
- (iii) Stop contrast but no glottalisation prosody – Yc, NBd2, NBf, NBi, NBj, N1b1.

Some of the languages adjoining those with contrastive glottalisation do have this in a few words, all of them being loans (this is reported for NBf2, NBj, NBk and NHe2).

In languages of sets (i) and (ii), glottal articulation is found only at the end of a syllable, after a vowel or continuant (never after a stop). Some linguists have treated it as a segmental phoneme but others have provided persuasive argumentation for why glottalisation is best treated as a prosody of the syllable, realised at the very end of the syllable. One reason is that the languages allow a cluster of two consonants at the end of a syllable (CC); if glottalisation were taken to be a segmental consonant this would be the only example of a syllable ending in CCC.

Morphy (1983: 18) illustrates the allophones of the ergative/instrumental suffix in Ya1, Djapu:

(37)	root	root-ERG/INST
(a) 'eye'	maŋutji	maŋutji-y
(b) 'hand'	goŋ	goŋ-thu
(c) 'tongue'	ŋa:rnarr	ŋa:rnarr-yu

It will be seen that the suffix has allophone *-y* after a vowel, *-thu* after a nasal (and also after a stop) and *-yu* after a liquid. Now consider roots that end in a glottal:

(38)	root	root-ERG/INST
(a) 'knife'	yikiʔ	yiki-yʔ
(b) 'hook'	bekaŋʔ	bekaŋʔ-thu
(c) 'fat'	djukurrʔ	djukurrʔ-yu

The first point to note is that the allophony is determined by the final segment of the root, ignoring ʔ. The second is that in (38a) the glottal comes after the case suffix, *-y*.

In fact, glottal always occurs at the end of a syllable (irrespective of where a morpheme boundary comes). Hence, it is most appropriately treated as a syllable prosody, realised at the end of the syllable.

Other sources provide further argumentation for this kind of analysis. They include Schebeck (1972), Wood (1978: 94–9) and Wilkinson (1991: 80–92) on other Yolngu varieties; McKay (1975: 37–46) on NBc1, Rembarrnga; and Cook (1987: 52–62) on NB11, Wagiman.

Several of the descriptions of languages with a glottalisation prosody state that it is found most commonly at morpheme boundaries (although it is not fully predictable, and hence has contrastive phonological status; see the discussion in Harvey 1991). Merlan (1982a: 178) states that in NBa, Mangarrayi, ‘with few exceptions, it [glottal stop] occurs only at the boundary between initial element [erstwhile coverb] and auxiliary [simple verb] within a compound verb, and finally in verb particles [current coverbs]’. (See Type (e) in §6.3.1 for discussion of verbs and coverbs in Mangarrayi.) Evans (1991: 59) shows how in NBg1, Gunwinjgu, reduplication may involve repetition of initial CV(CV) with omission of a syllable-closing consonant and replacement by ʔ, e.g. *durndɛŋ* ‘return’, *duʔ-durndɛŋ* ‘start to return’. Other languages show a similar pattern.

The Ya and Yb branches of Yolngu have contrastive glottalisation. In the Yc branch it is not contrastive. Waters (1989: 1) states that a phonetic ‘glottal stop occurs sporadically, only at a morpheme boundary’.

It is interesting to speculate on the origin of the glottalisation prosody in this block of languages. It could have begun as a boundary symbol (see Heath 1980a: 10). One possibility is that a glottal stop marked the boundary between two phonological words within one grammatical word – a coverb/simple-verb boundary and a reduplication boundary typically come under this heading. It could then have been extended to cover other types of boundaries. As the internal organisation of the grammar was reorganised, what had been a predictable (and non-contrastive feature) then became phonologically contrastive.

It is of course likely that additional instances of a glottal could have come from other sources. For example, Harvey (1991: 100) presents examples of three forms that end in *-k* in some languages from group NB and in *-ʔ* in others, suggesting a change *k* > ʔ in these forms.

It is surely noteworthy that, with the exception of NBa, Mangarrayi, all languages with a glottal prosody also show a stop contrast. The glottal prosody is realised at the end of a syllable and the stop contrast is generally confined to medial position. In §12.5.1 we noted Wood’s (1978: 100) idea that a glottal stop plus an oral stop could have given rise to a long oral stop, e.g. *-ʔk-* > *-kk-*. Waters (1989: 1) mentions that ‘as a general rule, where a glottal occurs in another Yolngu language’s words, the [Yc1]

Djinang cognates will have a fortis stop – although there are exceptions to this general statement’.

The occurrence of a stop contrast in the seventeen languages of region XIV and in the eight languages of the adjacent region VIII (see table 12.6 in §12.5.1) is undoubtedly due to diffusion. This contrast would have been innovated in one dialect and then spread across a continuous area. The occurrence of glottalisation as a syllable prosody in fifteen of these twenty-five languages (and also in NBa, Mangarrayi) is undoubtedly also due to diffusion – from some point of origin – across the languages in a continuous area. The fact that the glottalisation prosody region is almost contained within the stop contrast region may be partly coincidental.

There is certainly likely to be a connection between these two features, but its nature remains to be investigated. Certainly, Waters’ remark that a glottal stop in another Yolngu language generally relates to a fortis (or long) stop in Djinang suggests that the loss of contrastive glottalisation may have reinforced the long/short contrast in oral stops in this language. One plausible scenario is that glottalisation could have developed as an automatic boundary marker, and was then extended to be a contrastive phonological feature. Then, perhaps, glottal stop plus oral stop led to a long (fortis) stop, and the evolution of a stop contrast. Somewhat surprisingly, the stop contrast has diffused further (over more languages) than the glottalisation prosody.

It is possible that glottalisation originally spread over a wider area in the central north and was then lost from some languages (as it appears to have been lost from the Yc subgroup). Like the stop contrast and many other features of the Australian linguistic area, the glottalisation prosody could be subject to cyclic development – emergence, and then loss, and then perhaps re-emergence, as a result of waves of diffusion.

In some languages there are further restrictions on glottal occurrence. In NBg1, Gunwinjgu, for example, glottalisation is not permitted in successive syllables (Evans 1991: 58). This suggests that glottalisation is a prosody not of a syllable but perhaps of a foot. In Ya1, Djambarrpuynu, only one realisation of glottalisation is permitted per word – ‘there is a rule of glottal stop deletion that removes any occurrence of a glottal stop after the first in a word’ (Wilkinson 1991: 85); see the discussion of dissimilation in §12.7.2. This suggests that it may be a prosody of the word, realised on one syllable within the word.

Glottalisation is only one of the attested ‘boundary symbols’ in Australian languages. In some languages a nasal functions as marker of a reduplication boundary, or else comes between the two components in a compound. For example, in WAa3, Arabana/Wangkangurru, we find *kila-ŋ-kila* ‘galah’ and *kani-m-pula* ‘Two Lizards’ (a place, from ‘lizard-two’); note that the inserted nasal is homorganic with the following segment (Hercus 1994: 56). A nasal is also inserted at a number of types of morpheme boundary in H1, Dyirbal – see Dixon (1972: 283–4).

12.7 Other types of change

In the last three sections we have surveyed initial dropping, and changes associated with this; stop contrasts and fricatives, and the changes that gave rise to them; and glottal stops, together with changes that produced them. In §12.7.1 we examine types of assimilation and in §12.7.2 types of dissimilation. In §12.7.3 some additional kinds of change are listed.

12.7.1 Assimilation

Assimilatory changes are pervasive in Australian languages. We need to specify the following parameters:

- What types of sounds are involved in the assimilation, and what the conditioning factors are.
- The kind of features which get assimilated.
- Whether the assimilation is forwards or progressive (a sound becoming more like one that precedes it); or backwards or regressive (a sound becoming more like one that follows it).
- Whether the assimilation is between segments which are contiguous (contact assimilation), or non-contiguous (this is assimilation 'at a distance').
- Whether the assimilation is a synchronic phonological rule in the grammar, or a diachronic change (and if this, whether sporadic or regular).

The following discussion is organised in terms of types of sounds involved: consonants; or vowels; or both vowel and consonant. (Note that the discussion in this section is confined to a change from one existing vowel to another; diachronic changes which give rise to new vowels are dealt with in §12.8.2.)

(a) *Assimilation between consonants.* We distinguish between the feature involved: place, or manner.

(i) *In place of articulation.* As noted in §5.4.3, in many Australian languages ergative and/or locative case allomorphs following a consonant-final stem begin with a stop homorganic with that consonant; commonly, ergative is *-bu* after *m*, *-gu* after *ŋ*, *-du* after *l*, *n* or *rr*, *-dju* after *ny* or *y* (and locative often has the same forms with final *a* in place of *u*). This is an example of forwards assimilation.

It is likely that (at least in most instances) the original ergative form was *-dju* (and the original locative form was *-dja*). Compare ergative allomorphs after a consonant in a number of languages from a geographical block in the west:

- W1a1, Njangumarta, and W1a2, Karatjarri: *-tju* after all consonants.
- W1b, Mangala: *-tu* after apical consonants, *-tju* elsewhere.
- WJa1, Walmatjarri: *-tju* after laminal and dorso-velar, *-rtu* after apico-postalveolar and *-tu* after apico-alveolar and bilabial consonants.
- WD, Western Desert language: homorganic stop plus *u* after each consonant (only apicals and laminals occur stem-finally).

It will be seen that WD has assimilation at all (non-peripheral) places of articulation whereas WJa shows no assimilation. Wb just assimilates to an apical stem-final consonant (having *-tu* after both types of apical). WJa1 has full assimilation to an apical, with the addition of the rather unexpected form *-tu* after *p* or *m*.

The examples of recurring lexical verb forms given in §4.2.7 include what appear to be a number of sporadic diachronic instances of place assimilation in both directions (occurring within a root). Thus, retaining the example numbers from §4.2.7:

		FORWARDS	BACKWARDS	
		ASSIMILATION	ASSIMILATION	
	PROBABLE	HAS APPLIED	HAS APPLIED	
	ORIGINAL	IN SOME	IN SOME	
	FORM	LANGUAGES	LANGUAGES	
(12)	bunga-	bunda-	buga-	'fall'
(28)	gunba-	gunda-	—	'cut'
(57)	ginga-	ginda-	ginga-	'laugh, dance, play'

(ii) *In manner of articulation.* Examples here include:

- In §12.4.3, I mentioned a liquid assimilating in manner to a following stop (e.g. *-lk-* > *-tk-*) as a diachronic change in WGb, Nhanta; and a nasal assimilating in manner to a following stop (e.g. *-nk-* > *-tk-*) as a diachronic change in the Purduna dialect of WHb1 and the Tharrkari dialect of WHa.
- Lexeme (28) 'cut' from §4.2.7 has, as just mentioned, a probable original form *gunba-*. It is *gudba-* in O1, Dharuk, again involving backwards assimilation in manner as a diachronic change.
- Dench (1991: 135, 169) shows that in WHc3, Panyjima, there is a morphophonological rule assimilating a lateral in manner of articulation to a following nasal (for example, imperative in the L conjugation has underlying form *-l-ma* but surface form *-nma*).
- Hudson (1978: 14) reports that in WJa1, Walmatjarri, when the simple verbs *ma-NY* 'speak' and *ma-N* 'do' immediately follow a monosyllabic coverb ending in an apical or laminal stop, the *m* becomes *p*, assimilating to the stop in manner, e.g. *kit* 'stick' plus *ma-N* becomes *kit=pa-N*. This illustrates forwards assimilation in manner.
- Another possible example of forwards assimilation in terms of manner as a sporadic diachronic change is in WBb1, Parnkalla, where there are some examples of *-lt-* and *-nt-* becoming (in missionary Schürmann's orthography) *-ll-* and *-nn-* respectively, e.g. *pilta* > *pilla* 'possum' and *wanti-* > *wanni-* 'lie down'.

There are also a number of examples of what we could call consonant-to-consonant assimilation at a distance. For instance, prestopping of a medial nasal after an initial stop, such as *bama* > *a^bma* in Ea2, Olgolo – given at (5) in §12.4 – and other examples discussed in §12.4.3. Here the nasal adds a feature ‘stop’ by a kind of forward manner assimilation at a distance. In Dc1, The Flinders Island language, there are putative examples of full assimilation, at a distance, of a nasal to a preceding stop, e.g. *guna* > *da* ‘faeces, shit’, *bama* > *ba* ‘person’, *djana* > *yada* ‘3pl pronoun’.

(b) *Assimilation between vowels*. Since – according to conventional phonological analysis – Australian languages do not have sequences of vowels, all assimilation between vowels is at a distance. Many languages have vowel assimilation as a productive phonological rule. The assimilation is most often forwards, sometimes backwards.

These assimilations can be divided into the following types.

(i) *Full*. As mentioned in §12.4.5, in WK, Warumungu, the dative suffix (originally *-ku*) can now be stated as *-kV*, where *V* repeats the final vowel of the stem, e.g. *karti-ki* ‘woman-DAT’, *ŋapa-ka* ‘water-DAT’, *manu-ku* ‘country-DAT’ (Simpson and Heath 1982: 51). Further examples of full vowel assimilation occur in Wla1, Njangumarta (see Sharp 1998 and Evans 1995c: 742–3).

(ii) *Low to high*. Here we get *a* > *i* when next to *i*, and *a* > *u* when next to *u*. There is backwards assimilation of this type in NCb1, Djingulu, where in certain suffixes a high vowel triggers raising of a preceding *a* to that high vowel. Consider the following examples of the feminine suffix *-rni* (Pensalfini 1997: 97):

(39)	UNDERLYING	PLUS FEMININE	GIVES
(a) ‘dog’	warlaku	-rni	warlaku-rni
(b) ‘big’	ŋamurla	-rni	ŋamurli-rni
(c) ‘younger brother’	bardarda	-rni	birdirdi-rni

It will be seen from (39a) that a stem-final *u* remains unchanged. In (39b) the stem-final *a* is raised to *i* before suffix *-rni*. And (39c) shows that this assimilation is recursive, applying to all *a*’s from the end of the stem back, so long as no other vowel intervenes (as it does in (39b)).

(iii) *Front to back and back to front, within high*. That is, *u* becomes *i* next to *i*, and *i* becomes *u* next to *u*. In WJb1, Warlpiri, we get this type of assimilation in different directions in different parts of the grammar. An *i* or *u* in a nominal or verbal suffix takes on the value of an *i* or *u* in the stem, providing that the vowel *a* does not intervene, an instance of forwards assimilation; for example, underlying *karli-ku* ‘boomerang-DATIVE’ becomes *karli-ki*. And there are just two verbal roots (*pu-* ‘hit’, kill, bite’ and *yu-* ‘give’) where the *u* vowel of the root becomes *i* before non-past

suffix *-nji* or before infinitive suffix *-ntja*, presumably due to backwards assimilation to the following *tj* or *nj(i)* (Hale 1973a: 405–9; Nash 1985: 80–99). WK, Warumungu, has a similar pattern of vowel assimilations in different directions in different parts of the grammar (Simpson and Heath 1982: 52–5). And there is backwards assimilation of *u* to *i* before *i* in WHc4, Yinjtjiparnrti (Wordick 1982: 24–5).

NCb3, Wambaya, has forwards assimilation of just *u* to *i* in TAM suffixes after an n-sg pronominal root. Compare (Nordlinger 1998: 40–3):

(40)	UNDERLYING FORM	SURFACE FORM
(a)	ngurlu-nj-u 1du.excA-2O-FUT	<same>
(b)	ŋirri-nj-u 1pl.excA-2O-FUT	ŋirri-nj-i

Interestingly, with sg pronouns in Wambaya we find backwards assimilation of Type (iii), *u* to *i*. In this instance the pronominal root assimilates to the vowel of the suffix. For example:

(41)	UNDERLYING FORM	SURFACE FORM
(a)	ŋi-nj-a 1sgA-2O-NON.FUT	<same>
(b)	ŋi-nj-u 1sgA-2O-FUT	ŋu-nj-u

(iv) *Other kinds of vowel assimilation.* In the Wakaman dialect of language F, we find forwards assimilation of *a* in a suffix to *u* after a stem ending in *u*, and of *u* in a suffix to *a* after a stem ending in *a* (the suffix form is left unchanged after a stem ending in *i*). For example:

(42)	WITH NO CASE	WITH LOCATIVE	WITH DATIVE
‘water’	bana	bana-ŋa	bana-ga
‘fruit’	mayi	mayi-ŋa	mayi-gu
‘breath’	wawu	wawu-ŋu	wawu-gu

The underlying form of locative is *-ŋa*, and it becomes *-ŋu* after *u*, while the underlying form of dative is *-gu*, and it becomes *-ga* after *a*. (In the Kuku-Yalanji dialect of this language, the alternation for locative has been generalised to apply to all case suffixes. We now have locative *-ŋV* and dative *-gV* where *V* is *u* after *u* and *a* after *a* or *i*; see Dixon 1980: 178–9.)

In Eb1, Yir-Yoront, there are interesting examples of backwards assimilation. Alpher (1991: 11) gives the following data, together with reconstruction of earlier forms (before

various diachronic changes applied):

(43)	WITH ZERO CASE	WITH ERGATIVE CASE
'blood'	kam (*kamu)	kumu (*kamu-ŋku)
'spearthrower'	thol (*thuli)	thililh (*tjuli-njtju)

In a synchronic grammar of the language, ergative is *-u* onto *kam* plus assimilation of the *a* to *u*, and *-ilh* onto *thol*, together with assimilation of the *o* to *i*. But, as can be seen from the etymologies, we originally had ergative **kamu-ŋku*. This would presumably have undergone assimilation to *kumu-ŋku*, being then shortened to *kumu*, while *kamu* was shortened to *kam*. Similar – but more complex – changes applied for 'spearthrower'.

Vowel assimilation, like other kinds of assimilation, is pervasive across the languages of Australia. Nevertheless, there is something of an areal basis to it. For example, of the instances given here, WJ, WK and NCb are all in the same region.

The vowel-to-vowel assimilations given above have all been synchronic rules. Examination of the varying forms of recurrent lexemes, in §4.2, reveals some instances of diachronic changes *a > u*, *a > i*, *i > u*, *i > a* and *u > a*. As with synchronic rules, these are mostly in a forwards direction, but there are some backwards assimilations:

SECTION	PUTATIVE ORIGINAL FORM	WITH FORWARDS ASSIMILATION	WITH BACKWARDS ASSIMILATION
4.2.1 (1) 'vegetable food'	mayi		miyi
(2) 'fish (generic)'	guya	guyu	
4.2.5 (1-i) 'tree, fire, sun'	djugi	djugu	
(1-xii) 'fire'	dhuma		dhama
4.2.7 (10) 'fall'	wandi-	wanda-	
(57) 'laugh, play, dance'	{ ginga- ginda- ginga-	{ gingi- gindi- gingi-	{ ganga- ganga-
(63) 'whistle'	wirnba-	wirnbi-	
(67) 'die, disappear'	bula-	bulu-	
(68) 'die'	barlu-	bala-	

Changes of the type just presented have commonly been referred to in the Australianist literature (including Dixon 1980) as 'vowel harmony'. However, in languages from other parts of the world, 'vowel harmony' is normally used to describe a productive rule by which any sequence of syllables in a word must agree in some particular feature. The restricted and sporadic instances of vowel assimilation in Australian languages are best referred to simply as 'vowel assimilation', rather than as 'vowel harmony'.

(c) *Assimilation between consonant and vowel*. There are a number of clearly attested examples of a consonant assimilating in place of articulation to a vowel, or vice versa. It will be recalled that in table 12.1, *u* was placed under *w* in the peripheral column and *i* under *y* in the laminal column. This was to help explain assimilatory changes of this type (and also because of a statistical association between homorganic series of consonants and vowels).

We can discuss the two kinds of change in turn.

(i) *Vowel to consonant*. Most of the examples here involve the vowel *a* becoming *i* next to a laminal consonant; some involve *u* becoming *i* next to a peripheral consonant. The cognate sets of lexemes given in chapter 4 include:

SECTION	PUTATIVE ORIGINAL	WITH FORWARDS	WITH BACKWARDS
	FORM	ASSIMILATION	ASSIMILATION
§4.2.1 (2) 'fish (generic)'	guya	guyi	
§4.2.2 (3) 'foot'	dhana	dhina	
(6) 'tongue'	dhalanj	dhilanj	dhalinj
§4.2.5 (1-i) 'tree'	yugu	yigu	
§4.2.7 (60) 'sing'	baya-	bayi-	

And in WJa1, Walmatjarri, the word for 'sing' (which is *yunba-* in other WJa languages) has become *yinba-*.

All of the examples given have involved sporadic diachronic contact assimilation. Hale (1976b: 10, 12, 26) provides an example of assimilation at a distance for Ba5, Yinwum, where we find *a > i* in the second syllable of a word that began with a laminal consonant (which is then lost by initial dropping), e.g. *tjampa-* > *mpi-* 'give'.

For WHc4, Yinjtjiparnrti, Wordick (1982: 25) describes an optional synchronic rule whereby *u* can become *i* before a palatal consonant, e.g. underlying *piyulu-nj-karra* becomes *piyulinjkarra* 'painted yellow' (derived from *piyulu* 'yellow').

(ii) *Consonant to vowel*. All of the examples I have gathered of this variety of assimilation are of the backwards variety, and in the initial syllable of a word (which is generally stressed). For example:

§4.2.7 (25) 'give'	nhu- > ŋu-
(57) 'laugh, play, dance'	ginga- > djinga-

Under (ii) in §7.5.1, I mentioned the varied forms of the 2sg pronoun across a large part of the continent, and concluded that the original form was most likely **ŋin-*. This is retained in a number of languages but in many others it has undergone assimilation:

**ŋin- > njin-*

Similarly, for 3sg I suggested – under (iii) in §7.5.1 – an original form **nhu-* and, in a fair few languages, assimilation:

**nhu-* > *ŋu-*

It is necessarily the case that all examples of consonant to vowel assimilation must involve the high vowels *u* and *i* as conditioning environment, since *a* has no place specification which could engender assimilation. For vowel-to-consonant assimilation all the examples we have involve laminals as the conditioning environment.

12.7.2 Dissimilation

While dissimilation is less pervasive than assimilation in Australian languages, there are a number of types of examples of it.

In §12.6 it was mentioned that a typical restriction on languages with a glottal stop is that no more than one can occur per word, which can be avoided simply by dissimilation to zero of the second occurrence of the glottal stop in a word. For example, when the verb *rliwʔyu-* ‘go round’ in Ya1, Djapu, is reduplicated we get *rliwʔyurliwyu-* (Morphy 1983: 26).

In G2, Yidinj, there is dissimilation involving the lateral *l*. If the suffix *:-li-* ‘going’ is followed within a word by a suffix involving *l*, then the *l* in *:-li-* dissimilates to *rr*, e.g. underlying *magi:-li-ŋa:-l* ‘climb.up-GOING-APPLIC-PAST’ becomes *magi:-rri-ŋa-l*. However, if the verb root involves a rhotic (either of the rhotics) then a second dissimilation occurs, of the *rr* back to *l*. That is, we get *burrwa:-li-ŋa:-l* ‘jump-GOING-APPLIC-PAST’, rather than *burrwa:-rri-ŋa:-l*. (Details are in Dixon 1977a: 98–100, together with the reason for considering this to be double dissimilation, rather than simply blocking of the first dissimilation.)

Wordick (1982: 13–14) reports an instance of rhotic dissimilation in WHc4, Yin-jtjiparnrti. In this language one does not get a sequence *-rVr-* (unless *V* is a long vowel), and one does not get a sequence *-rrVrr-* across a morpheme boundary. One way of avoiding the latter is to dissimilate the second *rr* to *r*; for instance, the inchoative suffix is generally *-rri-* but becomes *-ri-* after a stem ending in *-rrV*.

The most pervasive type of dissimilation is that which occurs when two nasal–stop clusters occur within the same word and the second loses its nasal component. For example, in WHc3, Panyjima, where the underlying form of the agentive suffix is *-ŋku*, we get (Dench 1991):

(44)	<i>marlpa-ŋku</i>	<i>but</i>	<i>parnka-ku</i>
	man-AGENTIVE		lizard-AGENTIVE

There are a number of different parameters in terms of which languages vary with respect to nasal dissimilation. The first concerns which suffixes and/or places of

articulation it applies to. In Panyjima it applies only to the locative suffix *-ŋka* and to agentive *-ŋku*. For the nearby WHc4, Yintjiparnrti, Wordick (1982: 33–4) states that the rule applies only to peripheral clusters, i.e. *-ŋk-* and *-mp-*. (A summary discussion of this pattern in the WH languages is provided by Dench 2001: 115–16.) For WAa3, Arabana/Wangkangurru, Hercus (1994: 58) notes that this dissimilation applies only to suffixes involving an apico-postalveolar nasal–stop sequence, i.e. allative/dative *-(k)irnrda* and present tense *-rnrda*. In W1, Kalkatungu, nasal dissimilation applies just for those suffixes which begin with *-ŋk-*, *-nhth-* and *-njtj-* (Blake 1979a: 18–19). And in NF2, Guniyandi, this dissimilation applies to a single suffix, ergative *-ŋga* (McGregor 1990: 98–9). (See also Austin 1981a: 87–8.)

Another point of variation is whether the two nasal–stop clusters must be adjacent (separated only by a vowel) or distant in the word; and, if distant, what may intervene between them for dissimilation to still take place. In Guniyandi, for example, they must be adjacent. In Arabana/Wangkangurru, the rule applies if *-ka-* or *-ra-* intervenes between the two clusters, but not otherwise. For example (Hercus 1994: 58):

(45)	(a)	rule applies	kaŋkara-rnrda	>	kaŋkara-rda
			burp-PRES		
	(b)	rule does not apply	thaŋka-yiwa-rnrda	<	no change>
			siŋ-TRANSITORY-PRES		

In WJa3, Gurindji, dissimilation applies if the only consonants coming between the two nasal–stop clusters are liquids or semi-vowels, and is blocked if a nasal or stop intervenes. McConvell (1988) has a full and incisive discussion, concerning Gurindji and nearby languages. He shows that the dissimilation rule applies only once in a word. For example:

(46)	UNDERLYING	BECOMES
	wanjtji-ŋka-nta	wanjtji-ka-nta
	which-LOC-2sg	

If the dissimilation rule applied simultaneously to all nasal–stop clusters which are preceded by a nasal–stop cluster then *ŋ* would be lost from *-ŋka* and also *n* from *-nta*. But it applies to only one cluster at a time. Once *-ŋka-* is reduced to *-ka-*, then *-nta* cannot be reduced since there is a stop, *k*, between it and the preceding cluster.

In WMa, Yanyuwa, we find the ergative allomorph *-ŋgu* (after a stem ending in *a* or *u*) reducing to *-gu* after a nasal–stop cluster and the *g* (which is now flanked by vowels) being lenited to *-w*, giving *-wu* (Kirton 1971: 42). A similar lenition of *k* to *w* has taken place in WJa3, Gurindji, but in this language the lenition rule precedes that of nasal dissimilation. Thus, dative–genitive is *-ku* after a (non-liquid) consonant and *-wu* after a vowel, but ergative instrumental is *-ŋku* after a disyllabic noun, reducing to *-ku* following a nasal–stop cluster (but, unlike Yanyuwa, never to *-wu*).

A different kind of nasal dissimilation has taken place in some of the initial-dropping languages from subgroup Ba. Here a nasal–stop cluster at C_2 loses its nasal if there was a nasal at C_1 (all C_1 are then omitted). For instance:

- (47) Ba4, Luthigh (Hale 1976b)
- | | | | |
|---------|---|-----|---------------------|
| *nɲuŋku | > | ku | 2sg oblique pronoun |
| *puŋku | > | ŋku | ‘knee’ |

The original difference between a nasal and a stop at C_1 is now reflected in the difference between absence and presence of a nasal at C_2 .

One recurrent lexeme across the continent is *nha:-*(ŋ) ‘see, look at’, which is in the NG conjugation. It is frequently the case that this verb has slightly unusual forms, omitting the -ŋ- from before inflections beginning with -g- (where other verbs in its conjugation would retain the -ŋ-). Thus, in WJa1, Walmatjarri, we find (Hudson 1978):

- (48)
- | | | | | |
|---------------|-------|-------|--------|-------|
| root | pu-ŋ | ‘hit’ | nja-ŋ | ‘see’ |
| past form | puŋji | | njanji | |
| future form | puŋku | | njaku | |
| irrealis form | puŋka | | njaka | |

The regular NG-conjugation forms are found with *pu-ŋ*. For *nja-ŋ* we have reductions *njaŋku* > *njaku* and *njaŋka* > *njaka*, by a variety of nasal dissimilation. (There is a similar example in Nc3, Ngiyambaa; see Donaldson 1980: 155; and Dixon 1980: 217–18.)

12.7.3 Further changes

Some of the other recurrent changes – most of which have been mentioned at some place above – can now be summarised.

Lenition of stops to semi-vowels is widespread, sometimes simply at the phonetic level, other times as a phonological matter (either a diachronic change or a synchronic rule). This applies most widely to peripheral stops ($b > w$, $g > w$), and sometimes also to laminals ($dj > y$, $dh > y$). Lenition is most common between vowels but in some languages from group WHc it can occur between *rr* and a vowel. In WHc4, Yinjtjiparnrti, the lamino-dental semi-vowel comes from lenition of an earlier lamino-dental stop, $dh > yh$; see O’Grady (1966: 86–91).

In Ba2, Uradhi, the lenition of $p > w$ is paralleled by $k > ɣ$ and $tj > l$ (Hale 1976c: 42; Crowley 1983: 331). And Black (1980: 204) posits a change $tj > ɔ̃ > l$ for Ed2, Kuthant.

Changes affecting rhotics were discussed in §12.3.2. Table 12.2 provides examples of changes $r > ʔ$, $r > rr$, $r > dl$ and $r > y$. We also noted, in §12.3.2, changes $d > r$, $d > rr$, $rr > y$ and $y > r$. Crowley (1983: 331) mentions $rr > r$ for Ba2, Uradhi. The change $r > rl$ is reported for languages from subgroup WJ (Laughren and McConvell 1996) and $r > l$ before t is reported for Eb1, Yir-Yoront (Alpher 1991: 18). In the

Ngadjan dialect of H1, Dyirbal, initial *r* has shifted to *w* before *u*, to *y* before *i* and to *d* before *a* (Dixon 1990a: 21–2).

Under (1) in §4.3.1 we discussed four lexemes which have a different initial consonant in different sets of languages – *l*, *r*, *d* or *y*. There have presumably been changes between these sounds in this position, although it is hard to decide which was the original one.

There are instances of medial *l* becoming an apico-alveolar tap (the third rhotic) in WAa2, Wangka-yutjuru, and in WAa3, Arabana/Wangkangurru. The change *l* > *y* is attested for groups Ba, Bc, C and W; *l* > *w* for Ba; and *l* > *d* for Ba, Mf and N.

12.8 Vowel systems

In §12.8.1 we discuss vowel systems, leaving aside length, and then look at the evolution of additional vowels (over and above the standard three) in §12.8.2, and their geographical distribution in §12.8.3. Finally, §12.8.4 discusses vowel length.

12.8.1 Vowel quality

Full information on vowels is not available for a number of languages for which we only have nineteenth-century word lists. But, overall, it seems that about two-thirds of the languages have a system of three vowels – low *a*, high front unrounded *i* and high back (sometimes rounded, sometimes unrounded) *u*. A two-vowel system has been posited for WL2, Kaytetj, and for some dialects of WL1, Arrernte (this is also one of the variant analyses suggested for NBd3, Anindhilyagwa). Just over seventy languages have more than three vowels. The full set of vowel phonemes said to occur in one or more Australian languages is set out in table 12.7.

The symbols used in table 12.7 are those employed in individual grammars. They are all IPA symbols with the exception of three from the American tradition – *ü* (which is IPA *y*, a symbol used for a semi-vowel in the Australianist tradition), *ö* (the IPA equivalent, *ø*, has also been used, by some writers) and *Λ* (which is used in its American sense for a low-mid central vowel by Kofod 1978 for ND2, Miriwung, and later transcribed by her with letter ‘e’).

In a number of languages with two mid vowels, these have phonetic values [ɛ] and [ɔ] but are often written as ‘e’ and ‘o’. Vowels in the central region are often accorded

Table 12.7 *Vowel phonemes reported for Australian languages*

	front		central unrounded	back	
	unrounded	rounded		unrounded	rounded
high	i	ü	ɨ	u	u
high mid	e	ö (= ø)	ə		o
low mid	ɛ	œ	Λ		ɔ
	æ				
low			a		

a variety of representations; for instance, the fifth vowel for NHb1, Emmi, is variously written as *i* or as *ø*.

Quite a few languages have [ə] as a phonetic variant of one or more vowels but there may be some occurrences that are not explainable in this way; a phoneme /ə/ is then tentatively suggested, often having a low functional load.

The geographical distribution of languages which have a vowel system consisting of more than three members is shown in map 12.6. These vowel systems comprise (note that the data on which this survey is based vary in reliability) the following.

Four vowels – the standard three (*i, a, u*) plus

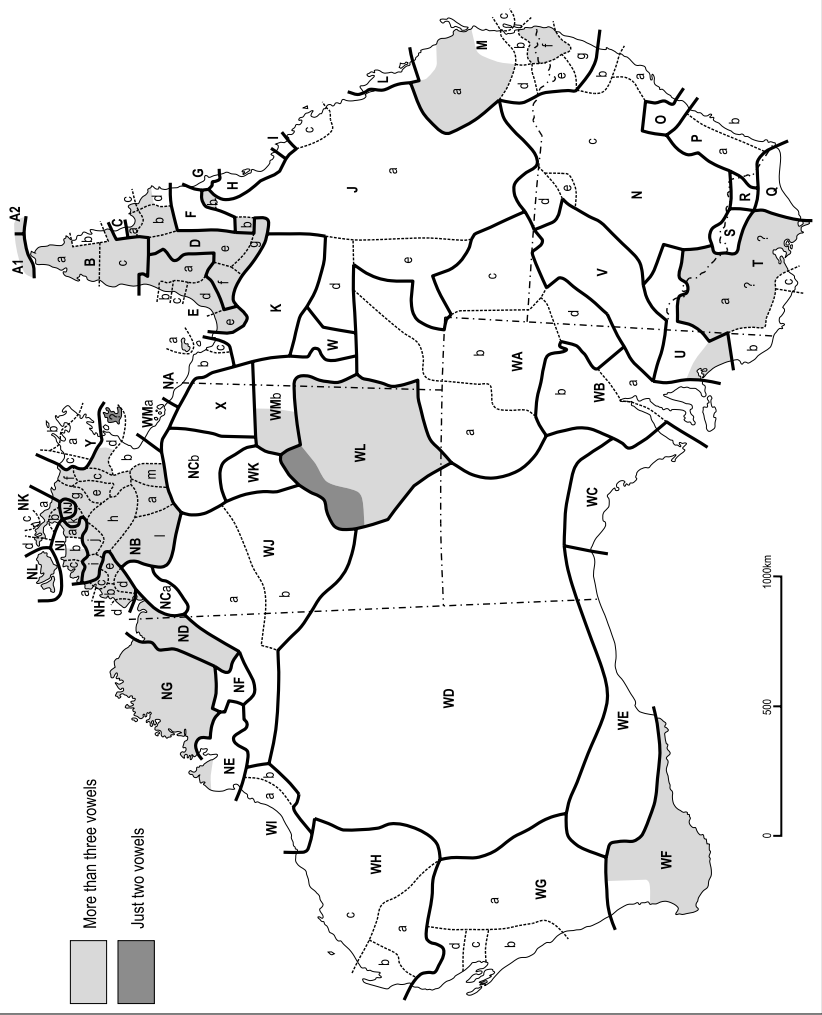
- (i) *e*, found in about twelve languages in groups B, M, T, NA, NB, NH, NI, NJ.
- (ii) *ɔ*, found in the Baardi dialect of NE2; *o*, found in NL, Tiwi. (Osborne 1974: 11 states that *o* has a low functional load and that the *a/o* distinction is neutralised after *w*. Breen 1979 suggests that *o* could be eliminated and written as *wa*. Lee 1984 remarks that this would not work and states that 'a case can be made for the opposite analysis, i.e. a reanalysis of /Cwa/ as /Co/').
- (iii) *æ*, found in Ba4, Luthigh, and Ba8, Aritinngithigh.
- (iv) *ɨ*, found in ND1, Kitja; *ʌ*, found in ND2, Miriwung.
- (v) *ə*, found in Ba2, Uradhi, and WMb1, Wagaya.

Five vowels

- (i) A standard five-vowel system (*i, e/ɛ, a, o/ɔ, u*) is found in about forty languages of groups A, B, D, E, M, WF, NB, NG and NH.
- (ii) *i, e, a, u* plus *ə* or *õ* or *ɨ* is found in NHa, NHb1, NHc and NHe1.
- (iii) *i, a, u, o* plus *æ* is found in Ba6, Linngithigh.
- (iv) *i, a, u* plus *ɨ* and *õ* is found in Ed1, Kurtjar, and Ed2, Kuthant.

Six or more vowels, comprising the standard five plus

- (i) *ɨ* in A1, West Torres, Jb1, Mbabaram, NBe, Dalabon, and NG3, Wunambal.
- (ii) *ü* in Ba9, Mbiywom.
- (iii) *õ* in Bc1, Wik-Ngathan, and NHe2, Kamu.
- (iv) *uu* in De1, Kuku-Thaypan.
- (v) *ə* in Eb1, Yir-Yoront, Eb2, Koko-Bera, NBc1, Rembarrnga, and possibly in Ee, Kukatj.
- (vi) *õ* and *æ* in Ba7, Ngkoth.
- (vii) *ü, õ* and *ɨ* in Bc2, Wik-Me'nh.



Map 12.6 Languages with more or less than three vowels

- (viii) $\text{æ}, \text{ü}$ and (attested in only one word) ö in Ba6, Mpakwithi. Crowley (1981) states that this language also has nasalised versions of the four front vowels ($\text{ĩ}, \text{ẽ}, \text{æ̃}, \text{ã}$) as phonemes, plus long vowels $\text{i:}, \text{e:}, \text{æ:}, \text{a:}$ and u: , making a total of sixteen vowels (or seventeen, including ö), the largest inventory reported for an Australian language.

12.8.2 Evolution of additional vowels

There are a number of ways in which new vowels may be created. Most of them involve some type of assimilation.

(i) *Vowel to consonant assimilation.* In §12.4.5 we noted the changes that led to the formation of three new vowels in Jb1, Mbabaram:

- $\text{a} > \text{ɔ}$ at V_2 when C_1 was g or ŋ , or C_1V_1 was wu-
- $\text{a} > \text{ɛ}$ at V_2 when C_1 was dj
- $\text{u} > \text{i}$ at V_2 when C_1 was dj, nj or y
- $\text{i} > \text{ĩ}$ at V_2 when C_1 was $\text{g}, \text{ŋ}$ or w

With C_1 and V_1 later being dropped.

Similar changes have taken place in some of the languages from subgroup Ba – Hale (1976b, c).

(ii) *From vowel plus semi-vowel.* There are examples of $\text{ay} > \text{i}$ in W1a1, Njangumarta (see Dixon 1980: 413). We also find changes of this kind leading in some languages to the creation of a new vowel:

- $\text{ay} > \text{e}$ (or ɛ) $\text{aw} > \text{o}$ (or ɔ)

For the Madhi-Madhi dialect of Ta1, Hercus (1986: 111) notes a change $\text{r} > \text{y} / -\text{C}$, as in *durmi-mum* > *duymi-mum* ‘stinking turtle’. When the preceding vowel was a we get $\text{ar} > \text{ay} > \text{e}$, e.g. *garma-* > *gema-* ‘to vomit’.

In Ma4, Waga-Waga, we find changes $\text{ay} > \text{ɛ}$ and $\text{aw} > \text{ɔ}$, as in *wangay* > *wange* ‘snake’ and *yaw* > *yɔ* ‘yes’ (Kite 2000: 24; and Holmer 1983: 15–19, 71, 86, 128, 135). Holmer also suggests further changes $\text{iya} > \text{ɛ}$, $\text{ya} > \text{ɛ}$, $\text{uwa} > \text{ɔ}$ and $\text{wa} > \text{ɔ}$.

(iii) *Vowel copying and metathesis.* In §12.4.4 we saw how a vowel can be copied either leftwards or rightwards over a consonant. Since vowel sequences are not permitted we get one of two things happening. Either a high vowel in the sequence is interpreted as a semi-vowel (which can be an off-glide to a consonant); repeating examples from §12.4.4 we can get $\text{*pi:mu} > \text{ə}^{\text{y}}\text{u}$, and $\text{*kali} > \text{lay}$. Or the two vowels blend and create a new vowel phoneme, generally part-way between them in quality. Thus, in Ba6, Mpakwithi, we noted $\text{au} > \text{o}$, $\text{ua} > \text{o}$, $\text{ai} > \text{æ}$, $\text{ia} > \text{e}$.

In languages from Ba, in the far north-east, we get copying/metathesis in a rightwards direction. As discussed in §12.4.4, the explanation for the evolution of mid vowels in WF, Nyungar – from the other end of the continent – could be metathesis or else copying in a leftwards direction, e.g. *kartu* > *kaurt(u)* > *kort*. Alternatively, it might be vowel-to-vowel assimilation and then final vowel dropping, e.g. *kartu* > *kortu* > *kort*.

(iv) *Vowel-to-vowel assimilation*. In (b) of §12.7.1 we looked at assimilation between existing vowels. There can also be partial assimilation, giving rise to the creation of new vowels. Thus, in Bc2, Wik-Me'nh (Hale 1976g), we find *a* at V₁ being raised to *e* if V₂ is *i*, with V₂ then dropping; for example:

- (49) *kami* > *kemi* > *kem* 'mother's mother'

For U, Yarlalde, McDonald (1977: 37–8) suggests that mid vowels were (in part) formed by assimilation in the opposite direction, from V₁ into V₂, with V₁ then dropping before an apical consonant at C₂, forming an initial cluster, e.g. *CiraC* > *CreC* and *CuraC* > *CroC*.

In Ed1, Kurtjar, the front rounded vowel *ö* appears to have been created by a type of assimilatory process. Thus (Black 1980: 210):

- (50) **kuna* > *ö:rn* 'faeces' **njurra* > *ö:rr* 2pl

It can be hard to distinguish between (iii) vowel copying and blending, and (iv) vowel-to-vowel assimilation. Thus, two of the changes just quoted could be interpreted as *kami* > *kaimi* > *kemi* > *kem* and *CiraC* > *CiriaC* > *CireC* > *CreC*, etc. In most cases the distinction is not an important one, and – in the absence of historical records – may never be resolvable.

(v) *Vowel-to-vowel dissimilation*. In some languages a type of vowel dissimilation appears to have been at least partly responsible for the creation of new mid vowels. For example, in Eb2, Koko Bera, we find:

- (51) **tjili* > *tjel* 'eye' **yuku* > *yok* 'tree'

It seems that in a sequence of two high vowels the first one is lowered; the second vowel (the conditioning environment) then drops. Koko Bera also has *peŋk* 'knee' which may relate to *puŋku* in other languages, and *kutew* 'dog', which is likely to relate to *kutaka*.

(vi) *Loans*. Some languages on the fringe of a region whose languages have mid vowels may themselves have *e* and *o* in just a limited set of loans. This applies to NBa, Mangarrayi, for instance. In languages which have *e* and *o* as full members of the vowel system, some of their occurrences are likely to be in loans from a neighbour, in cases where neighbours also show these vowels.

Generally, when some new phoneme (or other phonological innovation) enters a language, it is unlikely to have a unique origin. That is, several different paths may converge to create the new sound.

It was mentioned under (ii) that the change $ay > e$ applied in Ma4, Waga-Waga. The word for 'snake' is *wangay* in the neighbouring language Ma2, Gureng-Gureng, but *wange* in the Waga-Waga dialect of Ma4. However, in the Barunggam dialect of this language there has been assimilation of $a - e$ to $e - e$, giving *wenge* (Holmer 1983: 87).

Under (iv) we saw how e evolved in Bc2, Wik-Me'nh, by partial assimilation, e.g. *kami* > *kem*. Now in this language there has also been a change $l > y / -C$. An $/a/$ next to y naturally takes on allophonic value $[e]$. But once $/e/$ had become established as a phoneme in the language, this $[e]$ was reassigned, from being an allophone of $/a/$ to being an allophone of $/e/$. Thus (Hale 1976g):

(52) $/kalka/ > /kayka/ [keyka] > /keyka/ [keyka] > /keyk/ [keyk]$ 'spear'

A further example of convergent changes yielding a new phoneme comes from Ba5, Yinwum. Hale (1964, 1976b: 12) describes one type of change which combines vowel dissimilation and vowel-to-consonant assimilation at a distance:

u at $V_2 > e$ if C_1 was a laminal and V_1 was also u , e.g. **tjuku* > *ke* 'tree'

And a further process which could be described as vowel assimilation (with dissimilatory consonant conditioning):

i at $V_2 > e$ if V_1 was $a(:)$ and C_2 was non-laminal, e.g. *ηali* > *le*

We can now examine a summary of the changes that have occurred in the two languages of the Arandic areal group, WL, which have given rise to the system which Arandicists analyse as having two underlying vowels. The relevant diachronic changes, as stated by Koch (1997) include:

(53)	CHANGE	EXAMPLE LEXEME: mún̪a 'night'
1	All unstressed vowels neutralised to ə	mún̪ə
2	C_1 is omitted	ún̪ə
3	Stress shifts from V_1 to V_2	un̪ə́
4	The roundedness quality of a u at V_1 is transferred to C_2 , leaving V_1 as the neutral vowel ə (this is presumably an instance of copying u from V_1 after C_2 , and then reducing V_1)	ən̪̹wə́
5	The contrast between a and i is neutralised (this has happened in different ways in different dialects)	—

This is said to give a two-vowel system, consisting of high vowel *a* and an unspecified vowel written as *ə*. However, Koch reports that such a system only applies for WL2, Kaytetj, and for the Western Anmatjirra dialect of WL1, Arrernte. Other dialects also retain *i* and *u*, but with a low functional load. (See Breen 2001.)

NBd3, Anindhilyagwa, was analysed by Stokes (1981) as having four vowels (*i*, *e*, *a*, *u*). Leeding (1989) presents an alternative analysis with just two vowels, high central *i* and low central *a*. She has effectively analysed some of the features of vowels as belonging to contiguous consonants; her /wi/ is pronounced as [u], for instance. For this language, there are plainly several alternative phonological solutions for what is an unusual set of phonetic data.

12.8.3 Occurrence

The evidence points to there having been, at an earlier stage, just three vowels in almost all (perhaps in all) Australian languages. Where detailed historical work has been done, the paths of origin for additional vowels have been wholly or partly uncovered.

Languages with a system of three vowels (and these do make up about two-thirds of the total) generally have the same possibilities at all vowel positions in the word, whether stressed or unstressed. (This is leaving aside the matter of length, which will be discussed in §12.8.4.) In contrast, languages with more than three vowels typically show restrictions on the occurrence of additional members. For Db1, Rimang-Gudinhma, Godman (1993: 33) recognises a standard five-vowel system for stressed syllables, but states that only *i*, *a* and *u* occur in unstressed syllables. In Ba6, Mpakwithi, there is a rule which replaces the final vowel of a word by an echo of the preceding vowel; only four vowels (*i*, *e*, *a* and *u*) appear as echoes, with *u* echoing *ü*, and *a* echoing *æ*. Crowley (1981: 154, 160–1) states that this ‘suggests that the application of this [echo vowel] rule took place before these vowels [*ü* and *æ*] had developed in the language’. Merlan (1994: 15) recognises five vowels for NB12, Wardaman, but the mid vowels *e* and *o* ‘do not occur in any of the inflectional morphology’; this suggests that *e* and *o* may have come into the language rather recently.

We can now survey the regions in which vowels additional to the standard three are found (leaving aside WL and NBd3, which were discussed just above). Basically, there are two largish regions and one medium-sized one – where the feature of having additional vowels has undoubtedly spread by diffusion – and eight small areas each consisting of a single group, or of just one language.

(I) The Cape York Peninsula area, comprising about thirty-eight languages (data on just a few of them are slight) in groups A–E, is the first largish region. Additional vowels are missing only from Bb, Umpila, and the adjoining (or nearly adjoining) C,

Umbindhamu, on the far east side of the peninsula, and from Dd1, Guugu Yimidhirr, also on the east and adjacent to group F, which lacks additional vowels.

For all of these languages, an original three-vowel system can be posited, with the new vowels having developed by a combination of changes (i–vi) described in §12.8.2. Different kinds of development have applied, even to languages from the same subgroup (for example, Ba), showing that it is just the pattern of ‘having more than three vowels’ which has diffused across this area, with the vowels themselves evolving on a language-particular basis.

(II) Jb1, Mbabaram, has six vowels. The path of development was described in §12.4.5 and recapitulated under (i) in §12.8.2. Jb2, Agwamin, is probably not now contiguous with Mbabaram but may have been in the past. Sutton (1976b) suggests that Agwamin may also have had a system of six vowels.

(III) Within group Ma, a standard five-vowel system is reported for Ma4, Waga-Waga (Wurm 1976: 110; Holmer 1983; Kite 2000). For Ma2, Gureng-Gureng, Brasch (1975) tentatively recognises a fourth vowel, *e*, with a very low functional load.

(IV) Crowley (1978: 13–16) states that in some – perhaps in all – dialects of Mf, Bandjalang, ‘many surface occurrences of *e* can be derived from an underlying *i* (and sometimes also *u*), by a very common vowel lowering rule, though there is still a core of cases in the corpus containing underivable *e*’s which contrast with the other vowels’. He notes that /a/ and /e/ are neutralised, as [ɛ], before /y/. There has as yet been no study of how the fourth vowel in Bandjalang evolved. One clue is provided by cognates with its southern neighbour Mg1, Gumbaynggirr; for example ‘mouth’ is *djala:nj* in Gumbaynggirr but *dje:ŋ* in Bandjalang (suggesting perhaps that *a* went to *e* by assimilation to contiguous laminals and then final *nj* shifted to *ŋ*).

(V) Ta1, Wemba-Wemba, has additional vowel *e* (and possibly also *o*); it is likely that there is a similar vowel system in the related Ta2, Wadha-wurrung, and Ta3, Wuy-wurrung (see Hercus 1986; Blake 1998, 1991). As mentioned under (ii) in §12.8.2, there appears to have been a change *ay* > *e* in the Madhi-Madhi dialect of Ta1. More work is required on other aspects of the evolution of these additional vowels.

(VI) A standard five-vowel system is reported for U1, Yarlalde (but there is no evidence for additional vowels in any of the other languages of areal group U). One likely line of development was mentioned under (iv) in §12.8.2 – partial vowel assimilation (and then vowel loss through formation of an initial consonant cluster).

(VII) The north-western dialect of WF, Nyungar, retains the original three-vowel system but other dialects have added *e* and *o*. The possible processes of evolution were discussed in §12.4.4, and recapitulated under (iii) in §12.8.2; see also (56) in §12.9.2.

(VIII) WMb1, Wagaya, has a mid vowel ə. Breen (1974), following an idea of Hale's, suggests changes **a*: > *a* and **a* > ə. (In addition, a Wagaya word ending in a consonant will often add a (non-phonemic) final [ə].)

(IX) All of the languages in the Tangkic subgroup, NA, have three vowels, excepting NAa, Lardil, which has developed a fourth vowel, *e*. Interestingly, Damin, the initiation language style of the Lardil people, retains a three-vowel system in its distinctive roots, but these may take some Lardil suffixes which do involve the vowel *e* (Hale and Nash 1997).

(X) The second large block where there are more than three vowels consists of about thirty-four languages in groups NB, NH–NL. Most have the standard five vowels but some have a sixth – see §12.8.1. There are just four vowels in NBm, Alawa (the fourth vowel, *e*, has a low functional load – Sharpe 1972: 19); in several languages from areal group NH; in NJ, Giimbiyu (the fourth vowel here is *ɛ*); and in NL, Tiwi (here it is *o*).

Of the languages in group NB, all have additional vowels in their systems save for NBb1, Marra, and NBb2, Warndarrang (where just two or three loans involve *e* or *o*), and NBd2, Nunggubuyu, which all have a three-vowel system. As mentioned at the end of the last sub-section, some people who have worked on NBd3, Aninhdhilyagwa, consider it to have four vowels, others just two vowels.

All the languages in group NH have additional vowels, as do those in NI save for Nib1, Limilngan, which is said to have just three. The proto-language of subgroup NK undoubtedly had just three vowels. However, NKa1, Mawung, has some instances of *e* and *o*; most are in loans from NBg1, Gunwinjgu, but others may be the result of language-internal morphophonological rules; more work is needed on this.

It is likely that the additional vowels have fair antiquity in some of the languages from area (X), certainly greater than that of the extra vowels in area (I). Harvey (ms.-c) attempts a reconstruction of the phonology of what he terms proto-Gunwinjguan on the basis of vocabularies from languages NBa, NBb2, NBc2, NBd1/2, NBe, NBg1, NBh1/2, NBi, NB11/2, NCb1 and NHe1/2. He presents about 1,400 cognate sets with putative reconstructions (although for about half these sets attestations are given in only two languages, so that it is by no means clear that they can relate to a proto-language encompassing the fifteen languages considered). No at-

tempt is made to distinguish between similarities due to diffusion (i.e. loans) and those due to shared genetic inheritance. Nevertheless, an interesting point is that, counting vowels in the first syllable of Harvey's putative reconstructions, 42 per cent are *a*, 10 per cent are *e*, 13 per cent are *i*, 15 per cent are *o* and 20 per cent are *u*; that is, in this listing *e* and *o* are almost as common as *i* and *u*.

Rebecca Green (p.c.) has assessed the occurrence of mid vowels in languages of the Maningrida subgroup, NBf. She points out that in all four languages only *i*, *a* and *u* are found in verbal prefixes. In NBf2, Gurrigoni, only one suffix includes *e* while none have *o*. Green concludes that proto-NBf probably did have *e* and *o*, but with a low functional load; the mid vowels have increased in frequency during the development of the modern languages.

It is instructive to look at the occurrence of *e* in some of the recurring lexemes given in chapter 4. These include:

- §4.2.1: *mayi* 'vegetable food' is found as *meyi* in NBe, Dalabon, and NBi, Gungarakanj; and as *me* in NBc1, Rembarrnga.
- §4.2.2: *dhalanj* 'tongue' is found as *-djelŋ* in NBc2, Ngalakan, and NBd1, Ngandi; and as *-djen* in NBe, Dalabon, NBg1, Gunwinjgu, NBh1, Jawoyn, and NBh2, Warray.
- §4.2.2: *dirra* 'tooth' is found as *derr* in NHb3, Marri Ngarr.
- §4.2.7: *badha-/baya-* 'bite' is found as *be-* in NBe, Dalabon, NBg and NBh.

Comparing forms between languages in this area we find, for instance, that 'eye' is *mipila* in NBf1, *mibilu* in NBf2, *mibi* in NBi, *mibel* in NBj and *mibe* in NHa.

Plainly, in these words, *e* has evolved by one of the processes of assimilation or dissimilation outlined in §12.8.2. There are many similar examples; for instance, the implicative suffix is *-marnanj* in NBg2, Gunbarlang; *-marni* (with assimilation of *a* to *i* before *nj* and then loss of final *nj*) in NBe, Dalabon; and *-marne* in NBg1, Gunwinjgu – it is likely that partial assimilation to the following *nj* has here created a token of *e*.

As with languages in other areas, it is likely that a variety of paths led to the establishment of additional vowels for languages of area (X). As for many other features in the Australian language area, it is likely that the process was cyclic. One language might develop additional vowels – either by internally motivated changes, or under diffusional pressure from its neighbours – and then, at a later stage, revert to a three-vowel system, in order to become more like neighbouring languages which have just three vowels. Indeed, Heath (1978a: 43–5) suggests that at an earlier stage NBd2, Nunggubuyu, had five vowels, and then lost *e* and *o* under diffusional pressure from languages of the Yolngu subgroup, to the north; in most cases *e* > *a* and *o* > *a*, although there are some examples of *e* > *i*. (Heath casts his argument in terms of proto-Ngandi-Nunggubuyu having had five vowels. A genetic subgroup consisting of NBd1,

Ngandi, and NBd2, Nunggubuyu, is scarcely supportable; but the basis of his suggestion concerning vowel loss still stands.)

(XI) The final area with additional vowels comprises the two languages of subgroup ND, the three languages of the well-established areal group NG, plus one dialect within subgroup NE which is not quite contiguous with NG. (This area almost touches area (X), so that they could possibly be regarded as making up a single diffusional area.)

There are four vowels in subgroup ND. The additional vowel is reported as *i* for ND1, Kitja, and as *ʌ* for ND2, Miriwung; these correspond in at least a number of pronominal forms, suggesting that a four-vowel system could be posited for proto-ND. Each of the languages in group NG has the standard five vowels, with the addition of *i* for NG3, Wunambal. Within subgroup NE we find just three vowels in NE1, Njigina, and in the Njul-Njul dialect of NE2, but in the Baardi dialect of NE2 there is an additional vowel *ɔ*.

There has been no study of the origin of additional vowels in area (XI). But note that NG3, Wunambal, has *mee* as reflex of *mayi* 'vegetable food'.

It was mentioned, at the beginning of chapter 9, that while some of the prefixing languages maintain a fairly agglutinative structure, others have undergone extensive phonological changes which gave rise to morphological fusion. These changes have naturally led to the creation of additional vowels in most languages showing extensive fusion (subgroup NF is an exception). However, those prefixing languages which maintain an agglutinative structure generally retain a simple three-vowel system. These are WMa, NBb, Nib1, NK (save for NKa1, Mawung), NC and NE (save for the Baardi dialect of NE2). It was mentioned above that although NBd2, Nunggubuyu, now has only three vowels it may have had five at an earlier stage and reverted to a three-vowel system due to areal pressure.

In summary, it will be seen that there is a recurrent tendency for Australian languages to develop one or more vowels additional to the standard three. In areas (I), (X) and (XI) this feature has plainly diffused over a fair region (encompassing about thirty-eight, about thirty-four and six languages respectively). As with other features, there is likely to be some cyclic change, with a language developing additional vowels, and then at a later date shedding them (due to diffusion influence from neighbouring languages which have just three vowels).

12.8.4 *Vowel length*

It is likely that at an earlier stage most (or perhaps all) Australian languages had a system of three vowels, placed stress on the initial syllable, and had a contrast between

long and short vowels just in the initial, stressed, syllable of a word. This is retained in a number of languages. In §12.4.2 we mentioned examples of the recurrent verb root *nha:(ŋ)* ‘see, look at’ retaining its long vowel in languages from groups D, E, H, M, O and Y.

Some languages have lost the length distinction. In a number of languages loss of contrastive length has led to an erstwhile phonetic distinction among consonants (which had been conditioned by vowel length) becoming phonologically contrastive – see (8) in §12.4 and the discussion in §12.4.2 and §12.5.1 above. This applies to languages in groups WMb and Ba, and to Bc4, Kugu-Muminh.

In other languages the length distinction has been silently lost, without any compensatory changes in any other parts of the phonology. We can compare lexemes in H2, Warrgamay, and in its northerly neighbour, H1, Dyirbal. They are not closely genetically related but share about 45 per cent of vocabulary. It is likely that at an earlier stage Dyirbal had vowel length in some of the words in which it occurs in Warrgamay, but then simply let short and long vowels fall together. Compare the forms in (54).

(54)	H2, Warrgamay	H1, Dyirbal	
(a)	ba:lba-	balba-	‘to roll’
	balbi	balbi	‘sloping bank’
(b)	wi:gi	wigi	‘no good’
	bigin	bigin	‘shield’
(c)	dju:rra-	djurra-	‘to rub’
	djurra	djurra	‘cloud, sky’

Note that in the case of pair (c) the loss of vowel length leads to the creation of homonyms, albeit one a verb (with zero suffix for imperative in Dyirbal, so that *djurra* is ‘rub!’) and one a noun; confusion between them would be unlikely to arise.

A number of languages which lost the original contrastive vowel length in the initial syllable have – following the cyclic pattern so prevalent across the Australian linguistic area – developed a vowel contrast anew. This has happened in different ways in different languages. Similar changes have applied in languages that retain long vowels, to add to their number and distribution (sometimes, to introduce a length distinction into non-initial syllables). The types of mechanism involved can be illustrated as below.

(i) Two occurrences of a vowel separated by a semi-vowel or a liquid may reduce to a long vowel. In the Yuwaaliyaay dialect of Nc1, intervocalic *r*’s have been lost. If the flanking vowels are different then *r* is replaced by *y*; if they are the same then the *r* is lost and a long vowel results. Examples are provided in (55) (Austin, Williams and Wurm 1980: 170–1).

(55)	other dialects of Nc1	Yuwaaliyaay	
	bura	buya	'bone'
	yira	yiya	'tooth'
	biri	bi:	'chest'
	mara	ma:	'hand'
	ɲuru	ɲu:	3sg pronoun

Note that this dialect already had long vowels (as do all dialects and languages in subgroup Nc) with the change just noted adding to them.

In an earlier stage G1, Djabugay, lacked long vowels. Just a handful have recently developed from a number of directions. Firstly, there have been sporadic diachronic changes: *guwu* > *gu*: 'nose', *gudaga* > *gurraa* 'dog' (there may well have here been an intermediate stage, *gurrawa*) and – with different vowels flanking a semi-vowel – *mayi* > *maa* 'vegetable food'. In Djabugay the first syllable had been lost from four interrogative/indefinite forms, three of them becoming monosyllables; these have their vowel lengthened: *wanjɟju* > *djuu* 'who', *wanjɟjaa* > *djaa* 'where' and *wanji* > *njii* 'what' (Patz 1991: 259). The language has developed monosyllabic words (it is likely that proto-G had none) with the provision – common in Australian languages – that all monosyllabic words should involve a long vowel (that is, every word must involve at least two moras).

An earlier stage of Bb, Umpila, probably had long vowels just in the initial syllable of a word. They have been extended to later syllables through operation of a change *ay* > *a*:. A similar introduction of long vowels into non-initial syllables is reported for the Purduna dialect of WHb1, where lenition of *k* to *w* was followed by the changes *uwu* > *u*: and *awa* > *a*: (Austin 1981d: 306–7).

(ii) An earlier stage of WJb1, Warlpiri, allowed roots to end in a vowel or consonant. At this stage vowel length was allophonic – vowels were long in monosyllables (e.g. /ɲurr/, [ɲu:rr] 'larynx, throat') but short in longer forms (e.g. /ɲurrrpa/, [ɲurrrpa] 'not knowing'). There was probably at this stage – as there is today in neighbouring dialects of WD, the Western Desert language – a requirement that every word should end in a vowel, with *-pa* being added to the final form of a word (after all morphological processes had applied) to achieve this. This constraint then percolated back to become a requirement that every root should end in a vowel. The syllable *-pa* was added to a consonant-final root; if it was monosyllabic, with a long vowel, the length was retained. The word for 'larynx, throat' thus became *ɲu:rrpa*, forming a minimal pair with *ɲurrrpa* 'not knowing'. Thus was a contrastive length distinction introduced into the language (Hale 1973a: 449–53).

(iii) In G2, Yidinj, long vowels have evolved as part of a phonological strategy to ensure that as many words as possible consist of a whole number of disyllabic feet. A

word with an even number of syllables has stress on the first, third, etc. syllables, producing a sequence of trochaic feet (stressed syllable followed by unstressed syllable). In words with an odd number of syllables the penultimate vowel is lengthened by a synchronic rule, and attracts stress, e.g. *gudá:ga* 'dog'. Subject to a number of phonological and grammatical conditions (see Dixon 1977a: 47–97; 1977b), a final vowel (and the second consonant of a preceding cluster) is lost from many words with an odd number of syllables, producing a word with a sequence of iambic feet (unstressed syllable followed by stressed syllable). For instance, *malanu* 'right hand' retains its form if used with a monosyllable suffix, e.g. *málanú-gu* 'right.hand-DATIVE'. But if used with no suffix the penultimate vowel is lengthened, *malanu* becoming *malá:nu*, and then the final vowel is omitted, giving *malá:n* (which – as mentioned in §12.1.4 – forms a minimal pair with *málan* 'flat rock').

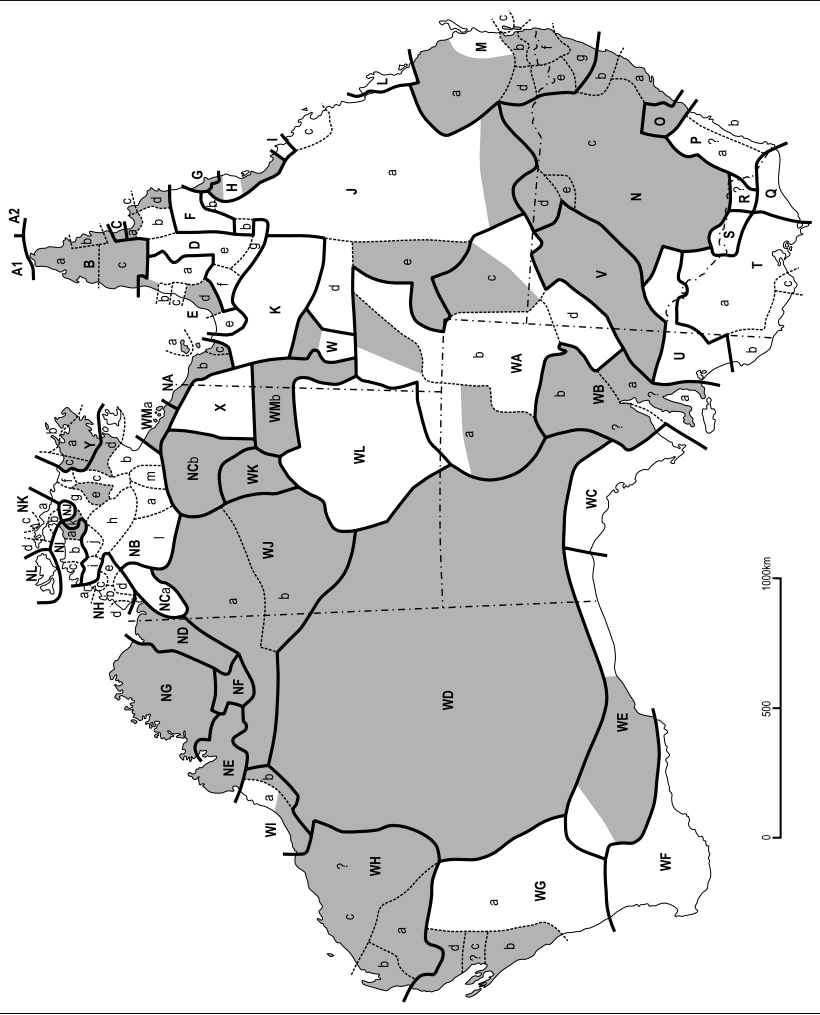
(iv) Southern and central dialects of H1, Dyirbal, have no long vowels at the phonological level. The northern dialects have developed them, by a series of changes which replace Vr, Vl or Vy at the end of a syllable by V: – for example *búlal* > *búla:* 'firefly', *yálgay* > *yá:ga:* 'road'. The quality of the original vowel is retained, except that *uy* > *i:*, e.g. *búybu-* > *bí:bu-* 'spit at'. Full details are in Dixon (1990a).

In most languages a long vowel can only occur in a stressed syllable. Yidinj, for instance, has various ways of ensuring that long vowels (which are always stressed) are separated by an odd number of syllables within a word, to ensure a regular alternation of stressed and unstressed syllables. The northern dialects of Dyirbal are unusual in retaining word-initial stress, even though there may be a long vowel in a later syllable of the word (as in *búla:* 'firefly').

Interestingly, these dialects of Dyirbal are next to Yidinj, which is in turn next to Djabugay. In all of these, long vowels have developed recently, as what appears to be a phonological feature applying over a small three-language area. Note the three – quite different – paths by which long vowels arose in this area. And the different stress patterns: always on the first syllable in Dyirbal, on every syllable with a long vowel in Yidinj, and in Djabugay on the first syllable of a disyllabic form ending in a vowel (even if the second syllable has a long vowel) but otherwise on a syllable with a long vowel.

The groups which include languages with a three-vowel system and contrastive length are: B–E, G, H, J, M–O, V, W, Y, WA, WB, WD, WE, WG–WK, WM, NA–NG and NI. In no language could long vowels be described as common; in some they may make up 10–20 per cent of all vowel occurrences, but in other languages perhaps just 1–2 per cent.

Map 12.7 shows those languages with a length contrast for some or all vowels (including those in subgroup B where there was a length contrast rather recently, but it has now been replaced by a stop/stop or a stop/fricative contrast).



Map 12.7 Languages with a length contrast for (some or all) vowels

If a language with three vowels has contrastive length there is generally a long congener for each vowel. But some languages have three short and just one long vowel; this is always *a*:. It is found in Ja1, Bidjara, WAa1, Pitta-Pitta, WAa3, Arabana, WBb2, Adjnjamathanha/Guyani, in some languages in group WHc, and in NF1, Bunuba. Kirton (1967: 28) reports that in WMa, Yanyuwa, a 'sequence *aa*' is only found across a morpheme boundary.

Only a few of the languages with more than three vowels also show length. In some, length applies to all vowels; for others, only to some vowels.

- (i) Systems with more than three vowels and a long congener for each are: Ba2, Uradhi (4 vowels); Bc1, Wik-Ngathan (6); Bc2, Wik-Me'nh (8); Bc3, Wik-Mungknh (5); Dal, Morroba-Lama (5); Db1, Rimang-Gud-inhma (5), Ea1, Kuuk Thaayorre (5), Ma2, Gureng-Gureng (4), Ma4, Waga-Waga (5), Mf, Bandjalang (4), NAa, Lardil (4) and NBk, Gaagudju (5).
- (ii) Languages with more than three vowels but long correspondents for only a selection of them are:

	BOTH SHORT AND LONG VARIETIES		SHORT ONLY
Ba6, Mpakwithi	i, e, æ, a, u		o, ü (and possibly ö)
NG3, Wunambal	i, e, a, o, u		i
Ed, Norman Pama subgroup	i, a, u, ö		i
NBd1, Ngandi	i, a, o, u		e
NIa, Umbugarla & NG1, Worrorra	i, a, u		e, o
NG2, Ungarinjin	a		i, e, o, u
ND, Kitja/Miriwung	i, a, u		i/Λ
NE2, Baardi	i, a, u		ɔ

12.9 On the margin of a word

The basic syllable type across the languages of Australia is CV(C). In §12.1.3 it was pointed out that in a fair number of languages each word must involve at least two syllables, of the form $C_1V_1C_2C_3V_2(C_4)$ or $C_1V_1C_5V_2(C_4)$. Here C_5 can, generally, be any consonant whereas the other consonantal positions have limited membership, with C_1 and C_3 generally comprising similar (but not, in most cases, identical) sets and the same for C_2 and C_4 .

Some languages diverge from this phonotactic pattern. Within the discussion of initial-dropping, in §12.4, we surveyed languages which have lost C_1 , allowing a word to commence with V_1 . (Just a few other languages, besides those listed in

§12.4, have a small number of words beginning with a vowel.) Only in Ea2, Oykan-gand/Olgolo, and Ea3, Ogh-Undjan, do virtually all words commence with a vowel. (At the end of §10.4, I described how, in the Olgolo dialect of Ea2, classifiers are reducing to be consonantal prefixes to nouns, thus reviving the consonant-initial template.)

§12.9.1 discusses those languages in which every word (or almost every word) ends in a vowel. Then §12.9.2 examines languages in which every (or almost every) word ends in a consonant. Finally, §12.9.3 looks at word-initial and word-final clusters of two consonants, and medial clusters of three consonants.

12.9.1 *Vowel-final languages*

In over 80 per cent of Australian languages, words end in either a vowel or a consonant. The actual proportions vary. A sample of languages showing the approximate proportion of words which end in a vowel is:

92% in WJa2, Djaru	87% in WK, Warumungu	70% in Ba2, Uradhi
60% in G1, Djabugay	60% in H3, Nyawaygi	54% in NE1, Yawuru
54% in Ya1, Djapu	53% in Nc1, Yuwaaliyaay	50% in H1, Dyirbal
40% in NHb1, Emmi	38% in Mg1, Gumbayngirr	26% in NBf2, Gurrgoni
14% in Mf, Bandjalang		

However, in some languages every word ends in a vowel; in other languages almost every word does. In each case, this is plainly a recent development. From words with structure CV(C)CV(C) there has developed CV(C)CV – with, in each case, the possibility of repetition of medial (C)CV. The fact that between vowels we still get either C or CC attests to the underlying syllable structure still being CV(C), rather than CV.

Towards the end of §6.5.3 it was noted that in some languages in which every word ends in a vowel, this requirement has percolated back so that every root now ends in a vowel; and in a number of languages (groups X, WA, WBb and maybe also WMb2/3) this has contributed to the elimination of the original verbal conjugations.

In subgroup NF, only 2–4 per cent of lexical words end in a consonant. However, we find that 35 per cent of coverbs in NF1, Bunuba, and 79 per cent of coverbs in NF2, Guniyandi, end in a consonant. In the modern languages each coverb is bound to a following simple verb; the consonant-final characteristic undoubtedly relates to an earlier stage of the languages when coverbs were free forms and the languages had a fair proportion of their words ending in a consonant.

In NBd3, Anindhilyagwa, all words end in a vowel. However, the bound forms of nouns which are incorporated into a verb may end in a vowel or in a consonant. Many free/bound pairs are suppletive but others are clearly cognate. For example (Leeding 1996: 199–202):

FREE NOUN	INCORPORATED FORM	
akpwalha	akpwalh	‘abdomen’
mwirŋa	mwirŋ	‘spine’

It is likely that the bound forms reflect (at least in part) the forms of nouns at an earlier stage of the language, before the introduction of the requirement that every word should end in a vowel.

Languages in which every word ends in a vowel include (those marked * involve an automatic increment to roots whose underlying form ends in a consonant, discussed below):

Ba1, Gudang	Ja5, Yirandhali	Jd1, Guwa
Nb2, Nganjaywana	R2, Dhudhuroa	V, Baagandji
W2, Yalarnnga	all in groups WAa, WAb	WAc1, Wangkumara
WAd, Maljangapa	all in group WB	WD, central dialects*
WGd, Yingkarta*	WHa, Mantharta*	WHc3, Panyjima
WJa4, Mudbura	WJb1, Warlpiri	WJb3, Warlmanpa
WMb2, Bularnu	WMb3, Warluwara	NBd3, Anindhilyagwa
NL, Tiwi	all in subgroup NA except NAa, Lardil	

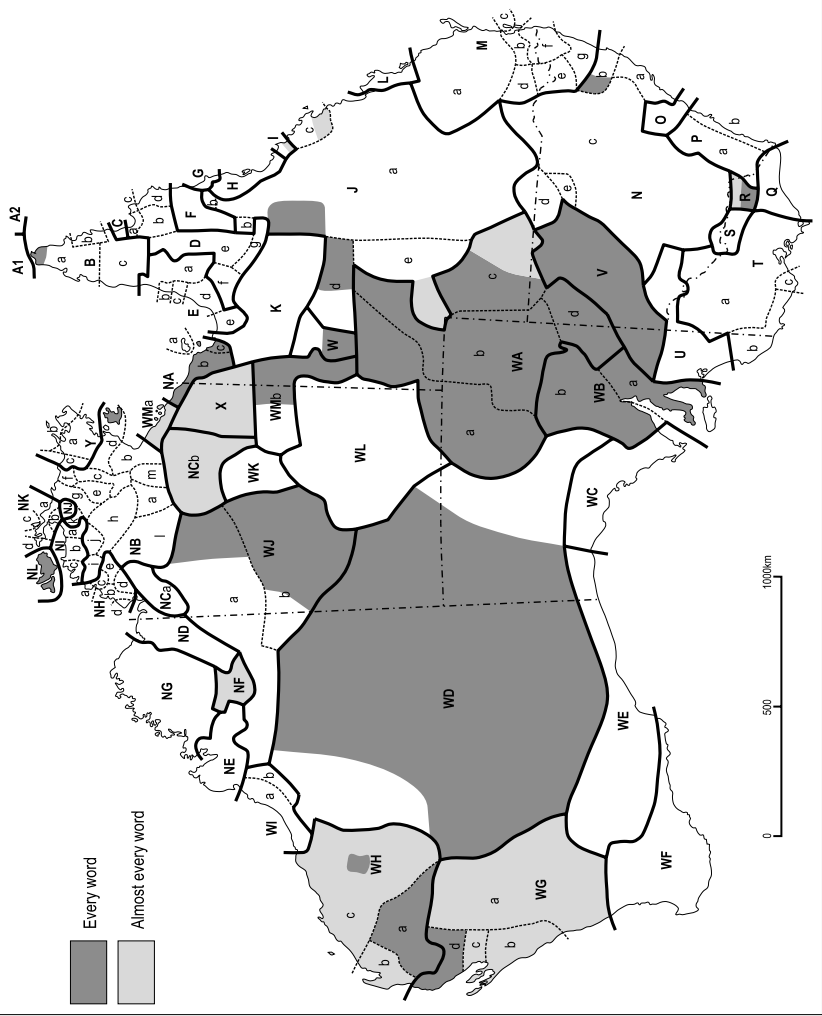
Languages in which almost every word ends in a vowel include:

I1, Cunningham vocab.	Jc2, Giya	Je2, Pirriya
R1, Pallanganmiddang	subgroup X, Waanji/Garrwa	WAc2, Galali
WAc3, Badjiri	WMa, Yanyuwa	NCb subgroup
NF subgroup	almost all other languages in groups WG and WH	

In the Mpakwithi dialect of Ba6, each word must end in a vowel or in one of the semi-vowels, *y* and *w*. The occurrence of vowel-final languages is shown in map 12.8.

The provision of a final vowel can be entirely automatic. In Bc1–3, of the Wik subgroup, the phonological form of each word ends in a consonant; however, a phonetic vowel [a] or [ə] may be appended to the end of any word – see §12.9.2. This is entirely predictable and non-contrastive; it does not need to be written in the orthography of the language.

In languages of the WL group, all final vowels have been neutralised to ə, and an ə has been added after each final consonant. As a result, every word ends in ə. There is no contrast involved and the most efficient course is to take the phonological shape of each word as ending in a consonant, with [ə] being added as a purely phonetic process. (This account is schematic; fuller details are in Breen 2001, and Breen and Pensalfini 1999.) In the adjoining WMb1, Wagaya, words can end in a vowel or a consonant; the latter often add a (non-phonemic) final [ə], almost certainly due to diffusional influence from this language’s WL neighbours.



Map 12.8 Languages where the phonological form of every (or almost every) word ends in a vowel

In some other languages the identity of a final vowel is not quite predictable. An earlier stage of Nb2, Nganjaywana, probably had most words ending in a consonant. In addition to the initial-dropping changes (outlined in §12.4) this language has added an *a* after every final consonant. As a result about 96 per cent of words end in *a*, about 2 per cent in *i* and about 2 per cent in *u* (Crowley 1976: 30).

In WGd, Yingkarta, the underlying forms of words can end in any of the three vowels or in a consonant. However, *-ba* is added, as an automatic increment, to ensure that the surface form of each word ends in a vowel. The same happens in ten of the fifteen dialects of WD, the Western Desert language; word-final consonants are retained only in two blocks of dialects, in the north-west and south-east of the WD language area, but even here less than 10 per cent of words do end in a consonant. In dialects of WHa, Mantharta, a similar rule applies, but here the increment is *-ma* after a word ending in a nasal and *-ba* after one ending in a non-nasal consonant, e.g. *ḡuwan-ma* 'sleep', *yuwal-ba* 'wind' (Austin 1980: 50).

Whereas in Yingkarta, Mantharta and the Western Desert language a final *-ba* (or *-ma*) is added as the last stage of all, after all morphological processes have applied to a word, in other languages the *-ba* increment has been added to each root which ended in a consonant, with suffixes added after the *-ba*. This applies to WHc3, Panyjima, to WJb1, Warlpiri, and to WJb3, Warlmanpa (Dench 1991: 133; Hale 1973a: 449–53).

Some of the ways in which languages ensure that all (or almost all) words end in a vowel are illustrated in table 12.8, showing reflexes of three lexemes which generally end in a consonant (they are items (8–vii) (6) and (1) from §4.2.2).

It will be seen that words which end in a consonant in other languages are made vowel-final by a variety of means. Just *-a* can be added, as in *ḡamuna*, *dhalanja*, *dhalinja* and *ila* (this last in the initial-dropping language Nganjaywana). Or *-ba* or *-ma* can be added as in *dhalanjba*, *dhalanjma*, *milba* and *mi:lba*. We also find the addition of other vowels, as in *dhalanji*, *dhalinji*, *dhalanju* and *mili*. Note that for 'tongue' some languages have amended the *l* to be retroflex *rl*, and some have assimilated the second *a* to *i* before *nj*. It is also possible to achieve the target by omitting the final consonant, as in *dharli* and *mii*. (The form *ḡama* may be related to *ḡamun* – with loss of final *n* and assimilation of *u* to *a* – or it may not be cognate; further work is required to decide whether – and, if so, how – *ḡamulu* is related to *ḡamun*.)

Some languages have introduced a constraint against a particular consonant in final position. Consider the following forms in three languages from the east coast (neighbours in a north-to-south direction):

	'moustache'	'hungry'
H1, Dyirbal	djalbar	ḡamir
H2, Warrgamay	djalbara	ḡamiri
H3, Nyawaygi	djalba	ḡami

Table 12.8 *Reflexes in vowel-final languages of three common consonant-final nouns*

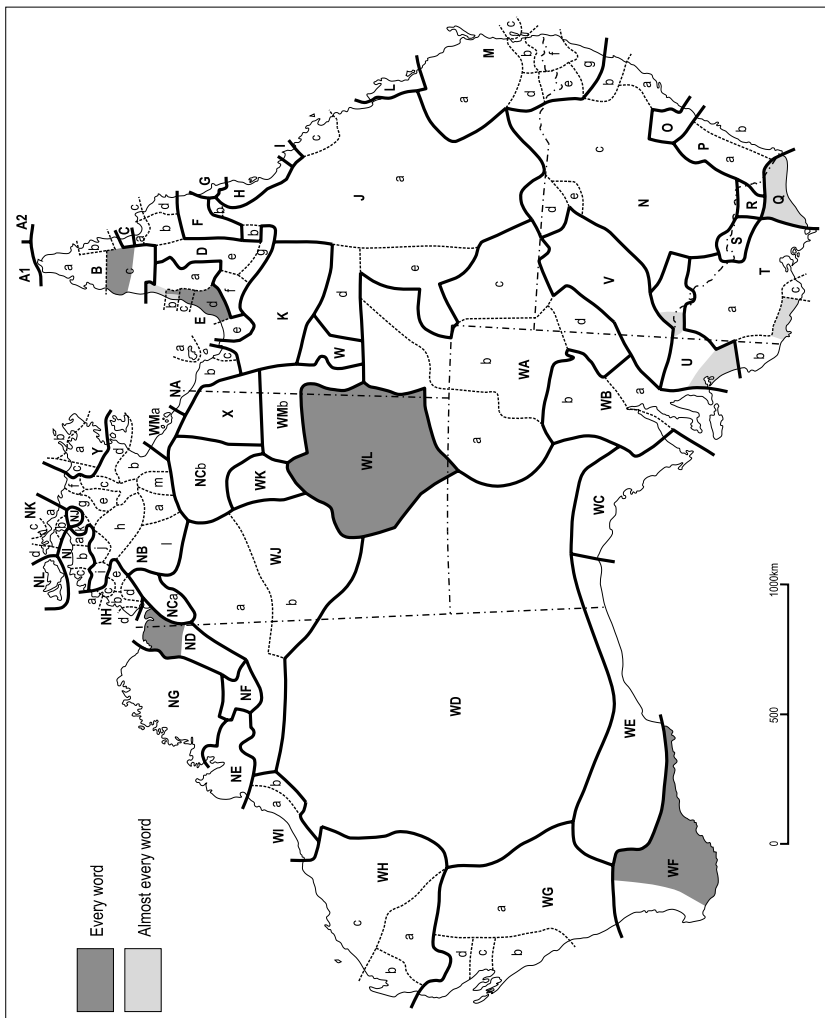
	ɲamun 'breast'	dhalanj 'tongue'	mi:l 'eye'	
(a)	ɲamuna	—	—	Ja5, Yirandhali; Jc2, Giya
(b)	—	dhalanja	—	Jd1, Guwa; WGa3, Cheangwa language; WJa4, Mudbura; NCb1, Djingulu
(c)	ɲama	dhalanja	—	WAc1, Wangkumara
(d)	—	dhalanjba	—	R2, Dhuduroa; WD, Western Desert dialects; WGD, Yingkarta
(e)	—	dhalanjma	—	WHa, Mantharta dialects
(f)	ɲama	dharlinja	—	V, Baagandji
(g)	ɲama	dharlinja	mi:lba	WAd, Maljangapa
(h)	—	dhalanji	—	NF2, Guniyandi
	ɲamulu	dhalinji	—	X2, Garwa
(i)	—	dhalanju	—	WGc, Malkana
(j)	ɲama	dharli	—	languages in groups WAa, WAb
(k)	—	—	ila	Nb2, Nganjaywana
(l)	—	—	milba	WJb1, Warlpiri; WJb3, Warlmanpa
(m)	—	—	mili	W2, Yalarnnga
(n)	—	—	mii	R1, Pallanganmiddang

It is likely that at an earlier stage all three languages had forms ending in *r*, but this is maintained only in Dyirbal. The other two languages have adopted different strategies for avoiding final *r* – an echo vowel is added in Warrgamay, whereas the *r* is simply omitted in Nyawaygi.

12.9.2 Consonant-final languages

A much smaller number of languages have changed in such a way that every (or almost every) word now ends in a consonant, as shown on map 12.9. These are as follows.

(a) In Bc1, Wik-Ngathan, Bc2, Wik-Me'nh, and Bc3, Wik-Mungknh, all final vowels have been lost. As mentioned in §12.9.1, the phonological form of each word ends in a consonant, but a final vowel can be added as a (non-contrastive) phonetic phenomenon. Sutton (1995: viii) discusses this in his dictionary of Bc1, Wik-Ngathan: 'complete words end in a consonant . . . at least in their underlying form. It is the



Map 12.9 Languages where the phonological form of every (or almost every) lexical root ends in a consonant

underlying form that is given here in the Dictionary. In actual speech, however, the neutral vowel (schwa) can be added to the end of a word, or even a full /a/ vowel can be added at the end of a word, depending on what sound, or lack of sound, is coming next, and also depending on other features such as the position of the word in the intonation pattern, speed of talking, and so on.'

(b) In group E, there appear to be five languages where every word ends in a consonant – Eb2, Koko Bera, Eb3, Kok Thaw, Ec, Kok Narr, Ed1, Kurtjar, and Ed2, Kuthant. Again it appears that an erstwhile final vowel has been dropped. There are just a few final vowels in Ea1, Kuuk Thaayorre, and Eb1, Yir-Yoront.

In Ea2, Olgolo, words can end in a vowel or in a consonant. As mentioned at the beginning of §12.9, in this language all words begin with a vowel. When two vowels come together across a word boundary, the first of them drops. As a result, a stem-final vowel only surfaces before a suffix or at the end of an utterance. (Ea3, Ogh-Undjan, is a closely related language with similar surface patterns; it remains to be investigated whether it behaves in the same way as Ea2.)

Sommer (1969, 1970, 1972) was misled into thinking that stems in Olgolo all end in a consonant. He then had to explain the final vowels – which surface on a stem before a suffix – as being part of the suffix. For instance *alu-ŋandə* 'fire-ABLATIVE' and *uda-ŋandə* 'dog-ABLATIVE' were reanalysed by Sommer as *al-uŋandə* and *ud-aŋandə*, with the ablative suffix having various allomorphs (*-aŋandə*, *-uŋandə*, etc.) and each stem having to be specified for which allomorph it takes.

(c) On the limited materials available for Q, Muk-thang, it appears that only about 5 (2 per cent) of the *c.* 250 disyllabic nouns in the corpus end in a vowel. There is a higher proportion of final vowels among forms with one, or with three or more, syllables (about 16 out of *c.* 100). It seems that a final *ŋ* has been added to disyllabic words that used to end in a vowel.

Other languages in the south-east of the continent have added *ŋ* to a certain number of what used to be vowel-final disyllabic stems, such as *djina* 'foot' and *guna* 'faeces'. (Blake 1991: 64–5 remarks that this has happened mainly with body part terms in Ta3, Wuy-wurrung.) However, languages other than Muk-thang do retain a fair proportion of consonant-final forms.

(d) In Tb2, Kuurn-Kopan-Noot, all but a few nominal roots end in a consonant. By far the most frequent word-final segment is *ŋ*, and it appears that this has been added to forms that used to end in a vowel. There are, however, a number of suffixes that end

in a vowel, e.g. ergative/instrumental *-a*, locative *-i*, 2sg possessive suffix *-ŋu* (Wilkinson 1978: 73, 81–91).

(e) In U1, Yarlalde, almost all stems are consonant-final. McDonald (1977: 36–7, 23) suggests that this is in most cases due to the loss of a final vowel, e.g. **minja* > *minj* ‘what’. However, a number suffix is typically added to a noun and the sg suffix is *-i* (dual is *-iŋg* and plural is *-ar*).

(f) It appears from the limited materials on U4, Keramin, that here also almost every word ends in a consonant, again through omission of a final vowel, e.g. **dhina* > *dhin* ‘foot’. Interestingly, the other languages in this areal group allow both vowels and consonants to end a word – U2, Ngayawang, U3, Yuyu, and U5, Yitha-Yitha.

(g) There are three dialect groups within WF, Nyungar, and each behaves differently with respect to word endings, as illustrated in (56):

(56)	NORTH-WEST	EAST	SOUTH-WEST
	DIALECT	DIALECT	DIALECT
	pipi	pip	pipa
	kartu	kort	korta
	kaŋku	koŋk	koŋka
	kata	kat	kata
	thalanj	thalanj	thalanj
			‘breast’
			‘wife’
			‘mother’s brother’
			‘head’
			‘tongue’

The north-west dialect is conservative, retaining the original forms of words. As discussed at (22) in §12.4.4, an original *aC(C)u* has become *oC(C)a* in the south-west dialect (here the ‘a’ represents a central vowel which contrasts only with its absence). In the east dialect this final vowel has been lost and, as a consequence, every word now ends in a consonant. (This is discussed in detail by Dench 1990; note that Dench writes ‘head’ as *ka:t* in the east and as *ka(:)ta* in the south-west dialect, and ‘breast’ as *pi:p* and *pi(:)pa* respectively.)

(h) In §12.9.1 it was described how in WL, the Arandic group, all final vowels were neutralised to ə, and ə was added to each consonant-final form. This ə is – as in Bc1–3 – an automatic phonetic addition to words that in their phonological form end in a consonant.

(i) It seems that in ND2, Miriwung, every noun root (which is a free form) ends in a consonant. This has been achieved, at least in part, by the addition of *ŋ* to a vowel-final form, e.g. the recurring form *mayi* ‘vegetable food’ is here *mayiŋ*, and *mala* ‘hand’

is *malaj* (see §4.2). This is also demonstrated by cognates with the closely related ND1, Kitja, including:

(57)	ND1, Kitja	ND2, Miriwung	
	gurlu	gɬluŋ	‘water’
	murlu	mulŋ	‘eye’

(Note that for ‘eye’ there has been reduction *mu(r)luŋ* > *mul*, producing a final consonant cluster.)

However, some grammatical words such as pronouns and demonstratives end in vowels, as do some verbal and nominal suffixes (e.g. *-baŋri* ‘instrumental’). In this respect Miriwung is similar to Tb2, Kuurn-Kopan-Noot, discussed under (d).

In summary, it appears that all words end in a consonant in (a–b) and (g–h) and that almost all do in (c) and (e–f). In (i) all nominal roots end in a consonant and in (d) most do, but in each language some grammatical forms (such as suffixes) can end in a vowel. (Compare this with the situation in some western languages, mentioned in §12.9.1, where roots may end in a consonant or a vowel, but every word must end in a vowel, through the addition – after all morphological processes have applied – of *-ba* or *-ma*.)

The technique of forming consonant-final forms by omitting a final vowel is followed in (a–b) and (e–g) and, in a slightly different form, in (h). In (a) and (h) the phonological form of each word ends in a consonant, but a phonetic vowel – [ə] or [a] – may freely be added to it.

The technique of adding a final consonant (most often ŋ) is followed in (c–d) and (i). Interestingly, there are other languages which add a velar segment after a word-final vowel, as a non-contrastive phonetic process. We have noted that in languages of the Arandic group, WL, the phonological form of all words ends in a consonant but that a central vowel [ə] is added to this in pronunciation. Hale (1976a: 416) states that in the Anmatjirra dialect of WL1 there is a further phonetic process which appends a velar (normally the nasal [ŋ]) to a disyllabic word ending in a vowel, e.g. **karli* > *a^l[al^ʷə]* which in Anmatjirra is pronounced [al^ʷəŋ].

Ba2, Uradhi, allows words to end in a consonant or a vowel. Hale (1976c: 44) notes a similar phonetic process applying here: ‘utterance-final vowels and glides are terminated rather energetically with a constriction in the velar region; this constriction is oral if the first consonant to the left is also oral (for example, /yuku/ [yúku^l] “tree”, /ipi/ [ipí^l] “water”), and nasal if the first consonant to the left is nasal (for example, /ama/ [amáŋ] “person”, /ani/ [aníŋ] “what”).’

It is natural that, when a vowel-final form is required, the mid central vowel ə should generally be used. But why, to create a consonant-final form, should ŋ generally be used? This may be because – as pointed out by Trubetzkoy (1969: 233) –

η is closer to the vowels than any other consonant, in terms of sonority and other phonetic factors. This would also explain why η is often added to loans into Australian languages from English which would otherwise commence with *a*, in order to produce a consonant-initial form (e.g. *ɳayan* in H1, Dyirbal, from English *iron* – Dixon 1980: 189).

As with most other features in Australian languages, there is a decidedly areal character to the distribution of languages whose words have non-prototypical endings. Of those languages listed in §12.9.1, which have all or almost all words ending in a vowel, Ja5, Jd1, Je2, V, W2, X, and languages in WA, WB, WD, WG, WH, WJ, WM, NA and NCb all form one continuous block (NF is a short way off, separated by WJ which also has rather few vowel-final words). Right in the middle of this block is WL, where all words end with a consonant in their phonological form, but a final phonetic $\ə$ is generally added, no doubt to conform at the phonetic level to the vowel-final areal pattern.

Finally, I opine that a cyclic pattern of change is likely to have applied to word endings, as in other parts of the phonology and grammar within the Australian linguistic area. A language may at one time permit words to end in vowels and consonants. Then it may adopt, say, a constraint that all words should end in a vowel. Some time later – perhaps under diffusional pressure from those neighbours it now has – it may shift to a consonant-final profile, or else back to the prototypical pattern of allowing both vowels and consonants to end words (see Hale 1976a).

12.9.3 Non-prototypical consonant clusters

The prototypical pattern in Australian languages is for words to begin with a single consonant, to have the possibility of just one consonant at the end of a word, and to have at most two consonants between each vowel. Deviations from this do evolve, mostly through loss of a vowel. We consider the three situations in turn.

(a) *Initial clusters.* These can come about, from a canonical word structure of $C_1V_1C_2C_3V_2(C_4)$ or $C_1V_1C_5V_2(C_4)$ in one of two ways:

- (i) Exposing a medial cluster into word-initial position through loss of both C_1 and V_1 :

$$C_1V_1C_2C_3V_2(C_4) > C_2C_3V_2(C_4)$$

- (ii) Creating an initial cluster from C_1 and C_5 through loss of V_1 :

$$C_1V_1C_5V_2(C_4) > C_1C_5V_2(C_4)$$

The two mechanisms give rise to different kinds of cluster. As discussed in §12.4.2, the typical C_2C_3 cluster to come into word-initial position, under a change of Type (i), consists of homorganic nasal plus stop, e.g. *djúmbi* > *mbí* ‘penis’ in Jb1, Mbabaram.

If a C_2C_3 cluster is not of this form then one of two strategies will be employed. In some languages V_1 is retained before other types of cluster, e.g. *gúrrburu* > *arrbúr* 'full' in Mbabaram. In others the cluster may be simplified e.g. *kálma-* > *má-* 'to arrive' and *kúlŋkul* > *ŋkul* 'heavy' in Ba7, Ngkoth (Hale 1976b: 23).

The languages in which change (i) has taken place are those identified in §12.4 as strongly initial dropping – most in subgroup Ba; several in group D; Jb1, Mbabaram; Nb2, Nganjaywana; and WL, the Arandic group. Homorganic nasal–stop clusters *mb-* and *ŋg-* are also found at the beginnings of words in NBb1, Marra, e.g. *mbagarr* 'honeycomb' (Heath 1981a: 12).

Changes of Type (ii), with C_1 being retained but V_1 lost, produce quite different kinds of initial cluster – typically a stop (sometimes a nasal) followed by an apical liquid or a semi-vowel. Basically, V_1 is only omitted if an allowable cluster will result.

In U1, Yarlalde, for example, initial clusters consist of a non-retroflex stop or nasal or either semi-vowel, followed by an apical nasal, lateral or rhotic. In this language it appears that there is a tendency to simplify an initial cluster by omitting the first member, e.g. 'growl, snore' is either *ŋronkul* or *ronkul* (McDonald 1977: 34). In other languages the cluster formation process is at an earlier stage, so that forms both with and without V_1 are attested, e.g. *dharringa-* or *dhrringa-* 'to lie' in WGa2, Parti-maya (Dunn 1988: 40).

In a number of languages the fact that an initial cluster has been produced by a change of Type (ii) is clearly shown by comparison with forms in nearby languages. Compare *mrri*: 'eye' in Q, Muk-thang, with *mirriŋ* in Ta3, Wuy-wurrung. In other cases there are no cognates to hand, but from the form of the initial clusters we infer that they probably evolved by changes of Type (ii).

A scattering of initial clusters of this type is found in some languages from group Ma; in Mg1, Gumbaynggirr; in several languages from group N; in Pa2, Ngarigo; in Q, Muk-thang; in Tb1, Bungandik; in several languages from group U; in WGa2, Parti-maya; in X2, Garrwa; in some languages from groups WH and WI; in NB12, Wardaman; in NF2, Guniyandi; and in NG2, Ungarinjin (this is probably not an exhaustive list).

In some languages *-uw-* and *-iy-* at $-V_1C_5-$ position tend to reduce to *-w-* and *-y-* respectively; for Mg1, Gumbaynggirr, Eades (1979: 268) gives [buwa:rr] or [bwa:rr] for 'baby' and [giyaŋarri] or [gyeŋarri] for 'schnapper (a type of fish)'. Breen (p.c.) reports that in WMB1, Wambaya, an initial /guy-/ can be pronounced as [gwi-]. But, generally, the most common type of cluster is *g* or *b* followed by *rr*. Most languages with initial clusters have just a small number of possibilities, and these occur in only a few words. For example, NB12, Wardaman, has just *gl-* and that only in two words (Merlan 1994: 19); NF2, Guniyandi, has *brr-*, *grr-* and *bl-* (McGregor 1990: 71); and NG2, Ungarinjin, has only *brr-*, *br-*, *gr-*, *rdr-* (that is, apico-postalveolar stop *rd* plus rhotic *r*), *mr-*, and a three-member cluster made up of *b* plus *rr* plus *r* (Rumsey 1982a: 14).

(b) *Final clusters*. Like initial clusters, these can evolve, from a canonical word structure of $C_1V_1C_2C_3V_2(C_4)$ or $C_1V_1C_5V_2(C_4)$, in one of two ways:

- (i) Exposing a medial cluster into word-final position through omitting V_2 from what was a vowel-final word:

$$C_1V_1C_2C_3V_2 > C_1V_1C_2C_3$$

- (ii) Creating a final cluster by omitting V_2 from between C_5 and C_4 :

$$C_1V_1C_5V_2C_4 > C_1V_1C_5C_4$$

As at the beginning of a word, the two mechanisms of change lead to different kinds of clusters. Whereas creating an initial cluster by omitting V_1 generally produces a cluster consisting of a stop (or nasal) followed by an apical liquid or semi-vowel, creating a final cluster by omitting V_2 typically produces a cluster consisting of an apical liquid or y followed by a nasal. In contrast, a medial cluster that is exposed into final position will typically involve a nasal or liquid followed by a stop.

Of the consonant-final languages surveyed in §12.9.2, those that achieve this target by omitting the final vowel all also produce some words ending in a consonant cluster of Type (i) – languages in groups Bc, E, U, WF and WL. (In addition, Blake 1991: 64 reports some final clusters in Ta3, Wuy-wurrung.) In Bc1–3 of the Wik subgroup both Type (i) and Type (ii) changes have taken place. That is, V_2 is omitted when it is word-final and also when it is followed by a consonant. For example, in Bc1, Wik-Ngatharr (Hale 1976g):

- (58) *kalka > kalk ‘spear’
 *nhuntu > nhunt 2sg pronoun
 *tharran > tharrn ‘hard’
 *katjin > katjn ‘yamstick’

In this language – and in others from the region – a phonetic central vowel is inserted between the two final consonants in pronunciation, e.g. [tharrən] ‘hard’; see also (44) in §8.8.

In subgroups Ed and Ee, final clusters appear to have evolved just by change (i). Thus, in Ee, Kukatj (Black 1980):

- (59) *kunka > konk ‘raw, alive’
 *kalŋka > kalŋk ‘breath’

Here a non-homorganic nasal–stop cluster and a triconsonantal cluster are exposed into final position. Note that change (ii) does not apply in Kukatj. That is, V_2 is retained when a C_4 follows, as in:

- (60) *pi:mur > pimir ‘father’s sister’

Examples of a final cluster being exposed by change (i), but not by change (ii), in the east dialect of WF, Nyungar, were given in (56) above. The data in (57), from ND2, Miriwung, show a vowel-final root being augmented by η , and then a final cluster being created by the omission of V_2 : *mu(r)lu* > *mu(r)luŋ* > *mulŋ*.

There is a solid block of languages in the central north with final clusters which look as if they were created by change (ii). The languages involved comprise almost all the prefixing languages in groups NB–NK, plus adjacent non-prefixing languages in groups Y and WJb. Final clusters are of course missing from those languages in which every (or almost every) word ends in a vowel – WMa, Yanyuwa, NBd3, Aninhdhilyagwa, the NCb subgroup, and NL, Tiwi. The NF subgroup has very few final consonants on free forms, but a fair number on coverbs; just in NF2, Guniyandi, there is at least one coverb ending in *-rrt*. (Note that in the NCa subgroup most final clusters are found on coverbs.) Other prefixing languages which appear to lack final clusters are NBk, Gaagudju, NB11, Wagiman, and NG, the North Kimberley areal group.

The first member of a final cluster in this area is generally an apical liquid (*l*, *rl*, *rr* or *r*) and sometimes also the semi-vowel *y*. The second member is *g* (the most common choice), *b*, *dj*, or η (or sometimes other stops and nasals); there are some odd examples of *-wg*. It is unusual to find final clusters of nasal plus stop in this area but we do encounter them in NE1, Yawuru, and in NJ, Giimbiyu; these may be due to a change of Type (i), simply omitting a final vowel. The number of final clusters is fairly small in all languages; in some they feature in only a handful of words.

The assumption that most final clusters in this area come about (perhaps at considerable time-depth) by a change of Type (ii) needs to be verified by the assembling of a fair number of cognates with and without V_2 before C_2 . A possible candidate is the lexeme ‘tongue’, which generally has the form *dhalanj*. However, the final nasal is η (rather than *nj*) in languages from groups O, T, Y, WA, WF and WG. In NBc2, Ngalakan, we find *-djelŋ* and in NBd1, Ngandi, *-dhelŋ*; these could well have developed from *dhalan* by omission of the second vowel.

(c) *Medial clusters of three consonants*. Most Australian languages allow only a sequence of two consonants between vowels within a morpheme. However, there are a number of languages – scattered across the continent – which show a number of tri-consonantal clusters. Many of these languages can only have a single consonant at the beginning of a word and a single consonant at the end of a word; they have a maximal disyllabic structure CVCCVC. As discussed at the end of §12.1.3, it can be difficult (or impossible) to segment such words into syllables on a principled basis. In a word like *galmbin* the middle consonant, *m*, is homorganic with the following *b*, and might thus be assigned to the second syllable, but in a word like *galnbin* the middle

consonant, *n*, is homorganic with the preceding *l*, and might thus be assigned to the first syllable. (This creates difficulties for an analysis which seeks to treat all middle consonants in the same way. My own solution is to say that while the number of syllables in such words is clear, the actual point of division between syllables is unclear; it is also irrelevant with respect to every other aspect of the phonology and grammar of the language.)

It is likely that clusters of three consonants came into being through elision of an unstressed vowel: -CVCC- > -CCC- or -CCVC- > -CCC-. There are just a few fragments of data currently available to show how this might have happened. In many languages ‘tongue’ is *dhalanj* or *djalanj*. In H1, Dyirbal, and the neighbouring language Ja4, Ngayungu, the form is *djalŋgulay*. This is likely to have arisen from a reduction of a compound of *djalanj* (which is found in nearby languages) with some form *gulay*, i.e.

(61) *djalanj-gulay* > *djalŋgulay*

The second vowel, *a*, would have been omitted and the cluster *l* plus *nj* plus *g* then underwent assimilation (of nasal to following stop) to become -*lŋg*-.

Under (iv) in §12.8.4, it was described how in the northern dialects of Dyirbal a sequence of *Vr*, *VI* or *Vy* at the end of a syllable has been replaced by a long vowel. Examples of this include:

(62)	CENTRAL/SOUTHERN DIALECTS	NORTHERN DIALECTS	
(a)	<i>yalgay</i>	> <i>ya:ga:</i>	‘road’
(b)	<i>djalŋgulay</i>	> <i>djalŋgula:</i>	‘tongue’

In (62a) we see the change applying in two places, with *al* > *a:* and *ay* > *a:*. But in (62b) the change applies only to *ay*, not to *al*. An explanation would be that when the change applied the word for ‘tongue’ was still *djalanj-gulay* and this became *djalanj-gula:*. At a later stage the change shown in (61) applied across all dialects. In the northern dialects we then had *djalanj-gula:* > *djalŋgula:*.

Across most of the continent, biconsonantal clusters consist of (i) liquid (or *y*) plus (ii) stop; or (i) liquid (or *y*) plus (ii) nasal; or (i) nasal plus (ii) stop. In keeping with this, triconsonantal clusters typically consist of liquid (or *y*) plus nasal plus stop. As described in §12.1.3, the first member of a biconsonantal cluster is most often an apical (or else a laminal) and the second member is most often a peripheral (or else a laminal); in addition, we always get homorganic nasal–stop clusters. Again in keeping with this, a triconsonantal cluster is most often an apical liquid (*l*, *rl*, *rr* or *r*) or *y*, followed by a homorganic peripheral (or laminal) nasal–stop cluster. Some languages also allow apical liquid plus *n* plus non-apical stop, e.g. *dulnbilay* ‘white cedar tree’ in G2, Yidinj.

It was mentioned under (b) above that a block of languages in the central north allow words with final consonant clusters that typically consist of apical liquid (or *y*) plus non-apical stop or nasal. Most of these languages have a few words with triconsonantal medial clusters which, effectively, consist of a word-final biconsonantal cluster plus a word-initial consonant, i.e. apical liquid (or *y*); plus non-apical stop or nasal; plus stop or nasal or semi-vowel. The actual possibilities vary from language to language. For instance, NB12, Wardaman, has just one example of *-lgb-*, in *yilgbayi* 'all right, enough' (Merlan 1994: 24, 608). For NBm, Alawa, Sharpe (1972: 27) reports seven kinds of triconsonantal cluster, the first member being *l*, *rl*, *rr* or *r*, the second member *k*, *p* or *ŋ*, and the third member *nj*, *m* or *rt*.

It was mentioned in §12.9.1 that in languages of the East Mindi subgroup, NCb, almost every word ends in a vowel. However, there are a number of triconsonantal medial clusters. For NCb3, Wambaya, Nordlinger (1998: 32) reports just one triconsonantal cluster, *-rrgb-*, attested in five words. For NCb1, Djingulu, Chadwick (1975: 7) and Pensalfini (1997: 66) describe clusters made up of a liquid plus a peripheral stop or nasal plus a peripheral stop, e.g. *-lgb-*, *-lgg-*, *-rrgb-*, *-rrbg-*. The first part of these clusters is suggestive of what may have been allowed at the end of words at an earlier stage, before the adoption of a preference for words to end in a vowel – it is likely that words could end in a cluster of liquid plus peripheral stop or nasal. Similar comments apply to NBd3, Anindhilyagwa, a language which also has vowel-final words but a fair selection of triconsonantal medial clusters.

O'Grady and Fitzgerald (1995) present a quite different set of suggestions for the evolution of triconsonantal clusters, including the sporadic insertion of a nasal between two consonants. The paper is marred by ad hoc and implausible supposed cognates, e.g. '*pilpu-ngu* "cut way through [e.g. through water]" ' in WJa1, Walmatjarri, is linked to '*pilmpa* "push" ' in H2, Warrgamay. (Also see comments in the appendix to chapter 2 and at the beginning of chapter 4 concerning cognates presented in some of O'Grady's other publications.)

Genetic subgroups and small linguistic areas

The view of Australian languages that has been propagated over the past few decades is that they are all related in a fully specifiable family tree. That is (in terms of the lexicostatistic labels which have been used) each language belongs to a genetic subgroup within a genetic group within a genetic family within the Australian genetic macro-family.

This view cannot be sustained when the proper methodology of comparative and areal linguistics is applied to the Australian situation. Some of what have been suggested as subgroups do appear to have bona fide genetic connections, and a proto-language is likely to be reconstructable for them. Some of what have been suggested as genetic subgroups are in fact small linguistic areas whose member languages appear not to be closely genetically related but to have been in contact for a considerable period and as a result a number of linguistic traits have diffused over the area.

As a sample of the overall situation in Australia, §13.1 briefly surveys a number of likely genetic subgroups, summarising the similarities and differences between their members. In a couple of cases, reconstruction of a fair amount of the proto-language of the subgroup has been completed; in other instances this remains to be done. For a subgrouping to be validated it is, of course, necessary for a good portion of the proto-language to be reconstructed, together with the systematic changes which have been involved in the development of the modern languages. Then, §13.2 briefly discusses a number of small areal groups. §13.3 puts forward some preliminary ideas for likely origin locations of a number of low-level subgroups, and directions of expansion. Finally, §13.4 comments on how isoglosses can move across dialects and languages, and – contrariwise – how dialects and languages can move across an isogloss.

13.1 Some genetic subgroups

A number of the low-level subgroups which have been proved, or seem likely – or possible – to be provable are discussed here.

(1) *The north Cape York subgroup, B.* The lexicostatistic classification (O'Grady, Voegelin and Voegelin 1966) suggests a 'Pama-Maric subgroup', which involves languages from my groups B, E and J. This is not sustainable (that is, a distinctive proto-language could not be reconstructed for it). However, there is evidence that all the languages from group B are genetically related. They divide into three branches: Ba, Hale's 'northern Paman' subgroup, with ten languages; Bb, which is a single language, Umpila (with dialects that include Kaantju and Kuuku Ya'u); and Bc, the Wik subgroup, with six languages.

Hale (1976b, c) reconstructs a good deal of the morphology for proto-Ba (pBa); very similar forms are found in Bb and pBc. They include nominal suffixes – such as ablative *-m(un(t)u)* and genitive *-n(t)am(u)* – 'who' *waari*, 'what' *ḡaani*, as well as almost all pronominal forms. The only pronoun which differs between branches is 2pl, which is **nhurra* for pBa but **nhiya* for pBc; Bb lacks a corresponding form, having generalised on a reflex of 2du, **nhupula*, to cover all 2n-sg.

The branches (and, indeed, individual languages within the branches) differ in their verbal morphology, as is most often the case in the Australian linguistic area. Reflexives, for instance, are shown by derivational suffixes to the verb in Ba and Bb but by special pronominal forms across Bc. Reciprocals use a verbal derivational suffix in all languages (for which data are available) excepting Bc1, Wik-Ngathan, which employs the reflexive pronoun in reciprocal function as well.

(2) *The Cairns subgroup, G.* This involves just two languages – G1, Djabugay, and G2, Yidinj. There are close similarities in nominal suffixes, pronouns, interrogatives, verbal conjugations and verbal suffixes. Full information is in Hale (1976f) and Patz (1991) for Djabugay, and Dixon (1977a) for Yidinj. There is some comparative discussion and reconstruction in Dixon (1977a), especially pp 136 on nominal affixes, pp 173–7 on pronouns, p 195 on interrogatives, pp 213–15 on verbal conjugations and inflections, and p 222 on verbal derivational suffixes. The two languages differ in their demonstrative forms, and in the fact that only Djabugay shows a reciprocal suffix to the verb. (Yidinj appears to have no reciprocal mechanism – Dixon 1977a: 282.) See also (c) in §2.1.5.

(3) *The Maric proper subgroup, Ja.* There is fair grammatical information on at least some dialects of each of the languages Ja1, Bidjara (whose further dialects include Marrganj, Gunja, Gunggari and Guwamu), Ja2, Biri, and Ja3, Warungu (whose further dialects include Gugu-Badhun), covering a large area in central and southern Queensland.

These languages have very similar grammatical forms – pronouns, nominal suffixes, some verbal suffixes and some interrogatives – indicating that they make up a small

genetic subgroup. Reconstruction of the proto-language is now required. For Ja4, Ngayungu, and Ja5, Yirandhali, only limited lexical material is available. These could well belong to the same subgroup but, on the evidence available, it will never be possible to prove this.

(4) *The Central Inland New South Wales subgroup, Nc*. This consists of three languages – Nc1, Gamilaraay (or Kamilaroi), whose dialects include Yuwaalaraay and Yuwaaliyaay, Nc2, Wiradhurri, and Nc3, Ngiyambaa (with dialects Wangaaybuwan Ngiyambaa and Wayilwan Ngiyambaa).

These show formal similarities in nominal case suffixes, in interrogatives ‘who’ and ‘what’, in verbal conjugations and inflections, in verbal derivational suffixes, and in pronominal forms (including the innovation of having second person dual and second person plural based on the second person singular form). We can recognise Wiradhurri and Ngiyambaa as constituting a branch within the subgroup, since they show similarities in the nominal comitative suffix, the verbal reflexive suffix, interrogative ‘where’, and demonstratives. Austin, Williams and Wurm (1980) provide useful comparative discussion of some forms, while Austin (1997b) puts forward a reconstruction of the proto-phonology.

(5) *The Waanji/Garrwa subgroup, X*. These two languages straddle the Queensland/Northern Territory border, just south of the Gulf of Carpentaria. A high proportion of grammatical forms are cognate – pronouns, demonstratives, interrogatives, nominal suffixes and some verbal suffixes. It should be a straightforward matter to reconstruct pX.

(6) *The Yolngu subgroup, Y*. Three branches can be recognised within this genetic subgroup, spoken in eastern Arnhem Land. The southern one consists of Ya1, Dhuwal/Dhuwala, Ya2, Dhay’yi (these two may be more appropriately treated as dialects of a single language), and Ya3, Ritharngu. The northern branch consists of Yb1, Nhangu, Yb2, Dhangu, and Yb3, Djangu (the last two are very close and may be better treated as dialects of one language). The western branch consists of Yc1, Djinang, and Yc2, Djinba.

Distinctive features of the Yolngu subgroup include pronominal paradigms (including 1sg *garra* and 2du *nhuma*), nominal suffixes – including allative *-li(li)* – and some verbal suffixes; as is typical within the Australian linguistic area, verbal inflections differ more between languages than do nominal inflections. There is a need for a thorough comparative study of the languages, with a view to reconstructing portions of pY; there have plainly been a number of systematic phonological changes in the development of proto-languages for the branches, which would have to be fully investigated.

The languages vary most in their demonstratives; indeed, most of them are named after the form that is used. In this subgroup there are different social dialects – within each language – for each of the two moieties. For example, Dhuwala is spoken by the Yirritja moiety and Dhuwal by the Dhuwa moiety. These have the same grammar and almost identical vocabulary but differ in that forms undergo final truncation (according to regular rules) in Dhuwal; there are also a few lexemes that differ. (See Morphy 1977 and Dixon 1980: 39–40.)

The greatest similarities, in both grammatical and lexical forms, are between Ya and Yb. The western branch, Yc, differs most, but this may be due to diffusional influence from neighbouring non-Yolngu languages to the west. As mentioned in §12.2, the Yc languages have neutralised the laminal distinction, which certainly makes them more similar to languages to the west.

The Yolngu languages have *ŋali* as the 1du.inc pronoun (with 1du.exc and 1pl.inc involving increments to this). They are likely to have been – at some time in the past – part of the otherwise continuous area of languages which had *ŋali* within their pronominal system. Whether the Yolngu languages then moved away from the *ŋali* area into their present location, or whether other languages then inserted a wedge to the south of present-day Yolngu territory (cutting off Y languages from their erstwhile *ŋali* neighbours) is a matter for conjecture.

The occurrence of *ŋali* has been taken as a signal that Yolngu languages belong to the ‘Pama-Nyungan’ type (or, indeed, to a ‘Pama-Nyungan’ genetic grouping). However, they show hardly any of the other features said to characterise ‘Pama-Nyungan’; for example, there is no trace of ergative *-ŋgu* (the form here is pan-Australian *-dhu*) or of any of the recurrent ‘Pama-Nyungan’ pronouns beyond 1du.inc *ŋali* and 1pl.exc *ŋana*. The lexical make-up of Yolngu is discussed in §4.3. Even if there were justification for recognising ‘Pama-Nyungan’, there would be little for including Yolngu within it.

The special character of Yolngu languages is that they are non-prefixing, in an enclave surrounded by prefixing languages. We have noted that prefixing – along with the bound pronominal forms it involves – has gradually diffused over a certain region in the central north; the diffusion area has not yet engulfed Yolngu. However, as mentioned in §8.8, bound pronouns have developed in two places on the fringe of Yolngu territory. In Ya3, Ritharngu (next to NBd1, Ngandi, and NBd2, Nunggubuyu) there have recently evolved enclitic pronouns which generally attach to the first word of the clause. In the two languages of subgroup Yc – Yc1, Djinang, and Yc2, Djinba – (spoken next to NBc1, Rembarnga, and NBf1, Burarra) the recently evolved pronominal enclitics are generally added to the word immediately preceding the verb. As pointed out in §8.8, this is the likely preliminary stage to the development of bound pronominal prefixes – from being enclitics to the word preceding the verb, to becoming

proclitics to the verb itself, and thence to becoming prefixes to the verb. That is, the prefixing region appears to be on the point of extending further, into Yc, the nearest branch of the Yolngu subgroup.

(7) *The Northern Desert Fringe putative subgroup, WJ.* The four languages of subgroup WJa (Wamatjarri, Djaru, Gurindji and Mudbura) show strong similarities of grammatical forms, indicating a close genetic connection. It should be possible to reconstruct nominal case endings, verbal suffixes (across five conjugations), free and bound pronouns, interrogatives and some demonstratives.

Of the three languages in WJb, two (WJb1, Warlpiri, and WJb3, Warlmanpa) have very similar grammatical forms; only limited data are available for WJb2, Ngardi, but what there is suggests that it belongs to the same subgroup. (Indeed Capell 1962a: 16 was of the opinion that Warlpiri, Ngardi and Warlmanpa should be regarded as dialects of one language.)

WJa and WJb show fair differences in nominal and verbal suffixes but considerable similarities in free and bound pronominal forms. In addition, bound forms are attached to a modal auxiliary. In WJa1, Wamatjarri, the subject bound pronoun has discontinuous form, part coming before and part after the object bound pronoun; a simplified variety of the Wamatjarri system is found in the other WJa and in the WJb languages. A modal-based auxiliary with discontinuous bound pronouns may well have been a distinctive innovation in a putative pWJ. However, a genetic link between WJa and WJb will only be provable through the reconstruction of pWJa and pWJb and comparison of these. There are, of course, possible alternative explanations for the pronominal similarities; they could simply be an areal feature.

(8) *The Ngarna subgroup, WM.* This is one of the two clear genetic groups in Australia that involve a geographical discontinuity. WMa, Yanyuwa, is spoken on the shores of the Gulf of Carpentaria and is separated from the three languages in WMb by subgroup X, Waanji/Garrwa.

There are pervasive similarities of grammatical form between WMa and WMb: in the pronoun paradigm – as shown in (49) of §7.4 – in some nominal suffixes and in some verbal suffixes. The first person singular pronoun has distinctive form *ɲarna*, and this has been adopted as label for the subgroup (by Breen). As pointed out in §5.4.3, ergative *-gu* in WMb is a development from pWM *-ɲgu* (which is retained in WMa). There is also something that is rarely found in Australian languages, a clausal coordinator ‘and’; this has the form *bagi* in Yanyuwa and *ba* in WMb1, Wagaya, and WMb2, Bularnu. Interrogatives differ markedly between the languages.

The lexical similarity counts are also of interest. Comparing general vocabulary, Yanyuwa scores about 30 per cent with its neighbour Garrwa, and also about 30 per cent

with the WMb languages, which are some distance away. However, when verbs are compared, the Yanyuwa–Garrwa figure falls to about 12 per cent whereas the Yanyuwa–WMb score rises to about 40 per cent, suggesting a genetic link in the second case but not in the first.

It can be inferred that the WM languages formed one geographical block at some time in the past. Apart from the Yanyuwa–Garrwa lexical score of 30 per cent, just mentioned, vocabulary similarities with all neighbouring languages are low (all less than 20 per cent). There is little basis for any guess about where pWM was spoken, and what the directions of movement have been. There is need for a professional linguist to undertake a full reconstruction of pWM.

Yanyuwa is located in the south-eastern corner of the prefixing area. It is clear that the prefixing trait has recently diffused into it. Yanyuwa's prefixes are highly agglutinative, with the first and second person bound pronouns being transparent reductions from free forms. Some of the third person prefixes, showing noun classes, have plainly developed out of generic nouns, and these have brought their nominal case suffixes with them – see §8.8, and (b) in §10.6.6.

In contrast, WMb1, Wagaya, has developed bound pronominal enclitics; we saw in (39) of §8.8 how these are cognate with the prefixes in Yanyuwa. Since none of Wagaya's immediate neighbours have bound pronouns, this is probably an internally motivated development in the language (rather than an innovation due to diffusion).

(An areal feature of the WMa and X subgroups concerns whether instrumental case has the same form as ergative or as locative; this is discussed under (1) in §13.4.)

(9) *The Tangkic subgroup, NA.* Australian languages typically show similarities to some or all of their neighbours – in typological character, or shared forms, or both. The four languages of subgroup NA (spoken on the Wellesley Islands in the Gulf of Carpentaria and the adjacent mainland) stand out as markedly different, not only from their immediate neighbours but – in certain characteristics – from the general run of Australian languages.

NAC, Minkin, is known only from slim nineteenth-century materials. It can be recognised as a Tangkic language, perhaps the most divergent member of the subgroup (Evans 1990). NAb1, Kayardild, and NAb2, Yukulta, share about 70 per cent general vocabulary (and close to 80 per cent verbs); however, they show markedly different grammars and are best treated as distinct – although closely related – languages, rather than as dialects of a single language. NAa, Lardil, exhibits greater differences.

Throughout his grammar of Kayardild, Evans (1995a) discusses the genetic integrity of the Tangkic languages and establishes the proto-forms for pronouns, nominal cases and some verbal affixes. He suggests that pNA had an ergative-type system, similar to that in modern Yukulta. In both Lardil and Kayardild the original transitive clause type

has dropped out of use; what may have been a subordinate clause construction – probably involving nominalisation – has been adopted as the canonical transitive construction; this has an accusative profile. The development of subordinate clauses to become main clauses has also led to multiple case marking and new verbal suffixes that relate to original nominal suffixes.

Evans' work on this subgroup is one of the most insightful pieces of work in the comparative study of Australian languages (on a par with Hale's work on subgroup B), and documents very carefully and clearly the historical development of Tangkic languages.

(10) *The Maningrida putative subgroup, NBf*. It is possible that these four languages may be proved to make up a genetic subgroup. The rather intricate paradigm of free pronouns is plainly cognate across the languages and a proto-paradigm can be reconstructed. NBf1, Burarra, and NBf2, Gurrgoni, have very similar forms through their grammars and are without doubt closely genetically related. However, there are a fair number of differences between NBf3, Nakkara, NBf4, Ndjebbana, and NBf1/2. For instance, the forms of bound pronouns vary, suggesting that these may have developed independently. NBf1/2 have four noun classes, whereas NBf3 and NBf4 have just two (feminine and non-feminine). Lexical similarities are about 49 per cent for general vocabulary between NBf1 and NBf2 but a much higher score of 74 per cent is found for verbs. Other pairs of languages have only 13–16 per cent shared general vocabulary, but again the figure for verbs is significantly higher, 27–39 per cent.

The four languages share an unusual typological feature. They have a two-term tense system coding time as follows: 'now' is marked by the contemporary tense suffix, 'earlier today' by the precontemporary suffix; 'yesterday' by contemporary and 'before yesterday' by precontemporary. That is, the contemporary/precontemporary opposition operates twice, once within 'today' and once within 'before today'. However, the actual marking of the two tense terms differs between the languages; it is shown through a combination of tense suffixes and realis/irrealis forms of pronominal prefixes in NBf3/4, but just by verbal suffixes in NBf1/2 (although in a different manner in each of these). R. Green (1989) suggests that most verbal suffixes are cognate between the two languages.

The system of contemporary/precontemporary tense marking may well have diffused across the four languages. Indeed, the system has diffused further to the east, into Yc, the contiguous branch of the Yolngu subgroup. (Waters 1989: 166–94 identifies 'present' as homophonous with 'yesterday past', and 'today past' as homophonous with 'remote past'.)

Detailed work is required on the reconstruction of a putative proto-language for NBf, to examine whether the idea that these four languages form a genetic subgroup can be sustained.

(11) *The Mindi subgroup, NC*. This is the second geographically discontinuous subgroup, with the two languages in NCa separated from the three in NCb by languages from groups WJa and NBI. There is fairly strong evidence suggesting a close genetic connection between the five languages. The paradigms of free pronouns are clearly cognate, the most distinctive form being 1du.inc *mindi*, after which the subgroup is named. Bound pronominal prefixes have plainly developed from free forms rather recently (with phonological changes inducing different types of neutralisation in the individual languages); this is discussed in §8.5 above and illustrated there by (26–8).

Gender prefixes to nouns (fused with tense) are found in the three eastern languages, NCb and NCa2, Nungali, but have apparently been lost from NCa1, Djamindjung/Ngaliwuru – probably under diffusional influence from the WJb languages to the south, which lack noun classes. The cognate forms of noun class markers in NC languages were discussed under (d) in §10.6.6 – see the discussion of example (42) there. Nordlinger (1998: 258–64) has a full discussion.

The major ergative allomorph is *-ni* across the subgroup, an unusual form within the Australian linguistic area (possible cognates occur only in NE, the Fitzroy River subgroup, in NHd2, Ngan.gi-tjemerri, and in NHe; the Eastern Daly subgroup). However, other nominal affixes, and also verbal affixes, differ between languages, as do demonstratives.

Detailed reconstruction of pNC, and the systematic changes through which modern languages developed, will be a satisfying task. The genetic branches within the subgroup should also be examined (it must not be assumed that they necessarily correspond to the two geographical regions).

(12) *The Kitja/Miriwung subgroup, ND*. There is little doubt that these languages are closely genetically connected. Free pronouns and bound pronominal prefixes to the verb (fused with tense or imperative) are plainly cognate, as are some demonstratives and the comitative suffix on nouns. In addition to pronominal prefixes marking S, A and O functions, the verb accepts pronominal enclitics for peripheral function; the indirect object clitics are also cognate. Each language has a small number of simple verbs, with suppletive forms for past, present and future tense; there are a fair number of cognates between these suppletive sets across the two languages. Differences include most nominal suffixes, interrogatives and gender suffixes to nominals.

The ND languages have perhaps the most highly fusional character in Australia. Many phonological changes and truncations have applied – some probably at the pND stage but others separately in the individual languages. This will make the reconstruction of pND a daunting – and also a most rewarding – project.

(13) *The Fitzroy River subgroup, NE*. This is clearly a genetic subgroup. There are about eight dialects, which could conceivably be taken to be a dialect chain within one

language. I prefer here to recognise two languages – NE1, whose dialects include Njigina, Warrwa and Yawuru; and NE2, whose dialects include Baardi and Njul-Njul.

The great majority of grammatical forms are cognate across the two languages: free form cardinal and dative pronouns, subject pronominal prefixes to the verb, tense/aspect prefixes to the verb, reflexive marking – by a combination of prefix *mi(a)-* and suffix *-(i)njdj(i)* – nominal case suffixes and interrogatives. Non-subject arguments are coded by bound pronominal enclitics to the verb; the indirect object clitics have similar form across the subgroup (being related to the free form dative pronouns) whereas the object clitics show more differences between the two languages. Demonstratives and tense suffixes to verbs also differ, between languages and between dialects.

It is likely that pNE had bound subject pronominal prefixes, which are in some cases different from the free form subject pronouns; for example, 2min has subject prefix *mi-* but free form *djuyu*. And it is likely that pronominal enclitics for object and indirect object developed recently, separately in each language (this development was probably motivated by the enclitic pronouns in groups WI and WJ, to the south).

A special feature of the two languages in subgroup NE is the occurrence of nominal suffix *-ni(m)*. This appears on superficial examination to be an ergative form (marking transitive subject), but – as mentioned in §5.1.1 – on deeper examination it appears to have a semantic rather than a syntactic role. It marks a controlling agent, with a transitive or, occasionally, with an intransitive verb. (Stokes 1982: 125–50 has a full discussion of this form in NE1, Njigina; she uses the label ‘active suffix’.)

There is need for a full reconstruction of pNE, with statement of the various assimilations and truncations which have taken place in the development of the modern languages and dialects.

(14) *The South Kimberley subgroup, NF*. The two languages in this subgroup – NF1, Bunuba, and NF2, Guniyandi – have very similar grammatical organisation and forms. They have undergone considerable fusion (somewhat different in each language) making it difficult at times to establish morpheme boundaries.

Virtually every grammatical element is cognate between the two languages – nominal case enclitics; free pronouns; demonstratives; interrogatives; and tense and pronominal prefixes, reflexive suffixes and pronominal enclitics, all to verbs. There are about a dozen inflecting verbs, most of which appear to be cognate between the languages.

The main difficulty to a full reconstruction of pNF will be the difficulty in unravelling the types of fusion which have taken place.

(15) *The North-west Arnhem Land putative subgroup, NK*. NKa1, Mawung, and NKa2, Iwaydja (with dialects Ilgar and Garik), show cognates in tense and pronominal prefixes to the verb, and tense–aspect suffixes, as well as free pronouns. There is clearly a close

genetic link between them. However NKb, Amurdag, and NKc, Marrgu (the information on this language is slight), show fewer cognates and a close genetic link here is speculative. For a further language of this region – NKd, the Popham Bay language – there are only a few old word lists; it is here impossible to make even a preliminary genetic judgement.

These languages certainly constitute a typological group, and show interesting formal similarities, but also considerable differences. Consider the basic elements of verb structure and their occurrence in the three languages for which we have fair data:

		NKa1	NKa2	NKb
1	Prefixes Directional: <i>yu-</i> ‘towards’, <i>dj-</i> ‘away’	—	√	√
2	Tense: present <i>-g-</i> Pronominal, relating to	√	—	—
3	S and A arguments	√	√	√
4	O argument	√	√	—
5	Tense: future/non-past <i>-ba(na)-</i> , <i>-ma(na)-</i>	√	√	√
6	Suffixes Tense/aspect	√	√	—
7	Enclitics Pronominal, relating to O	—	—	√

It will be seen that slots 3 and 5 are filled for all languages. The S/A pronominal prefixes do show some similarity between NKa and NKb. However, these are the only forms which could obviously be used in reconstruction of a putative pNK.

Mawung shows five noun classes, marked on NP constituents and on verbs. Iwaydja shows just two classes (masculine and feminine), marked at different places in the grammar in different dialects. Amurdag appears to make no noun class distinctions.

Evans (2000a) presents a fine survey of significant features of NK languages. It is certainly possible (as Evans implies) that pNK combined the characteristics found in individual languages – five noun classes, directional and tense prefixes to the verb, tense–aspect suffixes, and so on. However, this would make pNK considerably more complex than any of the modern languages.

Working out the history of the NK languages will be a considerable challenge, whether they are shown to be a genetic subgroup (which is possible, but will require detailed justification) or a small areal group of languages which have influenced each other in profound ways.

13.2 Small linguistic areas

Within the Australian linguistic area (which covers the entire continent, leaving aside Tasmania) we can recognise a number of small linguistic areas. The languages in a small linguistic area have much greater similarities to other languages in the area than to anything

outside the area. But these similarities are largely typological; there are insufficient cognate forms to justify suggesting that the languages make up a genetic subgroup.

As a sample of the small linguistic areas that can be recognised we now briefly consider four – U, WL, NG and NH – before discussing W, Kalkatungu.

(1) *The Lower Murray small linguistic area, U.* This area comprises five languages, each spoken on both sides of the Murray River as far up as Robinvale. From the river mouth up they are: U1, Yarlalde (with further dialect Tangane), U2, Ngayawang, U3, Yuyu (or Ngarrket), U4, Keramin (or Kureinji), and U5, Yitha-Yitha (with further dialect Dardi-Dardi).

With their neighbours from groups WB, V, N and T, there are no grammatical similarities (beyond those found across large areas of the continent) and very low lexical similarities – scores of between 4 per cent and 15 per cent.

A number of features characterise the area. Unusually for Australia, a fair number of words begin with *l* or *rr*, although there are not too many *l*-initial and *rr*-initial cognates across all languages (the only obvious one is *lew*- ‘sit’). Many roots are monosyllabic and a high proportion end in a consonant or in a consonant cluster. There is a first person singular pronoun *ɲab*- and second person plural *ɲun*-, but other pronouns (as far as attested) seem different between languages. From the limited data available there seem to be no significant similarities in nominal cases or in tense endings on verbs (except for the vague *-Vn* for past in U1, U2 and U5). It is possible that there was a close genetic link between U4 and U5, but most unlikely that all five languages could be shown to constitute a genetic subgroup; that is, a proto-language could not be reconstructed over group U.

The shared vocabulary (on a standard ninety-word list) between four of the languages is:

U2, Ngayawang			
48%	U3, Yuyu		
36%	46%	U4, Keramin	
27%	33%	61%	U5, Yitha-Yitha

This is what would be expected for an equilibrium situation, after a linguistic area has been in existence for a considerable period of time – contiguous languages share about 40–60 per cent vocabulary.

However, the shared vocabulary between U1, Yarlalde, and U2 is only 20 per cent. With the other languages U1 scores as follows: 15 per cent with U3, 23 per cent with U4; and it has its highest score of all, 27 per cent, with U5.

Now speakers of U1, Yarlalde, have a legend that their ancestral hero Ngurunderi, with his wives and followers, travelled down the Murray River ‘from afar’ until he reached its mouth, which was already occupied by Aboriginal people (Meyer 1846; Taplin 1879: 38–9, 51–2; Berndt 1940). This accords well with the linguistic data. It

is plausible that speakers of U1 originally lived in an area upstream, just beyond U5, and then moved downstream, crossing over the territories of U5, U4, U3 and U2, until they reached the mouth of the Murray. (The question of why the U1 people should have moved is discussed at the end of §13.3.)

One significant feature of group U is the general lack of bound pronouns, although every surrounding group has them – see map 8.1. As mentioned in chapter 8, there can be diffusional pressure to innovate bound pronouns, so as to be like neighbouring languages, or to lose them, for the same reason. In fact there are bound pronouns in U1, but these are transparently derived from free forms and must be a very recent innovation, undoubtedly due to diffusional pressure from its southerly neighbour Tb1, Bungandik (with which it does have a relatively high lexical score of around 15 per cent, indicating some recent contact).

We find diffusion of the opposite sort at the upper end of U territory. Of the dozen or so dialects of Ta1, Wemba-Wemba, all have bound pronominal enclitics to verbs – which appear from their forms to be of considerable antiquity – except for Madhi-Madhi, which is spoken next to U5, Yitha-Yitha. As mentioned in §8.4.1, it is likely that Madhi-Madhi lost its bound pronouns under diffusional pressure from Yitha-Yitha, which lacks them. (Note that Madhi-Madhi has only lost bound pronouns for clausal functions; it retains possessive bound pronouns on nouns.)

That is, the available evidence (which is certainly not as full as one would wish) suggests that these five languages have constituted a small linguistic area on the Murray River for a considerable period of time. It is likely that languages of groups V, N and T have moved into contiguity with U fairly recently, from the north, east and south respectively. Group WB, to the west, is separated from U by a mountain range which probably served as at least a partial barrier to communication (and note that the circumcision boundary also runs along this range). Within this area there has been diffusion of phonological patterns, of some lexemes, and of a few grammatical forms. And U1 may well have originally been the furthest group upriver, then moving over U5, U4, U3 and U2 to the mouth of the Murray.

Anthropological data suggest that these five languages make up a small culture area, probably of fair antiquity. As shown in map 1.4, there are no named moieties, or sections in the U area, although all surrounding languages have one system or the other. And, as shown in map 1.2, the curved boomerang as a hunting and fighting weapon was missing from area U (and also from the adjacent Kurna dialect of WBa) although it is reported for all other neighbouring groups.

(II) *The Arandic small linguistic area, WL.* I recognise two languages in the WL group (which is located in the middle of the continent): WL2, Kaytetj, spoken over a small territory in the northern part, and WL1, Arrernte (or Aranda), spoken over a large

territory in the central and southern parts of the region. WL1 has at least nine dialects; some scholars would recognise more than one language within my WL1 (Hale 1962 has two and Wilkins 1989 has five distinct language units within WL1, operating partly on sociopolitical criteria).

Arrernte and Kaytej share about 44 per cent vocabulary. With the languages that border the WL group they score between 2 per cent and 22 per cent. There is a certain amount of grammatical similarity between Arrernte and Kaytej, mainly in the form of pronouns and some nominal suffixes, but the majority of grammatical forms differ between the two languages. That is, there are simply not enough grammatical cognates to form the basis for reconstructing any substantial portion of a putative pWL. Rather, the two languages appear to constitute a small linguistic area, with a number of similarities that are due to diffusion between them.

The most striking characteristic of these two languages is the fact that they have undergone extensive phonological changes: pre-stopping nasals, simplifying nasal-stop clusters, palatalising apical consonants, neutralising stressed vowels (to ə), shifting stress, losing word-initial segments, and so on. These changes were mentioned in §12.4.6, §12.8.2 – see (53) there – and §12.9.1. (A full statement is in Koch 1997, who appears to assume that this is a genetic subgroup – a branch of ‘Pama-Nyungan’ – although without providing articulated justification for this.)

For example, the word for ‘snake’ has undergone the following changes in Kaytej and in adjoining dialects of Arrernte:

*wáma > wá^pma > wá^pmə > wú^pmə > ú^pmə > u^pmə > a^pm^wə

It is likely that these changes originated in one dialect within WL and then diffused over this whole area. Note that there are additional changes that have only applied in some of the dialects of Arrernte, and not in Kaytej or in the dialects of Arrernte that adjoin it.

The sweeping phonological changes that have applied to WL1 and WL2 (together with their *c.* 44 per cent shared vocabulary) have suggested to some scholars that they make up a genetic subgroup. But, as already mentioned, at least half the grammatical forms are rather different. Verbs, for instance, have quite different inflectional categories in the two languages. In the few instances where the meanings do coincide the suffixal forms are mostly different. For instance:

	WL1, Arrernte	WL2, Kaytej
positive imperative	ø	-ən
purposive	-ətjək	-əwəθ

Note also that Arrernte marks reflexive and reciprocal by suffixes to the verb, which derive an intransitive stem, while Kaytej has a series of reflexive/reciprocal pronouns. (Arrernte is like languages to the south and east while Kaytej is like languages to the north

and west.) Both languages have a switch-reference system, but the forms used to mark 'same subject' and 'different subject' between main and subordinate clauses differ.

Demonstrative and interrogative forms are mostly different, and so are some of the most central nominal suffixes; for instance:

	WL1, Arrernte	WL2, Kaytetj
ergative	-əl	-əŋ on most disyllabic forms, otherwise -əl
genitive	-əkənh	-arəŋ

Each language has a set of derivational affixes to the verb that mark 'associated motion'; that is, whether an activity is performed 'coming', 'going', 'downwards', 'upwards', etc. There are some formal similarities between these suffixal forms in the two languages but these probably result from the same lexical verbs being independently grammaticalised (e.g. *alp-* 'return'). In fact, having 'associated motion' verb suffixes applies over a wider area which extends into groups W, WA, WB, WD, WJ, WK, WMb and NCb, as well as WL; see §6.4.1.

Unlike their neighbours to the west (WD and WJ), the WL languages do not have bound pronouns marking clausal arguments. They do, however, have affixes to kinship terms marking a possessor. We can repeat the sg forms, from (53) from §8.9:

possessor	WL1, Arrernte	WL2, Kaytetj
1sg ('my')	-atj ~ -əy	-əy ~ ø
2sg ('your')	-aŋk ^w	ŋk-
3sg ('his/her')	-ik ^w	k ^w -

Note that these are all suffixes in Arrernte but that two of the possessive markers are prefixes in Kaytetj. The development of possessive affixes to kin terms is clearly an areal feature of WL, but it has been realised in different ways in the two languages.

In summary, it would not be possible to reconstruct a substantial part of a grammatical system for a putative pWL; the two languages cannot be shown to constitute a low-level subgroup. What is clear is that WL1 and WL2 have been in contact for a considerable period, as a small linguistic area. They have borrowed lexemes back and forth (both before and after the phonological changes applied). Far-reaching phonological changes have applied just to the languages in the WL area; and so have some structural developments, such as the development of bound possessive pronouns to kin terms. (A number of surrounding languages have undergone some minor phonological changes, such as dropping an initial consonant from some words – see §12.4.6.)

(III) *The North Kimberley small linguistic area, NG.* It is probably appropriate to recognise three languages in this area, although each has several dialects and there is considerable variation between dialects within the languages.

Lexical similarities between NG1, Worrorra, NG2, Ungarinjin, and NG3, Wunambal, are in the 40–60 per cent bracket. Lexical similarities with neighbouring languages range from less than 10 per cent with ND, to the east, to 24 per cent with NF1, Bunuba, to the south.

These three languages show a number of typological characteristics which define them as a small areal group. Each has inclusive/exclusive marking on pronouns and a four-term number system – singular, dual, plural and also paucal ('a countable number greater than two'). They have pronominal prefixes to the verb marking O and S/A (in that order) and suffixes indicating indirect object. Each language has a tense–modality prefixal element, which follows pronominal prefixes, and a system of directional suffixes which follows TAM on the verb. There is a set of bound nouns (covering body parts and a few related concepts) which obligatorily take a possessive pronominal prefix. In contrast, kin terms take possessive pronominal suffixes (with there being irregular possessed forms for some of the most common kin terms).

Each language has a set of four or five noun classes, marked by prefixes. Languages of subgroup ND, to the east, have two or three noun classes, which are marked by suffixes, while subgroups NE and NF, to the south, lack any system of noun classes. However, the semantics of noun classes varies between NG languages. Worrorra and Ungarinjin have masculine and feminine and two neuter classes (plus a fifth prefix which marks human plural, covering masculine and feminine), while Wunambal makes no gender distinction, having one class for all humans (and a separate prefix for human pl), one for non-human animates, plus three classes referring to types of inanimates. In §10.6.2, we saw how the three languages vary with respect to how noun class is marked on the noun itself.

There are some grammatical forms which are cognate across the languages; these include genitive, instrumental and comitative suffixes to nouns (but not locative, allative or ablative), first person non-singular inclusive and first person non-singular exclusive pronominal forms, the continuative suffix on verbs (*-njirri-* ~ *-yirri*), and markers for two of the noun classes (*m-/b-* and *w-/g-*). However, most grammatical forms differ between languages. For example, although they each have dual and paucal suffixes, which are added to nominals or to the non-singular forms of pronouns (the non-singular form used alone indicating plural), the actual forms are quite different between languages – see (2) in §7.2.

The forms of interrogatives differ and also their morphology. 'Who' and 'what' take prefixes for noun class in Wunambal and suffixes for noun class in Worrorra, but take no noun class marking at all in Ungarinjin. Second person pronouns, for example, have varying forms. The second person singular free pronoun is *ɲundju* in Worrorra, *njaŋan* in Ungarinjin and *naa* in Wunambal.

There are some formal similarities between pairs of languages. For example, the first person singular free pronoun is *ɲayu* in Worrorra and *ɲaya* in Wunambal, but *ɲin* in Ungarinjin. The second person plural bound pronominal prefix (marking S function) is *girr-* or *gurr-* in Wunambal and *gurr-* in Ungarinjin, but *njirr-* in Worrorra (it is related to the free pronoun in Worrorra but not in the other two languages).

Each of the languages has a small number of inflecting verbs which occur in compounds with coverbs. Only a handful of these are cognate across the area (including the pan-Australian form *-bu-* 'hit'), with the majority appearing to be language-specific.

It is likely that these languages have been in their present location – a rugged mountainous terrain – for a considerable period. It is not impossible that they do constitute a genetic subgroup at considerable time-depth. However, the evidence is greatly in favour of the alternative scenario – that they are simply three languages which have been in contact for a long time, so that they have grown similar in their typological profile and have borrowed between each other a fair number of lexemes, together with just a few grammatical forms.

(IV) *The Daly River small linguistic area, NH.* These languages were said to comprise four distinct 'phylic families' in the original lexicostatistic classification (O'Grady, Voegelin and Voegelin 1966: 33–4). Tryon (1968, 1974) then combined all of them (excepting NHd1, Murrinh-patha) into a single 'phylic family', applying the lexicostatistic criterion of 16 per cent or more 'cognate density'. Recent work by Ian Green (thus far unpublished) has shown that, applying the standard methodology of comparative linguistics, it is not possible to prove that all of these languages are closely genetically related. This small linguistic area consists of five smaller groups (shown on map 13.1).

(a) NHa is, arguably, a single language with two dialects: Patjtjamalh (or Wadjiginj) and Pungu-Pungu (or Kandjerramalh). These share about 80 per cent vocabulary and have very similar grammatical forms with one exception. In Patjtjamalh, most transitive verbs bear a portmanteau pronominal prefix marking A and O – as in (6) from chapter 8 – while intransitive verbs have a prefix marking S; all verbs can take a pronominal enclitic marking indirect object. However, in Pungu-Pungu, all verbs take a prefix which marks S (if intransitive) or A (if transitive); this is cognate with the S prefix in Patjtjamalh. Transitive verbs mark O by a pronominal enclitic to the verb, which is cognate with the indirect object enclitic in Patjtjamalh.

Tryon (1980: 277) reports that this difference leads 'to what may be termed unidirectional bilingualism, if one may use the term "bilingualism" when speaking of dialects, for speakers of Wadyiginy have no problem in speaking Pungupungu, while Pungupungu speakers have great difficulty with Wadyiginy because of the central nature of the morphological differences to communication'. That is, there is full intelligibility between dialects in only one direction.

(b) NHb consists of three languages with considerable cognation of grammatical forms such that they can be shown to make up one genetic subgroup. They are: NHb1, Emmi/Merranunggu (the two dialects show fair differences); NHb2, Marrithiyel (with a number of dialects, rather closer to each other than those of NHb1); and NHb3, Marri Ngarr.

(c) NHc consists of a single language, Malak-Malak.

(d) NHd1, Murrinh-patha, and NHd2, Ngan.gi-tjemerri (each with a number of dialects) are not quite contiguous, being separated by NHb3, Marri Ngarr. They share no more than about 8 per cent vocabulary, and differ in the forms of most free pronouns and nominal and verbal affixes. However, Green (ms.) has shown a close correspondence between the paradigms of inflecting simple verbs (often called auxiliaries) between the languages. Each of these has portmanteau form, fusing together subject pronoun, root, and tense-aspect marking. However, there are few other similarities of grammatical forms – perhaps just the second person singular free pronoun and demonstrative ‘this’, which are *nhinhi* and *kanhi* respectively in Murrinh-patha (a language with a laminal contrast) and *njinji* and *kinji* in Ngan.gi-tjemerri (where there is a single laminal series).

This situation poses a challenge to theories of genetic relationship, and also of areal linguistics and mechanisms of borrowing. It is not yet understood how two languages could have cognate paradigms for fused verbal forms and differ in almost everything else.

(e) NHe is a low-level subgroup consisting of two languages: NHe1, Matngele, and NHe2, Kamu, with similar grammatical forms and 50 per cent or more lexical cognates.

The criterial feature of languages in NHb–e is that each has a pronominal prefix just for S and A functions. They are unlike most other languages in the prefixing area in not marking O through a pronominal prefix. There is a pronominal enclitic to the verb which marks either indirect object or O; see, for instance, example (7) in chapter 8.

As mentioned above, the Pungu-Pungu dialect of NHa conforms to this profile, whereas the Patjtjamalh dialect of this language has fused A-and-O prefixes. It is likely that pNHa had the system of present-day Patjtjamalh, and that Pungu-Pungu changed its grammar to become more like its southerly neighbours in NHb–e. It would have generalised the S prefix also to apply to A in a transitive clause, with the erstwhile indirect object pronominal enclitic to the verb now being used to mark O.

Interestingly, the profile of pronominal-prefix-for-A-and-enclitic-for-O appears to be diffusing into NBi, Gungarakanj, to the north-east. In this language a transitive verb has two construction types available: it can either take a portmanteau A-and-O prefix, or it can take an S prefix (here marking A) and an object pronominal enclitic. (For combination of third person A and second person O, only the second option is

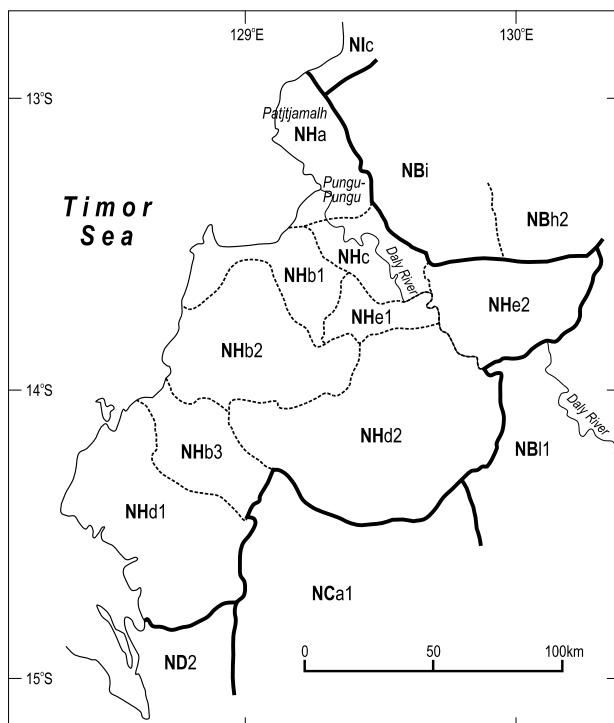
available.) It is likely that Pungu-Pungu went through an intermediate stage like this; that is, it would originally have had just a fused A-and-O prefix available for transitive verbs, then a choice (as in Gungarakanj today), finally abandoning the fused prefix and using all verbs in an A-prefix-and-O-enclitic construction. What is needed is study of how transitive verbs came to be used in what was an intransitive construction type. It may have been some kind of antipassive-like derivation, which had a specific meaning and/or discourse function.

To the south-west of NHb-e we find ND2, Miriwung, where there are three basic construction types. Intransitive verbs are used in an intransitive clause type, with S pronominal prefix to the verb. Transitive verbs can either be used in a transitive clause type, with fused A-and-O prefix to the verb, or in a 'reduced transitive' clause type, where the verb takes a prefix which just marks A (with the O argument being optionally marked by an indirect object enclitic). The notable point here is that the paradigm for A prefixes in a 'reduced transitive' clause is rather different from the paradigm of S prefixes in an intransitive clause. The grammar of Miriwung thus shows similarities to (and also differences from) that of NHb-e, and of Pungu-Pungu and of Gungarakanj.

Most or all of the languages in group NH share a number of characteristics which could be taken as defining them as a small linguistic area. However, none of the characteristics is confined to NH languages, with each being found in some of the surrounding languages. The neighbouring languages are (from north, swinging round through east to south): N1c, Larrakiya, N1i, Gungarakanj, N1h2, Warray, N1i1, Wagiman, N1a1, Djamindjung/Ngaliwuru, and ND2, Miriwung. They are shown in map 13.1.

Surveying some of the special features of NH we find (note that, for each of these, it is just categories which languages share, the forms expressing them generally being different):

- (1) As stated above, the A-prefix-and-O-enclitic pattern for all transitive verbs is found in all NH languages except for the Patjtjamalh dialect of N1a (and note that Patjtjamalh does have a handful of irregular verbs which take such a pattern, see Ford 1990: 186–90). It is also found in Gungarakanj and (in modified form) in Miriwung.
- (2) All NH languages have a postverbal clitic indicating direction (e.g. 'to here', 'away from here'). A directional suffix is found in, at least, Larrakiya and Wagiman – see table 9.1 in §9.2.2.
- (3) All NH languages form the causative of an intransitive verb by simply substituting a transitive for an intransitive simple verb within a compound verb (see Reid 2000). This is also found in, at least, Miriwung and



Map 13.1 Daly River group, NH, and neighbours

Wagiman of the neighbouring languages (the relevant information is not available for all of them). And, as illustrated in (25) from §6.4.2, the same technique is used in WJa3, Gurindji, spoken to the south of Djamindjung/Ngaliwuru.

- (4) All NH languages can have one of a small set of stance and motion verbs added to another verb in a serial-type construction, where they specify the physical orientation of the subject and/or add aspectual information. For example, 'sit' can specify an activity or state as continuing, 'lie' can specify it as permanent (Ford 1998: 329). This is also found at least in Miriwung (data are incomplete on some of the neighbouring languages).
- (5) All NH languages excepting NHc, Malak-Malak, can incorporate body part nominals into the verb. So can Warray. (See §9.3.)
- (6) All NH languages, again excepting Malak-Malak, have a verbal suffix which marks the number of the subject. This is also found in Wagiman, Djamindjung and Miriwung.

- (7) Both coverb and simple verb have a transitivity value in all NH groups except for NHa, Patjtjamalh; and also in Wagiman and Djamindjung.
- (8) There is a four-term number system (sg, du, pl, plus paucal or trial) on pronouns in NHa, NHb and NHd, but not in NHc or NHe (or in any neighbouring language).
- (9) As described at the beginning of chapter 9, all the languages in areal group NH show considerable fusion. So also do NIc, NBI, NBh2 and ND2, while NBI1 has limited fusion and NBc1 is pretty well fully agglutinative.

Various phonological isoglosses cut across the NH area. There is a laminal contrast just in the NHb subgroup and in NHd1, Murrinh-patha (and also in Miriwung) – see map 12.1. There is lack of an apical contrast just in NHc, Malak-Malak, and NHd2, Ngan.gi-tjemmerri (it is also lacking from Wagiman) – see map 12.2. There is a contrast between two series of stops in NHb, NHd and NHe, but not in NHa or NHc; this contrast also occurs in Gungarakanj, Warray and Wagiman – see map 12.5. All of the NH languages with a stop contrast (excepting NHe2, Kamu) show it in initial as well as in medial position, something which no surrounding language does (but note that this only applies to six of the nine languages in NH) – see table 12.6 in §12.5.2.

There are a number of similarities of form between pairs of languages within the NH group, but these scarcely cluster. For example, the ergative case suffix is *-niggi* in NHd2, Ngan.gi-tjemmerri, and *-ni* in the NHe subgroup. The locative suffix is *-yene* in NHb2, Marrithiyel, and *-yende* in NHe. There are a number of typological similarities linking NHb and NHd; for example, the coverb generally follows the simple verb. Ian Green (ms.) has suggested firstly that NHd1 and NHd2 make up a genetic subgroup, and secondly that this subgroup can be shown to be genetically related to NHb. However, at first glance the evidence does not appear strong. Green states ‘the only striking bound subject form common to [NHb and NHd] is first person inclusive /*ngVmbV/. To my knowledge this is only found elsewhere in Australia in [NHe].’ However, under (e) in §7.3.1, we noted *ɲambula* as first person plural inclusive in groups B, C and E, and *ɲambala* as first person plural inclusive in subgroups X and WM. A genetic connection between the NHd languages, and between these and NHb, needs to be proved by reconstruction of several aspects of the grammar of the proposed proto-language, and by statement of the regular changes by which the modern languages developed.

It has also been suggested (by Tryon 1974) that there is a genetic link between NHc and NHe. However, the similarities between these groups are most likely to be due to diffusion.

In summary, NH cannot really be shown to be a self-contained small linguistic area in the way that U, WL and NG can be. Rather it has a typological profile centred on

a number of features that are found in all or almost all NH languages with each feature also being found in some neighbouring language(s), but with different neighbouring languages being involved for different features. It could be described as a small linguistic area with ragged edges.

(Interestingly, named moieties, sections and subsections are generally missing from the NH area; see map 1.4 in §1.5. There are named subsections in NHd, but these are believed to have been adopted by borrowing in the very recent past.)

It is likely that the languages in groups U, WL, NG and NH have been in their present locations for a considerable period of time, for small linguistic areas to become established. §13.3 will contrast this with some of the low-level subgroups, which appear to have expanded and split in quite recent times.

W1, Kalkatungu, is an intriguing language. Its strongest similarity is with its southerly neighbour, W1, Yalarnnga (on which the data available are rather slender). The two languages share about 43 per cent general vocabulary, but only about 10 per cent of their verbs are cognate and few grammatical forms are similar. However, each is more similar to the other than to any neighbour: lexical scores with neighbours vary between 2 per cent and 20 per cent with both grammatical categories and grammatical forms showing no significant similarities. It is clear that Kalkatungu and Yalarnnga do not make up a low-level genetic group. They appear to constitute something resembling a small linguistic area, but one much less integrated than those surveyed above. It is likely that Kalkatungu and Yalarnnga have been in their present locations, and in contact with each other, for a fair time.

There are a number of reasons for suggesting this. One is that Kalkatungu has bound pronouns, which are present in none of the neighbouring languages (save in Yalarnnga, where there is just a trace). There are in fact three paradigms of bound pronouns, which are today used only in types of subordinate clause (two sets) and for anaphora (one set). By their form (some of them comprising just a syllable-closing consonant, see (43) in §8.8), the bound pronouns appear to be an ancient feature of the language. It is rather likely that there was at some time in the past a larger block of languages, including Kalkatungu and Yalarnnga, which had bound pronouns. Then, through language movement (and perhaps also some language death), and through category realignment, Kalkatungu came to be surrounded by languages lacking bound pronouns. It is likely that bound pronouns are gradually being lost – and have already been lost from the normal head-marking function in main clauses – under diffusional pressure from surrounding languages.

Another bit of evidence is the way in which other Aborigines regarded the Kalkatungu. W. Turnbull, a perceptive White settler who lived to the north of Kalkatungu country, wrote (1903: 10): ‘Now “Kalkadoon” is used as a term of reproach among

the blacks, or rather I should say a term of contempt. A white man will call a “low” white a blackfellow, while the blacks call a low black a “Kalkadoon”. Typically, the original inhabitants of a region are looked down upon by later arrivals. Note also that Kalkatungu territory is mountainous and relatively inhospitable, on the watershed between rivers that flow north to the Gulf of Carpentaria and those that flow south to the inland lakes of South Australia. All this is consistent with the hypothesis that the Kalkatungu have been in their present region for a considerable time; indeed, they may originally have occupied a larger territory and then been pushed up into the mountains by other Aboriginal groups when they came into the region (compare with Basque, which used to be spread over a good deal of northern Spain but is now confined to the vicinity of the Pyrenees). There is further discussion in §8.8 and under (g) in §11.4.

All of the discussion in this chapter should be regarded as tentative. Some low-level genetic subgroups are clearly recognisable, although all of them need to be proved by reconstruction of the proto-language (this has been done in only a few cases). For the small linguistic areas mentioned here (and others besides) a full study is required, to justify their status. As will be seen from the discussion above, there remain – in our present state of knowledge – many points of doubt. NK was listed as a possible genetic subgroup but further work may well reveal that it is more appropriately treated as a small linguistic area. Similar remarks apply, in the opposite direction, for NG and for WL.

In one of the classic papers of comparative Australian linguistics, O’Grady (1966) suggested that the Ngayarta languages (my group WHc) constitute a genetic subgroup. On the basis of over twenty years’ intensive work on these languages, Dench (2001) has studied shared innovations and concludes that none of them ‘can be considered, conclusively, to be innovations arising in a single ancestor. For each change which appears to allow a single reconstruction, we find a pattern in a neighbouring language which parallels that change and which, since it involves distinct forms, must have arisen independently. This raises the suspicion that our set of languages sharing both form and pattern might have as easily arrived at this similarity through contact rather than through shared inheritance.’ That is, WHc could just as well be considered a small linguistic area as a low-level genetic subgroup.

13.3 **Origin places and directions of expansion**

It is likely that the languages of Australia have made up a large linguistic area for some tens of thousands of years. This will never have been a static situation. Over time, languages will shift their positions – in absolute terms and also in relation to each other. There will be some expansion and contraction, a degree of split and a modicum of obsolescence.

And, as mentioned in chapter 1, geographical conditions have not stayed the same. Since the first people arrived in Australia, about fifty thousand years ago, the coastline has gone through phases of contraction and expansion. Between about seventeen thousand years and about seven thousand years ago the coastline underwent a major contraction, with Torres Strait, Bass Strait and the Gulf of Carpentaria becoming submerged by the sea. In addition, water resources on the continent have varied. There would have been more water available thirty thousand years ago than at present, and significantly less than at present twenty thousand years ago (when Australia was drier, colder and windier than it is today). When water resources were low, large parts of Australia would have been uninhabitable, with populations confined to the major rivers and the coastal fringe. As water became more plentiful, people – with their languages – would have spread into previously uninhabited regions.

The fact that we can recognise about three dozen low-level genetic subgroups (more than half of them consisting of just two languages and the largest being subgroup B, with seventeen languages) suggests that there have been a number of minor punctuations within the longer-term equilibrium situation. There can be a variety of reasons for these. One is an increase in water resources with the availability of new territory and expansion into it. Another could simply be aggressive expansion, on a local scale – pushing other groups away (often, into less desirable, but still inhabitable, country).

It is possible to say a little about a few possible places of origin for the proto-languages of a number of low-level subgroups, and subsequent directions of expansion.

Note that these comments are always tentative and often speculative.

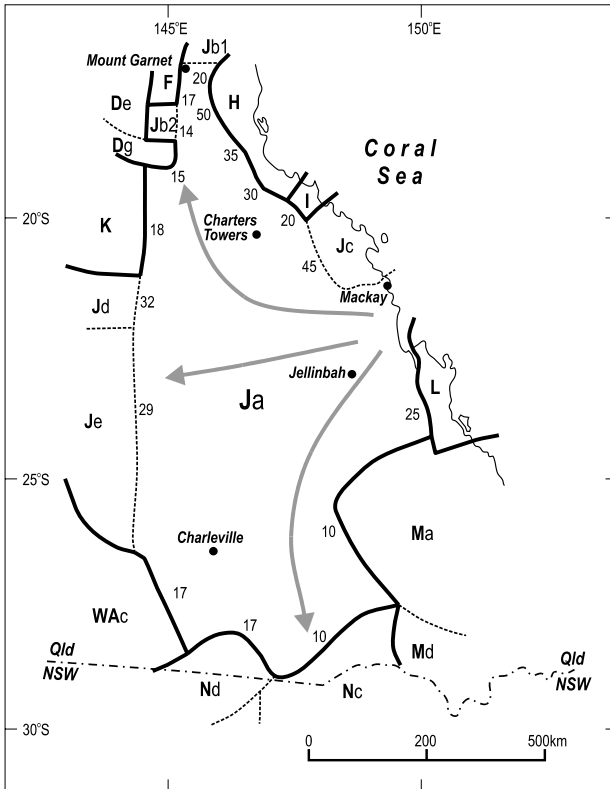
(a) *Subgroup B, North Cape York.* As mentioned in §4.3.3, the language of the western islands of the Torres Strait (A1) is basically of non-Australian type, but with some Australian substratum. The interesting point is that some of the pan-Australian forms found in the West Torres language do not occur in the adjacent languages of subgroup Ba (for instance, *baga-* ‘spear’, *ma-* ‘take, hold’, *gaan-* ‘who’). The most northerly member of Ba – which is Ba1, Gudang – does share about 13 per cent vocabulary with West Torres, pretty certainly the result of recent loans.

We can infer that pB was not spoken in the northern part of its present territory, next to West Torres. This subgroup must have originated further south and then expanded northwards, coming into contact with West Torres relatively recently.

(b) *Subgroup Ja, Maric proper.* This covers a very large area in central and south Queensland, from Mount Garnet in the north down to the New South Wales border. It is mostly inland, extending to the coast just once, around Mackay. Ja may possibly

be related to Jb (to the north), Jc (to the north-east) and Jd and Je (to the west); for most of these languages the information available is slight so that no firm conclusions concerning genetic connections are likely ever to be possible.

Languages of the Ja subgroup have boundaries with many other groups – see map 13.2. Going counter-clockwise from the coastal strip these are: Jc, I, H, Jb, F, Dg, K, Jd, Je, WAc, Nd, Nc, Ma and L. There are no significant grammatical similarities in any direction. Shared vocabulary is lowest (about 10 per cent) with Ma and Nc, to the south-east. It is also low (no more than 20 per cent) with Nd, WAc, K, Dg, F and Jb, to the west and north. With Jd and Je the score is about 30 per cent and with L it is about 25 per cent. The greatest lexical similarity, in the 45–50 per cent range, is with Jc, just north of the coastal strip, and with H1, in the far north-east of the area. These figures suggest that Ja has fairly recently come into contact with its neighbours to the south and most of those to the west and has had longest contact with Jc and H. The



Map 13.2 Subgroup Ja, with approximate lexical percentage scores with neighbours, and possible directions of expansion

most likely location for pJa is next to one of these groups. As a guess, I would opt for the proto-language having been spoken on the coastal strip, with speakers of Ja increasing in number and expanding in all directions – first north, then west, and lastly south.

There is report of a legend which is consistent with this hypothesis. Cameron (1904) states ‘I am indebted to Mr E.P.H. Birt of Iellinbah [Jellinbah] station, on the Mackenzie River, Queensland, for some very valuable information regarding the Karingbool Tribe, which inhabits the country in that locality.’ This includes: ‘Beethanoola is a God or Prophet whom they consider all powerful, and who performs miracles, etc. He is said to have come from the sea many many years ago “when this country first been born” and to have brought a great following with him.’ The Karingbool spoke a dialect of Ja2, Biri; their territory is about 150 km to the south-west of where Ja1 touches the sea. Not all legends have an historical basis but many do; if this one did it would correlate with our tentative conclusions on linguistic grounds.

(See Dixon 1996 for discussion of origin legends from across the continent and how some of them do correspond to linguistic reconstructions of past movements.)

(c) *Subgroup NC, Mindi*. As mentioned in §13.1, the languages of this subgroup are now located in two geographically distinct regions, separated by NB12, Wardaman, WJa3, Gurindji, and WJa4, Mudbura. There are no significant grammatical or lexical similarities with any neighbours.

Chadwick (1984) points out that the present territories of the NC languages are relatively fertile, but between them is a semi-desert region. It is possible that speakers of pNC spent the wet season in this in-between region. There would have been insufficient water for them to remain there in the dry season and it is likely that they undertook seasonal migrations, some to the west (the present NCa location) and others to the east (the present NCb location). After a while, the two groups would have stayed year-round in these more fertile parts, abandoning the original dry-season territory, and thereby losing contact with each other. Then other languages moved into the vacant area – Wardaman expanding down from the north, and Gurindji and Mudbura coming up from the south.

(d) *WD, the Western Desert language*. This is best considered a single language comprising more than a dozen mutually intelligible dialects, spoken over more than 1,250,000 km² (about one-sixth of the area of Australia). A good deal of the territory is inhospitable and would have been uninhabitable during the period when water resources were scarce. The Western Desert language would originally have been spoken in just a part of its present territory, and extended into the remainder rather recently.

To the central east of WD is the Arandic group, WL. These languages occupy some of the best country in central Australia with relatively good water resources. In §13.2, I suggested that the WL languages have been in their present location for a fair period, in order to develop into a small linguistic area.

Birdsell (1993: 452–3) studied the human genetic clines in Aboriginal Australia and pointed out that there is a major discontinuity on the western border of the Arandic area; that is, along the WD/WL border. His results support the hypothesis that WD moved into contiguity with WL rather recently (they share about 20 per cent of vocabulary and have quite different grammatical categories and forms). There has been insufficient time for the diffusion of genetic or of many linguistic features.

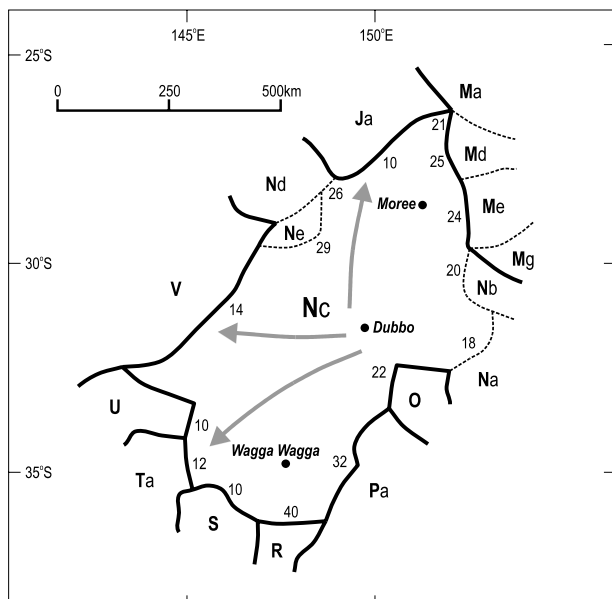
It is hard to proceed much further with placement of pWD. The strongest lexical (c. 50 per cent) and grammatical similarities are with languages at almost opposite extremes of the present-day territory – with WJb1, Warlpiri, in the north-east, and with WGa1, Watjarri, in the central west. One at least of these similarities must be due to intensive recent contact with diffusion of grammatical and lexical features. One may possibly be evidence of longer-term contact and – perhaps – of a close genetic connection.

(The inferences made above accord with the results of archaeological digs. Veth 2000 notes a human presence in the Western Desert region from before 24,000 BP, and then ‘evidence for decreased intensity of occupation during the Last Glacial Maximum . . . between approximately 22,000 and 13,000 years ago’. There was then relatively intense occupation of the region from about 5,000 BP.)

(*e*) *Nc, Central inland New South Wales subgroup.* This subgroup is similar to Ja in that it covers a large area (see map 13.3) with each language spanning a number of tribes that speak mutually intelligible dialects. This is indicative of recent expansion and spread. The Nc languages have lexical scores of 15 per cent or less with languages of subgroup Ja, to the north-east, and also with V, U, Ta and S, to the west and south-west. They score 18–40 per cent with languages of groups R, Pa, O, Na, Nb, Me, Md and Ma to the east, and with Nd and Ne, to the north-west. Grammatical similarities and differences correlate with these lexical scores.

This suggests that the Nc languages originated somewhere in the east of their present-day territory and then expanded, coming into contact with Ja, V, U, Ta and S relatively recently.

It is easier to put forward suggestions about relative positions of languages at an earlier period than about their absolute positions. However, I did suggest, under (b), that subgroup Ja may well have originated in the vicinity of Mackay, and at a later stage extended southwards. It seems likely that Nc originated a little to the inland of the southern part of the Great Dividing Range and then expanded east and north. On



Map 13.3 Subgroup Nc, with approximate lexical percentage scores with neighbours, and possible directions of expansion

this scenario, Ja and Nc came into contact quite recently – as a consequence of the expansion of each subgroup – around the Queensland/New South Wales border. Their shared vocabulary is no more than 10 per cent (and their grammars are dissimilar), indicating a quite short period of contact.

Under (1) in §13.2, we discussed the Lower Murray small linguistic area, U, and suggested that U1, Yarlalde, might originally have been the furthest language upstream, next to U5, Yitha-Yitha, and then – as a Yarlalde legend recounts – moved down to the river mouth. Why would the Yarlalde language community move? There could be many sorts of reason. One might be connected with the south-westerly expansion of Nc languages. The territory into which Nc expanded is fertile and would have had previous inhabitants; these could have been pushed out of their territory. This may help to explain the downriver migration of Yarlalde speakers.

In this chapter we have examined a number of likely low-level genetic subgroups, most of which still remain to be proved. It should be stressed, once again, that – while it is not impossible that some of the low-level subgroups may be relatable in slightly higher level subgroups – there is no likelihood at all that every language will be placeable on an all-enveloping family tree, going back to some putative ‘proto-Australian’. (The way

to really demonstrate this is to pursue as full as possible a reconstruction of the phonology, grammar and lexicon of each low-level proto-language, and then attempt to compare these, always employing the established methodology of comparative linguistics.)

13.4 Shifting isoglosses

Isoglosses are, of course, seldom static. The boundary of occurrence of a particular feature is likely to move, across new dialects and new languages. Or something akin to the opposite scenario may apply. When a language or dialect shifts its territory it may, as it were, cross an isogloss and adopt the relevant feature. That is, language A may be surrounded by languages which lack feature Z (as A does itself); A may then move location so that it is now surrounded (or nearly surrounded) by languages which do have Z. It will then be likely to incorporate Z into its own linguistic system, through diffusional pressure.

Examination of the discussion and maps through this volume shows that isoglosses for the major parameters of variation within the Australian linguistic area sometimes lie along the boundaries between genetic subgroups but other times cut through the middle of such a subgroup.

We can recapitulate a few of these:

- (1) In §5.4.3 we noted that in the great majority of languages instrumental case falls together with ergative, but in a limited number of languages it is homophonous with locative. Within subgroup X we find instrumental falling together with locative in X2, Garrwa, but with ergative in X1, Waanji. Within subgroup WM, ergative falls together with locative in WMa, Yanyuwa, and in WMb3, Warluwara, but with ergative in WMb1, Wagaya, and WMb2, Bularnu. (Interestingly, Waanji, Wagaya and Bularnu constitute one geographical block, in the middle of the combined WM/X area.)
- (2) As pointed out in §6.3, WJb3, Warlmanpa, has only about 43 simple verbs, whereas its close genetic relative WJb1, Warlpiri, has a much greater number, around 130.
- (3) In §7.6 we saw how some languages form reflexives and reciprocals by means of a detransitivising verbal derivational suffix while others instead employ reflexive/reciprocal pronouns. This isogloss runs through the middle of subgroups NC and ND.
- (4) In §8.8 we showed how the isogloss of 'having bound pronouns' runs through the middle of a single language in the cases of Ja1, Bidjara, Ja2, Biri, V, Baagandji, Ta1, Wemba-Wemba, and WD, the Western Desert language – see map 8.1.
- (5) In §10.6 we saw that the isogloss of 'having noun classes' runs through the middle of subgroups NCa and NK – see map 10.1.

- (6) In §12.2 it was seen that the isogloss of ‘having a laminal contrast’ runs through the middle of a language in the case of Ja2, Biri, WD, the Western Desert language, and NG1, Worrorra – see map 12.1.
- (7) In §12.3.1 we saw that the isogloss of ‘lacking an apical contrast’ runs through the middle of subgroups Ed, Ja and NBI – see map 12.2.

In §13.3, I suggested that the Maric proper subgroup, Ja, probably originated on the coast around Mackay and then spread north, west and south. There are a fair number of isoglosses which cut through Ja territory (dealing here just with Ja1–3, languages for which we have fair to good information):

- (a) The laminal isogloss – map 12.1. A laminal contrast appears to apply in all dialects of Ja1, Bidjara, and Ja2, Biri, and in the Gugu-Badhun dialect of Ja3, but is missing from Warungu, the northern dialect of Ja3.
- (b) The apical isogloss – map 12.2. An apical contrast is found in the western dialects of Ja1 but not in its eastern dialects, nor in Ja2 or Ja3.
- (c) Initial dropping – map 12.4. This is found just in two separate dialect areas in the southern part of Ja1. One of these is adjacent to Nd, Muruwarri, which also has limited initial dropping.
- (d) Stop contrast – map 12.5. This occurs in two contiguous dialects in the south of Ja1, adjacent to WAc languages, which also have this contrast.
- (e) Length contrast in vowels – map 12.7. Again, this is found just in a block of southern dialects of Ja1, adjacent to languages in Ma, Nc and Nd which also have the contrast.
- (f) Number of conjugations. Two conjugations are found in Ja3, Warungu (in the north of Ja territory) and in the Marrganj and Gunja dialects of Ja1 (in the far south). Between these two extremes there are no conjugational distinctions.
- (g) Bound pronouns – map 8.1. These are found in two small regions within Ja. One is Gunja, a southern dialect of Ja1, adjacent to Nd, which also has bound pronouns; this development – like most or all of those in (a–e) – can probably be put down to areal diffusion. The other is more than 1,000 km away in the Biri dialect of Ja2. This is the only language in its region known to have bound pronouns (although it must be remarked that data are very slight on neighbouring languages in groups I and Jc); bound pronouns in Biri are thus, presumably, a language-internal innovation.

When describing the Yolngu subgroup, Y, under (6) in §13.1, attention was drawn to isoglosses that run through this territory – those for the laminal contrast and for bound pronouns.

There is also diffusion of semantic isoglosses, relating to both lexicon and grammar. Very little work has been done on this topic, but it may be useful to mention examples from north-east Queensland, involving G2, Yidinj, and its southerly neighbour H1, Dyirbal (languages which do not have any close genetic relationship).

(i) Each language has a three-term system of locational-type specifiers. The ten or so dialects of Dyirbal all show:

- ya(la)- visible and near
- ba(la)- visible and far
- ŋa(la)- not visible (but audible or remembered)

The two dialects of Yidinj on which there are good data show one set of forms (quite different from those in Dyirbal), but with different meanings in each dialect:

COASTAL DIALECT		TABLELANDS DIALECT	
visible and near	yi-	visible and near	
visible and far	ŋu-	visible and far	
visible and very far	yu-	not visible (but audible, etc.)	

It will be seen that the system in tablelands Yidinj (which is contiguous with Dyirbal) has the same meanings as in Dyirbal. It is likely that the semantics of this system has been borrowed from Dyirbal into tablelands Yidinj (but not into coastal Yidinj, which is not contiguous with Dyirbal).

(ii) Each language has a tense system realised through verbal inflections. We can here usefully include in the comparison G1, Djabugay, which is a close genetic relation of Yidinj. There are conjugational differences in each language; the systems can be illustrated with the forms in that conjugation which is predominantly intransitive in each language.

	past	present	future
G1, Djabugay	-ŋj	-ŋ	-na
G2, Yidinj (both dialects)	-ŋju	-ŋ	-ŋ
H1, Dyirbal, northern dialects	-ŋju	-ŋj	-ŋj
H1, Dyirbal, southern dialects	-ŋju	-ŋju	-ŋj

The forms of tense inflections are different in H1 and in the G subgroup. (In all three languages past tense relates to **-ŋju*, which is found across the continent – see (b) in §6.5.1. Future *-ŋj* in Dyirbal can be shown to be a reduction from *-ndjay* – Dixon 1972: 356.)

It will be seen that those dialects of Dyirbal which are contiguous with Yidinj have the same tense system, where the future suffix also covers present, whereas the Dyirbal dialects which are distant from Yidinj have the past suffix also covering present. (That suffix which includes present is used in the citation form of the verb in all dialects of Dyirbal.) The ancestor language of G1 and G2, pG, probably had the same system as modern Djabugay; in Yidinj the original purposive has been lost, with future shifting to purposive meaning, and present extending to also cover future (Dixon 1977a: 213–14). The important point to note is that northern dialects of Dyirbal have the same system as Yidinj, that language from subgroup G which is contiguous with Dyirbal. It is hard to tell whether the northern dialects of Dyirbal changed to become more like Yidinj, or whether Yidinj changed to become more like the adjacent dialects of Dyirbal.

What is clear is that we have here two instances of areal semantic features, each of which cuts across a language; parameter (i) divides Yidinj while (ii) divides Dyirbal.

Summary and conclusion

It is commonly asserted that Aboriginal people have been in Australia for at least forty thousand years and probably for fifty thousand years. This is misleading. What should be said is that people have been in the Australia/New-Guinea land mass for this period of time. The first settlers are likely to have rapidly expanded in numbers, making use of the land area and food resources available. The expansion would have led to split of political groups, and of languages. During the initial period of punctuation (which may have lasted for just a few thousand years) it is likely that a family tree diagram would have appropriately modelled the relationships between languages.

But the initial phase of expansion was completed long ago. It was followed by some tens of thousands of years of an equilibrium situation, where the number of languages would have remained more-or-less static, with cultural and linguistic features diffusing across geographical regions. The Australia/New-Guinea land mass divides into two major regions: (a) most of present-day Australia, together with the south-west part of New Guinea, consists of relatively open, flatish, dryish country; (b) most of New Guinea, plus a strip of north-east Australia, is – in contrast – forested, mountainous and well watered. As is the case elsewhere in the world, we find more linguistic diversity in area (b), where communication is rather difficult, as against area (a), where communication is relatively easy.

When the sea level rose, about ten thousand years ago, cutting off New Guinea from Australia, most of area (a) became Australia and is what is here referred to as the Australian linguistic area. This is certainly the largest and also the longest-established linguistic area in the world. There are many features of variation, almost all on an areal basis, but their isoglosses do not bunch, indicating that the languages cannot be arranged in a comprehensive family tree diagram. A facile family tree model (including the unit ‘Pama-Nyungan’) was suggested, based on lexicostatistics (a method that has been thoroughly discredited), but does not stand up under detailed study. (Pace Foley 1986: 269–75, no genetic link can with confidence be suggested between any Australian language(s) and any Papuan language(s).)

Water resources across the continent (and the coastline itself) have changed several times during the period that people have lived there, leading to contractions and expansions of the land suitable for habitation, and thereby of peoples and languages. Indeed, about forty low-level genetic subgroups can be recognised (mostly consisting of just two or three languages), indicative of a number of small-scale recent expansions.

Australian languages share a distinctive typological profile, characterised by a number of parameters of variation. Languages shift in terms of these parameters, generally through diffusion of a particular parametric value across a geographical region. Over a long period, change is frequently cyclic within a given parameter – a certain feature may be gained, then lost, then gained again. Indeed, the two most important characteristics of the Australian linguistic area are: (1) the areal distribution of most linguistic features, due to diffusion; and (2) cyclic change in terms of a number of area-defining typological parameters. In §14.2, I shall attempt to summarise some of the major examples of diffusion and cyclic change that have been described in detail in earlier chapters. But first it is appropriate to outline the patterns of development across this linguistic area.

14.1 Outline of development

It is likely that at an earlier stage the grammars of Australian languages had a fairly direct semantic basis. There may well have been a nominal suffix or clitic used to mark a core participant as the volitional actor over an activity. The suffix *-ni(m)* in languages of NE, the Fitzroy River subgroup, has this function today (§5.1.1), and may possibly be an archaic residue. In most modern languages this has been replaced by a system of syntactic case markers; for instance, ergative case is typically used to mark an argument in A (transitive subject) function, whether or not volitional action is involved.

Many languages have a reflex of verbal suffix **-dharri-*. A full description of its meaning and function is only available for a few languages, and in some of these it appears to have a basically semantic effect; for example, it typically marks an underlying transitive clause where the referent of the A argument is not in control of the activity, or is not distinct from the O argument – see the discussion and examples in §11.3.1. In many languages **-dharri-* has become grammaticalised as the marker of one or more intransitivising processes – generally reflexive and/or reciprocal, sometimes passive and/or antipassive.

Some Australian languages have a small set of generic nouns, and some have a small set of generic verbs (§3.1.3). These may be used alone when their reference is clear from the discourse and cultural context; a noun or verb with more specific meaning will be included with the generic term when it is pragmatically necessary to provide more detailed referential information. I suggest this as the original profile. In different groups of languages it has given rise to different types of grammatical complexity.

Generic nouns can become classifiers which may then be grammaticalised as noun classes (chapter 10). And generic verbs (simple verbs) can combine with specific verbs (coverbs) in a variety of ways (chapter 6).

An appositional construction between generic noun and specific noun, or between generic verb and specific verb, is likely originally to have had a clear semantic basis. This tends to get partly obscured as the combination becomes more grammaticalised. Thus, in most cases, only some combinations of coverb and simple verb will be semantically transparent, and only some assignments of nouns to noun classes can be provided with a semantic explanation.

It is likely that at an earlier stage Australian languages were mildly synthetic and fully agglutinative. There might have been no more than three or four suffixes added to nominals (marking function in a clause, and function in an NP) and just a handful of verbal suffixes marking tense and/or aspect and/or modality and/or mood (TAM); there may have been overlap between the two sets, with *-gu* having a purposive function with both nouns and verbs. The languages have moved – at varying rates – towards a more synthetic profile. More nominal and verbal suffixes have evolved, in most cases separately in individual languages and subgroups (this is apparent from the difference in forms).

Australian languages typically have layered marking for syntactic function. For example, a possessor within a core NP can take genitive marking (for its function in the NP) followed by a marker of the function of the NP in the clause (ergative, dative, etc.). In a few languages a core NP in a subordinate clause may take two case suffixes, one for its function in the subordinate clause and one for the function of the subordinate clause in the main clause (this, and other types of ‘double case’ marking, were discussed in §5.3.1).

One pervasive feature of the Australian linguistic area is an ‘aversive’ case function, marking a predicate argument whose referent has undesirable potential (for example, ‘don’t sit close to the fire FOR FEAR OF FLYING SPARKS’). Aversive can be recognised for most languages but it often lacks a distinct form, being generally the secondary sense of some other suffix (or involving an increment to some other case form). In §5.4.7 we saw that aversive can relate to locative or allative or ablative or causal or dative. It is plain that it is just the idea of aversive which has diffused, with each language creating aversive marking on an individual basis, from its own internal resources.

Nouns are generally free forms; that is, they can occur with or without a suffix (in most languages, the absolutive or nominative choice from the case system has zero realisation). Verbs, on the other hand, are generally bound forms; they must occur with a non-zero TAM suffix. It is probably this difference which has served to keep noun structure fairly agglutinative while verb structure had tended to become more fusional. Using *R* to represent a root and *a*, *b*, *c*, . . . for suffixes, there is likely to be continued recognition of a noun root in *R+a*, *R+b*, etc. since it can also occur alone as *R*.

In contrast, a verb root can only occur with suffixes, so that speakers may lose their psychological perception of what is the root in R+a, R+b, R+c, etc. As a result, verb root and suffix may fuse, with the boundary between them becoming blurred.

There is a strong tendency across the Australian linguistic area for pronouns (which had functioned just as free forms, in NPs outside the predicate) to develop into bound pronominal clitics or affixes, which soon come to be obligatory in each clause. Bound pronouns are firstly enclitics, attaching sometimes to a TAM auxiliary and sometimes not. The enclitics (and the auxiliary, if there is one) are attached to the first constituent of the clause, or to the verb, or to the word immediately preceding the verb. In some languages bound pronouns have developed further, into affixes. There are a few instances of bound pronominal suffixes (in some cases, fused with tense suffixes) and a fair number of examples of bound pronominal prefixes (see chapters 8 and 9).

The most likely path of development is that bound pronominals (with or without a TAM auxiliary) were enclitic to the word immediately preceding the verb, then became proclitic to the verb, and finally became verbal prefixes. Thus was a major change initiated, adding prefixes to a verbal structure which had been entirely suffixing (the suffixes were retained). The prefixing profile diffused over all the languages of a continuous area in the central north (groups WMa and NB-NL). Pronominal prefixes were often fused with a TAM element (the relic of an erstwhile auxiliary). A few other verbal prefixes developed, on an individual basis in the separate languages (see chapter 9).

As mentioned earlier, generic nouns become nominal classifiers in some languages. These developed into affixes marking noun classes in a couple of languages from the non-prefixing area and in a fair number of languages from the prefixing area. It is noteworthy that all the languages with prefixes to nominals also have prefixes to verbs, but there are some languages with verbal prefixes which lack nominal prefixes. This suggests that prefixing began on verbs and was later extended, in just some languages, to also apply to nouns (§10.5).

According to the scheme presented here, Australian languages were originally fully dependent-marking, with the syntactic function of a core argument shown by a case element attached to its NP (constituent order is basically free in Australian languages). A head-marking profile developed when bound pronouns became obligatory, and were attached to the verb. Some of the languages with noun classes shown on elements within the NP have extended this marking so that noun classes are now shown in third person bound pronominals attached to the verb. There is now substantial information concerning core arguments (person, number and noun class) contained within the predicate. In most languages with this profile, case marking on core NPs has been dropped – they have lost dependent marking and are now fully bound marking (§10.7.1).

The more complex the structure of words in a given language, the less likely it is that a clearly segmentable agglutinative profile will be preserved. That is, highly

synthetic and polysynthetic languages tend to fuse together their morphemic components. There is a degree of fusion in languages from all parts of the continent; as pointed out above, this is typically found in verbs – at a root–suffix boundary and sometimes also involving TAM and bound pronominal suffixes. A fusional profile has developed in some (but by no means all) of those languages with verbal prefixes. Fusion has here taken place between TAM (or directional) prefixes and pronominal prefixes to the verb, or between A and O pronominal prefixes, or between pronominal prefix and root, or between root and TAM suffix; some prefixing languages show several of these types of fusion – see chapter 9.

Australian languages typically have three varieties of subordinate clause – a ‘lest’ construction, a purposive (‘in order to’) construction, and a general subordinate construction which may cover ‘if’, ‘because’ and ‘when’ clauses, and also relative clauses (§3.3.12). In many languages subordinate clauses involve nominalisation, which can lead to a further train of development. A nominal affix may be added to the nominalised form of a verb. Later, the nominalising element may be absorbed or dropped, with the nominal suffix now adding directly to the verbal root; in this way, subordinate clauses appear to receive direct nominal marking. Further, in some languages, types of subordinate clause are reanalysed as main clauses, bringing with them a set of nominal-type suffixes. See §6.6.

Typically (and, probably, originally) nouns take ergative-type and pronouns accusative-type case marking. Bound pronouns naturally follow the corresponding free forms and show an accusative-type system. When bound pronouns become obligatory, free pronouns may be used rather sparingly (mostly, for emphasis) and can come to take ergative marking, like nouns (§7.5, §8.2.3). As just mentioned, ergative marking on NPs may be dropped when bound pronominals to verbs include information on noun class. A different scenario is for a language with ergative marking on nouns and on free pronouns (but without a system of noun classes) then to lose its set of bound pronominals, through diffusional pressure from neighbouring languages which lack bound pronouns; it will then become entirely ergative in its morphological marking (§11.4). Nominalisations typically have an accusative profile, so that languages which reassign what were subordinate clauses (marked through nominalisation) to become main clauses may shift to an accusative system of morphological marking for main clauses (§11.4). We saw in chapter 11 that just a few languages are fully ergative or fully accusative at the morphological level; the great majority retain a mixed profile.

Many languages – especially those with developed head marking – appear to have no syntactic pivot. Of the languages concerning which there is reliable information, a number have an S/O pivot for coordination and subordination, and a further set have an S/A pivot. All languages with an S/O pivot have a degree of ergativity at the morphological level, and all have an antipassive derivation to feed the pivot (putting

an underlying A argument into derived S function). In contrast, only some of the languages with an S/A pivot show a passive derivation. There is a continuous block of languages showing switch-reference marking, always on an S/A basis.

14.2 Diffusional patterns and cyclic change

As mentioned several times before, there has been a constant ebb and flow within the Australian linguistic area. A language will tend to become more like its neighbours in the structural patterns it operates with (while, by and large, keeping its distinctive set of forms). A certain linguistic property – for example, having switch-reference marking, or having a contrast between two laminal series of phonemes – may gradually spread like a wave across a part of the continent, until it encounters another wave coming from another direction.

As the result of tens of millennia of development in an equilibrium situation, the great majority of grammatical and phonological features have an areal distribution, and each feature has a distribution different from that of the others. In the course of this volume I have mentioned many examples of how languages tend to change in cyclic fashion in terms of a particular parameter of variation. It is likely that the overall typological profile of the Australian language area has – in certain respects – changed rather little over the past millennia or tens of millennia. It is just that the area(s) in which a certain property is found, and those from which it is missing, will be continually shifting around, according to the movement of languages and of waves of diffusion. In other respects the typological character of the linguistic area will have undergone a steady progress; for instance, that towards a more synthetic and a more fusional profile.

We can now briefly summarise some of the instances of areal diffusion and distribution; and some of the cyclic patterns of change.

§6.3.1 surveyed the seven types of verbal organisation in terms of simple verbs, coversbs and their combination. Map 6.1 demonstrates the areal distribution of these types – Type (a) languages surrounded by those of Type (b) and then by those of Type (c) (with just a modicum of discontinuity).

§6.3.2 then outlined the cyclic patterns of change with respect to this parameter: basically (c) > (b) > (a) > (d)/(f) > (g) > (c), with – in addition – the possibility of some shifts in the opposite direction (see (22) in §6.3.2).

§6.4.1 mentioned that verbal suffixes involving associated motion (for example, ‘come/go and do’) are found in the languages of a solid block in the centre of the continent (groups W, WA, WB, WD, WJ–WL, WMb and NCb). This distribution is presumably due to diffusion of the category; the forms involved differ (except where they are reductions from cognate lexemes).

My hypothesis concerning the structure of verbs in Australian languages is that there was originally an agglutinative structure with suffixes simply added to a root. Fusional changes then obscured this structure and a number of conjugational classes evolved, relating to the original root-final segments. Since conjugations play no communicative role there is a tendency to reduce and ultimately to eliminate them. This eventually gets back – in cyclic fashion – to the original pattern of all roots taking the same form for each suffix (with no conjugation-determined allomorphs); see §6.5.

In chapter 7, I suggested that the earliest pronoun system had just sg and n-sg for first and second persons (and perhaps also for third person). There was then the addition of an extra-systemic term for ‘you and I’. Pronoun systems were extended and reanalysed, almost all of the changes being motivated by pressure to absorb ‘you and I’ into the system. Here we get the most widespread example of diffusion of an actual form – *ŋali* ‘you and I’. I pointed out that when a quite new category is added to a system, it is natural that the form should be borrowed along with its signification (see (f) in §7.3.1). The discussion of pronouns also mentioned a number of other patterns of areal distribution, including the change of final *u* to *a*, and the lenition of *dj/dh* to *y*, in sg pronoun forms (§7.5.2).

Types of pronominal system were surveyed in §§7.1–4. Type 0 is singular/non-singular; Type 0+ adds ‘you and I’ to this; Type 1 is singular/dual/plural; Type 2 is singular/dual/plural with the addition of inclusive/exclusive for first person dual and first person plural; Type 3 is minimal/augmented or minimal/unit augmented/augmented. The development from one type of system to another was outlined in §7.4; map 7.1 demonstrates the areal distribution of the types of system. Then, in §7.4.2, we saw the cyclic possibilities for change; besides $0 > 0+ > 1 > 2$ we also find $1 > 0$, and alongside $2 > 3$ there is also $3 > 2$.

§7.5 discussed systems of case marking on pronouns, and the chain of development involved (summarised in figure 11.1). In §7.5.6, I drew attention to the cyclic nature of change here.

A number of types of cyclic change were noted in the discussion of bound pronouns, in chapter 8. It is clear that bound pronominals were originally formed by reduction of free forms. In a sprinkling of languages the original free forms have been lost, with new free forms being created by adding the bound forms to an invariable root (Stage III, in §8.4.1). In §8.8 we saw how bound pronouns were innovated in V, Baagandji, probably under areal pressure from languages to the east and west, which have bound pronouns. They were then lost from the northern Gurnu dialect, probably under diffusional pressure from languages to the north, which lack bound pronouns. This is a further example of cyclic gain and loss.

Also in §8.8, we noted how bound pronominal suffixes have fused with tense in some languages of the Wik subgroup, Bc. In Bc4, Kugu-Muminh, phonological reduction has been such that the fused forms have lost much of their person and number specification. In response to this (and under diffusional pressure from a

northerly neighbour) a second set of bound pronouns has been created, generally added to the end of the word immediately preceding the verb. We thus get cyclic renewal of bound pronominals, to make good the attrition of the original set.

In §9.1 we noted another kind of cyclic development involving bound pronouns. The hypothesised scenario is of (a) bound pronominal enclitics to verb or to first constituent of clause, then (b) bound pronominal enclitics to word immediately preceding the verb, developing into (c) pronominal prefixes to a simple verb. This would have been the profile of the proto-language for the Mindi subgroup, and is retained in the NCa branch. However, in the NCb languages, simple verbs reduced to a directional element or to zero, so that the erstwhile pronominal prefix is now part of an element encliticised to the main verb (the original coverb), returning to Stage (a). In NCb3, Wambaya, the bound-pronoun-plus-tense element can be encliticised to the verb or to the first constituent of the clause, having now moved in complete cycle to the fuller version of Stage (a).

Prefixes to verbs are found in languages from a continuous area. Prefixes to nouns are found in a subset of these languages, comprising two geographical areas – see map 10.2. Noun classes as a grammatical category are found in a continuous block of prefixing languages, shown in map 10.1 (together with WMb1, Wagaya, a non-prefixing language adjacent to this block, and also languages in groups H, M and WA). The fact that noun classes have quite different profiles in the various languages in which they occur indicates that it is the principle of having noun classes which has diffused across the block of languages in which they are found (so that the property of having noun classes provides no indication of close genetic connection).

In §10.6.4 we saw another instance of cyclic change, with the loss of noun classes from a dialect of NBg1, Gunwinjgu, almost certainly under diffusional pressure from neighbours. (Further examples of the loss of noun class were mentioned in §10.6.7.)

There is also an example of cyclic renewal concerning case marking. NBd1, Ngandi, has noun classes marked on bound pronominals (§10.7.1) and as a consequence it probably lost ergative marking on NPs. But it has recently borrowed the ergative suffix *-thu* from its northerly neighbours in the Yolngu subgroup, Y (§5.4.3, from Heath 1978a: 75–7).

In §6.6 we looked at a type of cyclic development concerning purposive suffix *-gu*, suggesting that: (a) *-gu* was originally just a nominal suffix, which (b) became added to a nominalised verb stem. Then (c) the nominalising suffix was dropped so that *-gu* became a regular verbal suffix. Next, (d) the verbal purposive shifted to a future meaning, and (e) a new verbal purposive evolved, going through step (b) again.

In chapter 11 we examined shifts between accusative and ergative patterns, with the development of a fully accusative system in some languages from groups WHc and NA, and the projected development of a fully ergative system in W1, Kalkatungu. This would be another change of cyclic nature, from predominantly ergative to predominantly accusative, to fully ergative; the changes are mediated by the gain and loss of bound pronouns, these being likely to be due to diffusional pressure from neighbours.

In chapter 12 we saw how many phonological features have an areal basis; for example, laminal and apical contrasts (maps 12.1 and 12.2), length contrast for vowels (map 12.7) and having every word end in a vowel (map 12.8). There are also instances of cyclic change. Some languages have plainly innovated a laminal or apical contrast rather recently, while in others this is a well-established contrast, and in others the contrast appears to be in the process of becoming lost. The areas in which laminal and apical contrasts are found appear to be shifting their boundaries (and probably always have been).

Initial dropping has developed independently in a number of places, but it is also susceptible to diffusion. In §12.4.6 we saw how almost every language in the Northern Paman subgroup, Ba, has undergone a slightly different set of initial-dropping and related changes, which plainly postdate the time of proto-Ba. This type of change must have begun in one language (or in one dialect) in Ba. The property of having changes of this kind (but not the details of the changes and their ordering), then diffused over a continuous area, probably through speakers imitating the habits of pronunciation of speakers of neighbouring languages. We also saw that the strong initial dropping in Nb2, Nganjaywana, and in WL, the Arandic group, has diffused – in a much weaker form – into some of their neighbours; see map 12.4.

There is one instance of cyclic renewal here. Ea2, Olgolo, has lost the initial consonant from each word, giving a VCV . . . structure. But it appears that classifiers are now reducing to become monoconsonantal prefixes, thus renewing the canonical syllable pattern, CVCV . . . (§10.4, §12.9).

In §12.5 we examined how a stop contrast can be created and then lost, in cyclic fashion. In §12.8 (map 12.6) we saw how there are two large blocks of languages with more than three vowels, one in the central north and one in the north-east; this relates to the extensive phonological changes which languages in the two areas have undergone. Then, in §12.8.4, we saw how some languages, which have lost the original contrast between short and long vowels, have developed such a contrast all over again, but by different means in each language. For instance, this has happened in a small area which includes the two languages of the Cairns subgroup, G, plus northern dialects of H1, Dyirbal. The different paths of development for long vowels are illustrated by *mayi* > *ma*: ‘vegetable food’ in G1, Djabugay (creating a monosyllabic from a disyllabic form); *gadjarra* > *gadja:rr* ‘brown possum’ in G2, Yidinj (lengthening the penultimate vowel in a word with an odd number of syllables, and then dropping the final vowel); and *marbu* > *ma:bu* ‘louse’ in the Ngadjan and Waribarra Mamu dialects of Dyirbal (replacing vowel plus *l*, *r* or *y* by a long vowel, at the end of a syllable).

I hope I have been able to provide, in this volume, sufficient justification for regarding the languages of Australia as constituting a linguistic area of considerable time-depth

– a long-standing equilibrium situation, in terms of the Punctuated Equilibrium model of language development presented in Dixon (1997).

Things are not neat and tidy in the way that they are in some other parts of the world and as some previous investigators (including Dixon 1980) had assumed should also be the case in Australia. In a way, the Australian linguistic area is like a gigantic dialect situation, except that it does involve 240–50 distinct languages. There are many parameters of variation, most of them on an areal basis, but the areas do not coincide.

There are a considerable number of examples of cyclic change, as diffusional tendencies extend their reach and then fall away, sometimes to be replaced by change of the opposite type coming from another direction. A high proportion of changes can be explained in terms of a language becoming more like its neighbours in structural characteristics. All this is what would be expected, in a long-term linguistic area.

A recurrent challenge to the study of relationships between languages in Australia is the difficulty of deciding whether some point of similarity is due to shared genetic inheritance or to borrowing. Sometimes it is impossible to decide between these alternatives. In such circumstances, one should be honest and simply say ‘I don’t know’.

One other pervasive feature of the Australian linguistic area, mentioned in §2.1.2, is the tendency for parallel (or convergent) development. Because of a shared ‘inner dynamic’, languages in different parts of the continent may – independently – change in similar ways. Among the multiplicity of examples mentioned through this book, we can mention the development of an aversive case function, the development of bound from free pronouns, the development of noun classes from classifiers and from gender-specific pronouns, vowel assimilation (as in second person singular pronoun *ŋindu* > *ŋundu*, *njindu* > *njundu*) and lenition (e.g. second person singular *nyundu* > *yundu*). A truly fascinating recurrent change is initial dropping. Only recently has an explanation emerged (from the work of Andrew Butcher forthcoming) for this particular type of parallel development – since the pitch peak tends to come rather late in a stressed syllable, for Australian languages, the initial consonant is ‘at risk’ of being dropped (with consequential changes following from this – see §12.4). We have here identified a delayed pitch peak as the ‘inner dynamic’ which may trigger initial dropping.

The Australian linguistic area poses problems of investigation and analysis unlike those found anywhere else in the world. The established methods of historical and comparative linguistics, which can be applied so successfully elsewhere, have limited appropriateness in Australia. The special nature of the Australian situation must be acknowledged for real progress to be made in describing the nature of this linguistic situation, and for an understanding to be attained concerning the nature of interrelations between its constituent languages.

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Note that a full listing of works on Australian languages is in Carrington and Triffitt (1999).

Abbreviations

AIAS	Canberra: Australian Institute of Aboriginal Studies
AIATSIS	Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies
<i>AJL</i>	<i>Australian Journal of Linguistics</i>
ANU	Australian National University
CUP	Cambridge: Cambridge University Press
<i>LTWP</i>	<i>La Trobe Working Papers in Linguistics</i>
<i>OL</i>	<i>Oceanic Linguistics</i>
OLM	Oceania Linguistic Monographs (Sydney: Oceania)
OUP	Oxford University Press
<i>PAL</i>	<i>Papers in Australian Linguistics</i> , series of PL
PL	Canberra: Pacific Linguistics
SIL-AAB	Darwin: Summer Institute of Linguistics, Australian Aborigines Branch

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