

*Petra M. Vogel*  
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(Editors)

# Approaches to the Typology of Word Classes



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# Empirical Approaches to Language Typology

23

*Editors*

Georg Bossong  
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Mouton de Gruyter  
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*edited by*

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# Contents

Abbreviations	vii
Preface	ix

## I. General studies

A dynamic model of part-of-speech differentiation <i>Jan Anward</i> .....	3
Word classes and sentential functions <i>D. N. S. Bhat</i> .....	47
Parts of speech as language universals and as language-particular categories <i>William Croft</i> .....	65
Kinship verbs <i>Nicholas Evans</i> .....	103
Syntactic categories, cross-linguistic variation and universal grammar <i>David Gil</i> .....	173
When can a language have adjectives? An implicational universal <i>Jan Rijkhoff</i> .....	217
Grammaticalisation and part-of-speech systems <i>Petra M. Vogel</i> .....	259
Lexical prototypes as a universal basis for cross-linguistic identification of “parts of speech” <i>Anna Wierzbicka</i> .....	285

## II. Language-specific studies

Modal particles in German: Word classification and legacy beyond grammaticalisation <i>Werner Abraham</i> .....	321
The Tongan category of preverbials <i>Jürgen Broschart</i> .....	351
Identifying substantival and adjectival pronouns: A case study on German <i>Monika Budde</i> .....	371
Noun and verb in Iroquoian languages: Multicategorisation from multiple criteria <i>Marianne Mithun</i> .....	397

Numeratives in Mandarin Chinese	
<i>Robin Sackmann</i> .....	421
Polynesian multifunctionality and the ambitions of linguistic description	
<i>Arnfinn Muruvik Vonen</i> .....	479
Index of authors	489
Index of languages	495
Index of subjects	499

## Abbreviations

1	first person	DU	dual
2	second person	DUPL(IC)	duplicative
3	third person	DUR	durative
ABS	absolutive	EMPH	emphatic
ACC	accusative	EP	epenthetic
ACT	actor	ERG	ergative
A(DJ)	adjective	ESS	essive
ADV	adverb	EVENT	eventuating
ADVERS	adversative	EXCL	exclusive
ADVL	adverbial, adverbialiser		
AGT	agent	FACILIT	facilitative
AL	alienable	FACT	factual
ALL	allative	F(EM)	feminine
ART	article	FOC	focus
ASSERT	assertative	FUT	future
ATTR	attributive		
		G(EN)	genitive
BEN	benefactive		
		HAB	habitual
CAUS	causative	H.O	higher object
CISLOC(AT)	cislocative	HUM	human
CL(ASS)	classifier		
COINC	coincident	IMP(ERF)	imperfective
COLL	collective	IN	inalienable
COM	comitative	INCH(OAT)	inchoative
COMP	comparative	INCL	inclusive
CONJ	conjunction	INDEF	indefinite
CONTIN	continuative	INDIC	indicative
CONTR(AST)	contrastive	INF(IN)	infinitive
COP	copula, copular	INFL	inflection
		INTENS	intensive
DEF	definite	IRR(EAL)	irrealis
DEM	demonstrative		
DIR.OBJ	direct object	LINK	linker
DIM	diminutive	LOC	locative
DISTR(IBUT)	distributive		

M(ASC)/(EAS)	masculine; measure	PROGR	progressive
MOM	momentaneous	PRON	pronoun
		PROX	proximate
N	noun	PRST	presentative
NEG	negative	PUNCT	punctual
NEUT	neuter		
NOM	nominative	QUOT	quotative
NOM(INALIS)	nominaliser		
NP	nominal phrase	REAL	realis
NUM	numeral	REC	reciprocal
NUMT	numerative	REDUP	reduplication
		REF	referentialiser
O(BJ)	object	REFL	reflexive
OPT	optative	REL	relativiser, relative
		RR	reflexive-reciprocal
P	particle		
PART	partitive	SBJUNCT	subjunctive
PARTIC	participle	SG	singular
PASS	passive	SP	specific
PAST	past	STAT	stative
PAT	patient	S(UBJ)	subject
PERF	perfect(ive)	SUBST	substantive
PERS	person, personal	SUF	suffix
PHENOM	phenomenological	SUPERL	superlative
PL	plural		
POL	polarity	TAM	tense/aspect/mood
POSS	possessive	TOP	topic
POSSD	possessed	TR	transitive
POSSR	possessor	TRANSLOC	translocative
PP	past perfective		
PRED	predication/predicator	UNCERT	uncertainty
PREF	prefix	USP	unspecific
PREP	preposition		
PRES	present	V	verb
PREV	preverbal	VP	verbal phrase

## Preface

The history of word class research is characterised by two extreme positions. Up to the 19th century it was believed that word classes were invariably of the Latin or Greek type and universal. In contrast to that, in the 20th century the view prevailed that every language had its own specific and unique word class system. In the last decades, however, it has become apparent that despite the large number of word classes and word-class systems there are typological restrictions with regard to the conceptualisation of semantic features and morphosyntactic structures.

This book approaches word classes and their categorial manifestations from the perspective of typology and language universals research. The authors in this volume discuss word class categorisation in general (Part I) as well as word classes and word class systems of individual languages (Part II) from a typological-universal viewpoint and from diachronic and cross-linguistic perspectives.

*Part I*, General studies, contains articles by *Jan Anward* on part-of-speech differentiation and flexibility, *D.N.S. Bhat* on sentential functions and lexicalisation, *William Croft* on parts of speech as language universals, *Nicholas Evans* on kinship verbs, *David Gil* on syntactic categories and eurocentricity, *Jan Rijkhoff* on the question when a language can have adjectives, *Petra M. Vogel* on grammaticalisation and parts of speech and *Anna Wierzbicka* on lexical prototypes as a basis for identification of parts of speech.

*Jan Anward* develops a dynamic model of part-of-speech differentiation, where the “deep” organising factors of part-of-speech systems are motivated not by properties internal to such systems, but are factors which drive language development in general: maximisation of meaning, and minimisation of effort. Part-of-speech systems are what “happen” as a result of processes of successive syntagmatic and paradigmatic expansion, in which optimal use is made of lexical resources, through recycling of items in several functions. But new functions of old items must be identifiable. This means that each language must strike a balance between flexibility (recycling) and contrast (identification). The model draws its empirical evidence mainly from Swedish, but also from a small pilot sample of nine additional languages.

*D.N.S. Bhat* argues that word classes represent lexicalisations of different sentential functions. The function of modifying the head noun in a noun phrase, for example, gets lexicalised into a word class of adjectives, whereas that of referring to persons, objects or entities gets lexicalised into a word class of nouns. The characteristics that these word classes manifest are derivable from the sentential functions for which they have been lexicalised, and further, the word classes manifest these char-

acteristics maximally only when they are used in their respective sentential functions. Languages which fail to have one or the other of these word classes do not make use of the corresponding sentential functions, as they use alternative sentence strategies for which those sentential functions are not needed.

In the paper by *William Croft* it is maintained that the major parts of speech (noun, verb, adjective) are not categories of particular languages, but are language universals. Linguists have used distribution of words in constructions to justify part-of-speech membership. But no sound theoretical basis has been provided to justify choice of tests for membership, leading to disagreement and confusion. In fact, the variation in the occurrence of constructions and in the distribution patterns of words across languages and within languages demonstrates that lexical classes are language-specific and construction-specific. A radical construction grammar model is proposed to represent this state of affairs. The universals of parts of speech are manifested in conceptual space, with principles such as typological markedness defining prototypes in the formal expression of conceptual categories found in conceptual space.

*Nicholas Evans* starts from the assumption that kinship relations are expressed by verbs in a number of head-marking languages of North America and northern Australia. Kinship verbs are interesting for word class studies because it is their relational (two-place) semantic structure, rather than the more familiar ontological contrast between “things” and “actions”, which motivates their lexicalisation as verbs. This in turn skews the likelihood with which particular inflectional categories are grammaticalised, as compared to “normal verbs”. After surveying some typical kinship verb systems, he looks at how “verby” kinship verbs are, and then examines a number of factors responsible for splits between nominal and verbal encoding, including address vs. reference, actual vs. classificatory kin, kin type, and person combinations between the two arguments. Overall, kinship verbs emphasise the need to pay greater attention to interpersonal pragmatics as a determinant of word class membership.

*David Gil* proposes a theory of syntactic categories accounting for both the differences and the similarities that may be observed to obtain between languages. The theory takes as its starting point the autonomy of syntax and the existence of distinct morphological, syntactic and semantic levels of representation: syntactic categories are defined solely in terms of syntactic properties, such as distributional privileges, and participation in syntactic relations such as binding, government and agreement. In the spirit of categorial grammar, the theory posits a single initial category and two category formation rules with which other categories can be derived: the familiar “slash” rule, plus a rule derived from x-bar theory. Constraints on syntactic category inventories distinguish between inventories that are possible and others that are im-

possible. Finally, the traditional parts of speech such as noun, adjective and verb are defined as syntactic categories which are prototypically associated with other, semantic categories.

*Jan Rijkhoff* rightly maintains that not every language has a distinct class of adjectives. In his article he argues that the occurrence of adjectives as a major, distinct word class depends on a semantic (lexical) property of the nouns. A language can only have adjectives if the nouns in that language are lexically specified for the feature [+Shape], which means that the properties that are designated by these nouns are characterised as having a spatial boundary. The theory focuses on Hmong Njua but also draws evidence from other languages.

*Petra M. Vogel* presents a model for ungrammaticalised, grammaticalised, and degrammaticalised parts of speech systems exemplified by Tongan, German, and English, respectively. This model is based on the assumptions made in Broschart 1997 that the main difference between parts of speech systems in languages like Tongan and German is due to the distribution of the features [+/-pred] (predicability) and [+/-ref] (reference in discourse) in lexicon and syntax. On the one hand she argues that the “fixed” presence or absence of the feature [+pred] with regard to a lexeme makes for a grammaticalised (German) or ungrammaticalised parts of speech system (Tongan). On the other hand, the acquisition or loss of the feature [+pred] in the parts of speech system of a language is called a grammaticalisation or degrammaticalisation process, respectively. The latter process is exemplified by the case of English.

*Anna Wierzbicka* proposes that it is generally agreed in modern linguistics (and rightly so) that it makes sense to establish word-classes for any language on the basis of language-specific, formal (morphosyntactic) criteria. It is also widely agreed that some word-classes established in this way in different languages “match” to some extent, and that, in particular, the distinction between “nouns” and “verbs” is universal or near universal. But if word-classes are set up on language-internal formal grounds, how can they be matched across languages? She argues that this can be done on the basis of empirically established linguistic universals, that is, concepts which can be found in an identifiable form in all languages, and which can also be accepted as intuitively intelligible (non-technical) conceptual primitives. For example, “nouns” can be matched via the universal lexical prototypes PEOPLE and THINGS, “verbs”—via DO and HAPPEN, and “adjectives”—via BIG and SMALL. She shows how the set of lexico-grammatical universals, which has been established within the “NSM” (“Natural Semantic Metalanguage”) linguistic theory, can be used as a framework for investigating linguistic typology and universal grammar.

*Part II, Language-specific studies*, contains articles by *Werner Abraham* on German modal particles, *Jürgen Broschart* on Tongan preverbials, *Monika Budde* on



German pronouns, *Marianne Mithun* on the morphosyntax of nouns and verbs in Iroquoian, *Robin Sackmann* on numeratives in Mandarin Chinese and *Arfinn Múruvík Vonen* on Polynesian multifunctionality.

*Werner Abraham* deals with what has been called an uncategorisable class of lexicals, the *modal particles* (MPs). They occur characteristically, and to all appearances only, in the continental West Germanic languages. The data presented here are limited to German. The meaning of MPs is typically vague to indiscriminable, but their illocutionary force and distributional constraints are nevertheless considerable and sharply delineated. The main goal of the paper is to delineate more sharply this “non-category” in distributional terms and, above all, explain the source of its specific illocutionary force and distributional behaviour.

The paper by *Jürgen Broschart* discusses a special class of function words in Tongan grammar which are called “preverbials”. The grammatical characteristics of this class are contrasted with the behaviour of semantically similar items in order to determine the typological status of this class relative to established means for the expression of the notions of aspectuality, temporality, modality, and manner of action. He addresses synchronic questions of syntactic function as well as historical developments leading from superordinate predicates to the essentially adverbial category in question.

*Monika Budde* argues that identifying the lexical words of a particular language is one of the major tasks of the language’s grammar. Such an identification is presupposed in both the identification of the language’s word classes and the comparison of classifications of different languages’ lexical items. In practice, the main problem is to justify which entities should qualify as words. Using Integrational Linguistics and especially Hans-Heinrich Lieb’s explication of “word paradigm”, the paper develops a general method for justifying particular lexical words. First, the paradigms and the lexical meanings of German possessive pronouns are determined in a systematic way. Then, the method used in this sample analysis is applied to other pronouns of German. Finally, the results are generalised by focusing on those aspects of the argumentation that are independent of the sample word class and the sample language.

*Marianne Mithun* takes as a starting-point that certain typologies of lexical categories have pointed to the Iroquoian languages as counterexamples to the universality of the noun-verb distinction. In fact the distinction is particularly robust in these languages. The languages do show, however, that morphological, syntactic, and semantic criteria do not always yield the same classifications of lexical items. Iroquoian verbs, nouns, and particles show strikingly different morphological structures. Morphological nouns function syntactically as nominals, identifying arguments of clauses. They also show the semantic characteristics expected of nouns,

denoting objects and persons. Morphological verbs typically function syntactically as predicates. Semantically they denote events and states. But both particles and verbs are also used syntactically and semantically as nominals. Once their morphological, syntactic, and semantic properties are distinguished, their classification is straightforward.

*Robin Sackmann* attempts to determine the syntactic properties of numeratives (classifiers and measures) in Mandarin Chinese, understood as a distinct word class. Using Hans-Heinrich Lieb's theory of Integrational Linguistics as a theoretical background, the essay focuses on three topics: the syntactic structure of numerative expressions, the position that numeratives and their subclasses occupy in the part-of-speech system of Mandarin Chinese, and the syntactic basis of Chinese 'noun classification' conceived as a relationship between classifiers and certain sets of substantives, so-called 'noun classes'. A number of key concepts needed for describing any numeral classifier language are formally defined, in particular, a concept of numeral classifier language itself.

*Arnfinn Muruvik Vonen* starts from the assumption that there is a long-standing debate concerning the distinction between nouns and verbs in Polynesian languages. He points out that some of the apparent disagreements in this debate, and possibly in similar debates concerning other language groups such as Wakashan, Salishan and signed languages, may stem from differences in the ambitions of linguistic description rather than from real differences in understanding the data. A distinction is made between two motivations for rejecting a noun-verb distinction on the lexical level in Polynesian and adopting the notion of multifunctional lexical items: a principled motivation and a methodological motivation. In the latter case, the rejection of the distinction may be due to low descriptive ambitions.

Osnabrück/Leipzig, September 1999

Petra M. Vogel and Bernard Comrie



# **I. General studies**



# A dynamic model of part-of-speech differentiation

Jan Anward

## 1. Introduction\*

Most, if not all, natural languages organise their lexical items into a system of broad lexical classes, whose members share unique clusters of semantic, syntactic, and morphological properties.

Such part-of-speech systems are not of one kind, but vary from language to language, along a number of parameters.

Curiously, however, one common feature of naturally occurring part-of-speech systems seems to be that they are not “well-designed”, at least not qua part-of-speech systems. It is characteristic for part-of-speech systems to be complex and opaque. Whatever identifying criteria we use for parts of speech—meaning, syntactic function, or inflection—the relationship between particular criteria and particular parts of speech is typically many-to-many.<sup>1</sup>

The medieval *modistae* (Robins 1990: chapter 4; Covington 1979, 1984; Itkonen 1991: 219–252) demonstrated that part-of-speech membership cannot be predicted from lexical meaning. A telling quadruple was devised by Boëthius Dacus to show the nature of the problem: *dolor* ‘pain’, *doleo* ‘I feel pain’, *dolenter* ‘painfully’, and *heu* ‘ouch’ have very similar meanings, but belong to four different parts of speech: noun, verb, adverb, and interjection, respectively (Covington 1984: 26).<sup>2</sup>

Conversely, most parts of speech accommodate several semantic categories. For example, nouns are not only person or thing expressions, they also express event notions, such as *scandal* and *war*, place notions, such as *rear*, *way*, *left*, and *north*, temporal notions, such as *day*, *week*, and *winter*, and in fact most other kinds of notions. Likewise, verbs are not only event expressions, but also express, for example, place (*inhabit*), time (*elapse*), relation (*resemble*), and quantity (*multiply*).

A similar story can be told of syntactic functions and parts of speech. Nouns, verbs, and adjectives can all be used as arguments, predicates, and modifiers as will be shown in this article.

Not even inflection, the last resort for the weak-hearted, escapes the many-to-many pattern. In Swedish, for example, not only nouns, but also adjectives, some

quantifiers, and past participles take nominal inflection. Conversely, in all these parts of speech, there are members that, for various reasons, do not inflect at all.

Thus, part-of-speech systems present us with three theoretical problems:

1. Why do most, if not all, languages have a part-of-speech system, rather than just a homogeneous set of lexical items?
2. Why do part-of-speech systems vary from language to language, rather than being of one make for all languages?
3. Why are part-of-speech systems not “well-designed” one-to-one mappings of semantic categories onto functional and formal categories (one meaning—one function—one form)?

In this paper, I will present a model of language structure in which these problems can begin to be resolved. The model has two basic premises.

The first premise is that a natural language is not learnt in one fell swoop, but is the result of a series of successive expansions of an originally very simple system. Language acquisition is a prime example of a learning process that, in Elman’s (1993) terms, “starts small”, in order to organise the data on which “structural couplings” (Varela—Thompson—Rosch 1991) between behaviour and environment are based in a manageable way. Otherwise, the learner is overwhelmed by evidence and does not learn effectively. Elman, as well as Plunkett—Marchman (1993), make the further point that starting small may be better implemented on the capacity side than on the evidence side. An organism with a limited initial capacity must start small, irrespective of how its environment is organised.

The second premise is that the process of expansion can be modelled as a process of successive syntagmatic and paradigmatic expansion, driven by a need for increased expressive capacity, and constrained by considerations of economy and contrast. A particularly important economic principle is the “green” principle that recycling of already available resources is to be preferred to introduction of new resources (Anward—Lindblom forthcoming).

In this kind of model, the “deep” organising factors of part-of-speech systems are not motivated by properties of such systems. They are instantiations of factors which drive language development in general: maximisation of meaning, minimisation of effort. Speakers do not set out to acquire part-of-speech systems, well-designed or not. Part-of-speech systems are what “happen”, as language users engage in processes of successive syntagmatic and paradigmatic expansion.

I will start with a much simpler, but quite successful, model of part-of-speech differentiation, which has the double attraction of being the basis of a typology and being easily interpretable in terms of syntagmatic and paradigmatic expansion: the Amsterdam model of part-of-speech systems, proposed by Hengeveld (1992: 47–72)

and since elaborated by De Groot (1997) and Hengeveld—Rijkhoff—Siewierska (1997).

After having presented the Amsterdam model and a dynamic re-interpretation of it, I invoke the forefathers of our craft, the classical Greek and Latin grammarians, to broaden the perspective.

After that, I develop a more complete model, using empirical evidence mainly from Swedish, but also from a small pilot sample of nine additional languages.<sup>3</sup>

<b>Africa</b>	Khoisan Niger-Congo	<i>Nama</i> <i>Yoruba</i>
<b>Eurasia</b>	Indo-European Uralic NE Caucasian Chukchi-Kamchatkan Isolate	<i>Swedish</i> <i>Finnish</i> <i>Archi</i> <i>Chukchi</i> <i>Ainu</i>
<b>Oceania</b>	Austronesian Papuan	<i>Maori</i> <i>Kobon</i>
<b>America</b>	Macro-Ge	<i>Bororo</i>

Figure 1. Pilot sample

## 2. The Amsterdam typology

### 2.1. Parts of speech

In the Amsterdam model of part-of-speech systems, classes of lexical items are differentiated by the syntactic functions they can serve. Functions recognised by the model are predicate, term (subject or object), term modifier (attribute) and predicate or modifier modifier (adverbial), and lexical items are thus categorised by means of the following functional properties (based on the part-of-speech definitions in Hengeveld 1992: 58):

- |   |                               |  |
|---|-------------------------------|--|
| A | 1. <i>predicate use</i> :     | can, without special marking, be used as a predicate,                      |
|   | 2. <i>term use</i> :          | can, without special marking, be used as the head of a term,               |
|   | 3. <i>term modifier use</i> : | can, without special marking, be used as a modifier of the head of a term, |



4. *predicate modifier use*: can, without special marking, be used as a modifier of a predicate or of another modifier.

If each non-null combination of functions defines a possible part of speech, there is a total of 15 possible parts of speech. But Hengeveld argues that only six of these are actually attested in his empirical database, a principled sample of 40 languages. First, all major lexical items have a predicate use. Thus, property (A1) is not discriminating. Secondly, Hengeveld does not find items that have a term use and a predicate modifier use, but not a term modifier use, or items that have a term use and a term modifier use, but not a predicate modifier use. In other words, an item with a term use has either both modifier uses or no modifier use.

When it comes to naming the six remaining parts of speech, Hengeveld proposes the following: an item that has a predicate use only is a verb (V); an item that has a term use is a noun (N); an item that has a term modifier use is an adjective (A); and an item that has a predicate modifier use is an adverb (D). Like Whorf (1945), Hengeveld allows items to have compound names. An item that has both modifier uses is consequently both an adjective and an adverb (A/D).

The six parts of speech that this model makes available to natural languages are then the following ones:

part of speech	predicate use (p)	term use (t)	term modifier use (tm)	predicate modifier use (pm)
V	+			
N	+	+		
A	+		+	
D	+			+
A/D	+		+	+
N/A/D	+	+	+	+

Figure 2. The six parts of speech of Hengeveld (1992)

The six parts of speech of Figure 2 can be exemplified by means of the skeletal sentences of (1). A V is an item with the distribution of *run* in (1), an N is an item with the distribution of *horse* in (1), an D is an item with the distribution of *around* in (1), an A is an item with the distribution of *strong* in (1c, f), an A/D is an item with the distribution of *strong* in (1c, f, g), and an N/A/D is an item with the distribution of *strong* in (1c, f, g, h).

- (1) a. [horse run]                    'a horse runs'  
       b. [horse around]           'a horse is around'  
       c. [horse strong]           'a horse is strong'  
       d. [horse horse]            'a horse is a horse'

- e. [horse run around]      'a horse runs around'
- f. [strong horse run]      'a strong horse runs'
- g. [horse run strong]      'a horse runs strongly'
- h. [strong run]      'a strong one runs'

In addition to the parts of speech in Figure 2, Hengeveld (1992: 68–69) also recognises a part of speech V/N/A/D. However, apparently he fails to notice that such a part of speech is incoherent, according to his own definitions. A V can not have any other use beside predicate use. A four-use-item should be an N/A/D and nothing else. Nevertheless, in what follows, I will conform to Hengeveld's usage, rather than to his definitions, and use V/N/A/D for an N/A/D which does not contrast with a V.

## 2.2. Part-of-speech systems

There are 63 ( $2^6 - 1$ ) possible non-null combinations of the parts of speech in Figure 2. Of these, only seven are actually attested, according to Hengeveld (1992: 69–71):

	p	t	tm	pm
1	V/N/A/D			
2	V	N/A/D		
3	V	N	A/D	
4	V	N	A	D
5	V	N	A	
6	V	N		
7	V			

Figure 3. Part-of-speech systems

System 4 is maximally differentiated, with separate classes of items serving the functions of term, term modifier, and predicate modifier. Hengeveld's example of a language with such a system is English. This kind of system contrasts with less differentiated systems, in two ways. In one direction (5–7), items retain their specialised functions, but the number of functions is reduced. In the other direction (3–1), the number of functions is retained, but items become more polyfunctional, or flexible.

In languages of type 5, there are no predicate modifiers. Instead, dependent predications, such as serial verbs, are used. In languages of types 6 and 7, first term modifiers and then also terms are absent, again with dependent predications taking over their rôles. Examples of languages of type 5, 6, and 7 are Wambon, Hausa, and Tus-

In languages of type 3, there is a class of flexible items serving both modifier functions. In languages of type 2, the class of flexible items also serve the function of term. In addition, there is a class of verbs, reserved for predicate use only. In languages of type 1, even such a class of verbs is absent, and all words can be used in all functions. Examples of languages of type 3, 2, and 1 are Dutch, Quechua, and Tongan, respectively.

### 3. A dynamic interpretation of the Amsterdam typology

The Amsterdam typology of part-of-speech systems has a straightforward interpretation as the outcome of a process of successive syntagmatic and paradigmatic expansion.

The process is simple enough, a successive iteration of the following moves:

- D1. Introduce a new function, F, and
- D2. Introduce a new class of items in F, or
- D3. Use an old class of items in F.

We start by introducing the function of predicate, or head of an independent S, and a class of items to serve that function. Since items in that class have a predicate use only, they are naturally called verbs. This step is common to all the seven types of systems recognised in the typology, and has the following outcome:

	P
1-7	V

Figure 4. Step 1

In the second step, the function of term is introduced. Here, there are three possible outcomes. A language may abstain from this step, and stick with step 1, which results in a system of type 7. If a language takes the step, a new class of items, nouns, may be introduced to serve the function of term, or the old class of verbs may be used in that function as well. In the first case, we get systems of types 2 to 6, systems with a verb-noun split. In the second case, the old V class gets both a predicate use and a term use, which transforms it into a V/N class. This outcome will eventually result in a system of type 1.

	<b>p</b>	<b>t</b>
1	V/N	V/N
2-6	V	N
7	V	

Figure 5. Step 2

In the third step, the function of term modifier is introduced, and the simple function of term is reanalysed as head of term. This step can only be taken by a language that has taken the second step. Thus, a system of type 7 is unaffected by the third step. A language may abstain from the third step, which gives us a system of type 6. If the step is taken, there are three possible outcomes. Either a new class, adjectives, is introduced, resulting in systems of types 3 to 5, or the old term class is used in term modifier function as well, resulting in the new classes of V/N/A and N/A, and systems of types 1 and 2.

	<b>p</b>	<b>t</b>	<b>tm</b>
1	V/N/A	V/N/A	V/N/A
2	V	N/A	N/A
3-5	V	N	A
6	V	N	
7	V		

Figure 6. Step 3

The Part-of-speech Hierarchy in Figure 6 constrains the process in such a way that only the option of using the old class of nouns is available, if there is no previous verb-noun differentiation.

#### B Verb > Noun > Adjective > Adverb

This hierarchy sums up a series of implicational statements, where the existence of a part of speech in a language entails the existence in the same language of all parts of speech to the left of it on the hierarchy. The hierarchy can also be restated as a constraint on successive differentiations, allowing adjectives to be differentiated from nouns only if nouns have been differentiated from verbs, and adverbs to be differentiated from adjectives only if adjectives have been differentiated from nouns.

In the fourth and final step, the function of predicate modifier is introduced. This step can only be taken by a language that has taken the third step. Systems of types 6 and 7 are unaffected by the fourth step. A language may abstain from the fourth step, which gives us a system of type 5. If the step is taken, there are three possible

outcomes. Either a new class, adverbs, is introduced, resulting in systems of type 4, or the old classes of A, N/A or V/N/A are used in predicate modifier function as well, resulting in the new classes of A/D, N/A/D, and V/N/A/D, and systems of types 3, 2, and 1. The hierarchy can also be restated as a constraint on successive differentiations, allowing adjectives, only if nouns have been differentiated from verbs, and adverbs, only if adjectives have been differentiated from nouns.

	p	t	tm	pm
1	V/N/A/D	V/N/A/D	V/N/A/D	V/N/A/D
2	V	N/A/D	N/A/D	N/A/D
3	V	N	A/D	A/D
4	V	N	A	D
5	V	N	A	
6	V	N		
7	V			

Figure 7. Step 4

A priori, there is no reason why a budding system of type 1 might not abstain from the third step or the fourth step, but apparently Hengeveld found no such systems.

#### 4. Broadening the perspective

The Amsterdam typology constrains linguistic diversity in a powerful way. However, it is based on a very impoverished model of part-of-speech systems. Compared to most other models of part-of-speech systems, the Amsterdam model recognises very few parts of speech.<sup>4</sup> Pronoun, article, preposition, conjunction, quantifier, numeral, and interjection have no place in the typology. Moreover, the model does not take into account formal differentiation of parts of speech by means of inflectional, function-indicating, and derivational morphology. Nor does it take into account the interaction of functional and formal differentiation with semantic differentiation.

It is useful to compare the Amsterdam model to the list of *μέροι λόγου* (*méroi lógou*, parts of speech) posited for Classical Greek by Dionysios Thrax (Robins 1990: 39) (see Table 1) and the list of Latin *partes orationis*, derived from the Greek list by Apollonios Dyscolos (Itkonen 1991: 201–216) and Priscian by omitting article, which Latin lacks, and adding interjection (Robins 1990: 66) (see Table 2).

Table 1. Μέροι λόγου

<i>ónoma</i> (noun)	a part of speech inflected for case, signifying a concrete or abstract entity
<i>rhēma</i> (verb)	a part of speech without case inflection, but inflected for tense, person, and number, signifying an activity or process performed or undergone
<i>metochē</i> (participle)	a part of speech sharing the features of the verb and the noun
<i>áarthron</i> (article)	a part of speech inflected for case, preposed or postposed to nouns
<i>antōnymía</i> (pronoun)	a part of speech substitutable for a noun and marked for person
<i>próthesis</i> (preposition)	a part of speech placed before other words in composition and in syntax
<i>epirrhēma</i> (adverb)	a part of speech without inflection, in modification or in addition to a verb
<i>sýndesmos</i> (conjunction)	a part of speech binding together the discourse and filling gaps in its interpretation

Table 2. Partes orationis

<i>nōmen</i> (noun)	the property of the noun is to indicate a substance and a quality, and it assigns a common or a particular quality to every body or thing
<i>verbum</i> (verb)	the property of a verb is to indicate an action or a being acted on; it has tense and mood forms, but is not case inflected
<i>participium</i> (participle)	a class of words always derivationally referable to verbs, sharing the categories of verbs and nouns (tenses and cases), and therefore distinct from both
<i>prōnōmen</i> (pronoun)	the property of the pronoun is its substitutability for proper nouns and its specifiability as to person (first, second, or third)
<i>adverbium</i> (adverb)	the property of the adverb is to be used in construction with a verb, to which it is syntactically and semantically subordinate
<i>praepositiō</i> (preposition)	the property of the preposition is to be used as a separate word before case-inflected words, and in composition before both case-inflected and non-case-inflected words
<i>interiectiō</i> (interjection)	a class of words syntactically independent of verbs, and indicating a feeling or a state of mind
<i>coniunctiō</i> (conjunction)	the property of conjunctions is to join syntactically two or more members of any other word class, indicating a relationship between them

Priscian insists that his list of *partes orationis* presents them in their “natural order” (Covington 1984: 5–6), and the order in which Dionysios’ and Priscian’s systems of parts of speech are presented is in fact quite systematic.

Robins (1990: 39) suggests that Dionysios’ and Priscian’s systems of parts of speech are primarily based on a morphological classification of words, which is most clearly described by Varro (Robins 1990: 58–59), who distinguishes words inflected for case, but not for tense, words inflected for tense, but not for case, words inflected for both case and tense, and uninflected words. In feature notation:

1. [+case; –tense]
2. [–case; +tense]
3. [+case; +tense]
4. [–case; –tense]

However, if we spell out these features for the parts of speech recognised by Dionysios, we see that Varro’s morphological classification does not constitute the only organising principle of the system. If it did, article and pronoun should immediately follow noun in Dionysios’ list.

- |                    |                    |
|--------------------|--------------------|
| 1. [+case; –tense] | <b>noun</b>        |
| 2. [–case; +tense] | <b>verb</b>        |
| 3. [+case; +tense] | <b>participle</b>  |
| 4. [+case; –tense] | <b>article</b>     |
| 5. [+case; –tense] | <b>pronoun</b>     |
| 6. [–case; –tense] | <b>preposition</b> |
| 7. [–case; –tense] | <b>adverb</b>      |
| 8. [–case; –tense] | <b>conjunction</b> |

Rather, the morphological classification is combined with and partially overridden by a syntactic classification. The syntactic functions of nouns as subjects and verbs (and participles) as predicates are only presupposed (for this point, see e.g. Itkonen 1991: 177–178, 186–187), but the other parts of speech are explicitly characterised as to syntactic function. Thus, there is a progression of the following kind in Dionysios’ list: nouns, verbs and participles, words which modify nouns or substitute for nouns (article, pronoun), words which modify both nouns and verbs (preposition), words which modify verbs (adverb), and words which join other words together (conjunction).

Priscian’s system is a slight variation on this system, with article missing, words which modify both nouns and verbs after words which modify only verbs, and another non-modifier part of speech, interjection, added before conjunction.

Finally, the systems are grounded in a semantic interpretation of nouns and verbs as words which denote substance and action, respectively. This grounding justifies the ordering of nouns, which denote a semantically and ontologically primary category, before verbs, which denote a semantically and ontologically secondary category—and of adnominals before adverbials. Possibly, the syntactic functions of noun and verb are held to follow from the semantic interpretations of these parts of speech and need not be explicitly mentioned. The complete Dionysian system is thus as follows:

1.	substance	[+case; –tense]	<b>noun</b>
2.	action	[–case; +tense]	<b>verb</b>
3.		[+case; +tense]	<b>participle</b>
4.	N modifier	[+case; –tense]	<b>article</b>
5.	N substitute	[+case; –tense]	<b>pronoun</b>
6.	X modifier	[–case; –tense]	<b>preposition</b>
7.	V modifier	[–case; –tense]	<b>adverb</b>
8.	conjoiner	[–case; –tense]	<b>conjunction</b>

In other words, in Dionysios' and Priscian's systems, a part of speech is individuated by a characteristic combination of a *syntactic function*, an *inflectional pattern*, and a *semantic category*. For example, a full characterisation of the class of nouns, including the presupposed notion of subject, is given by the combination:

- (2) Subject,  
inflected for case, not for tense,  
signifying person or thing.

Thus, instead of the Amsterdam model's single dimension of differentiation—syntactic function—the classical models recognise three dimensions of differentiation: semantic category, syntactic function, and inflection. In what follows, I will show that the higher resolution permitted by the classical models is descriptively desirable (see also Anward—Moravcsik—Stassen 1997).

## 5. An elaborated model

The dynamic model presented in section 3 is basically a stylised model of language acquisition. However, as such, it is not entirely realistic. Syntactic functions do not



seem to be introduced one by one in the manner suggested by steps one through four.

Rather, the development of syntactic complexity passes through three stages of a quite different kind. In the first stage, the one-word stage, utterances are co-extensive with single words. In this stage, the utterances in (3a) are possible utterances, but not the utterances in (3b) or (3c). In the second stage, the two-word stage, a word can be construed with exactly one more word. Thus, (3a) and (3b) are possible utterances in this stage, but not (3c). Finally, in the third stage, constructions can be embedded within other constructions, allowing for all of (3a), (3b), and (3c).

- (3) a. Banana; Yellow; Good
- b. Yellow banana; Banana good; Very good
- c. The yellow banana is very good

These stages can be roughly characterised in the following way. In the first stage, words are used as complete utterances. In the second stage, a word may also be construed with a modifier or a term. In the third stage, terms and modifiers may themselves be construed with their own terms and/or modifiers. In what follows, I will outline a dynamic model of this kind.

## 6. Step one revisited

### 6.1. Semantic background

Let us retrace step 1. To begin with, I make the fairly uncontroversial assumption that words are semantically differentiated, even when used as one-word utterances (see e.g. Schlesinger 1982). I will furthermore use the semantic landscape in (C) (Stassen 1997: chapter 14) to structure this semantic differentiation.

- C    event
- place
- time
- property
- quantity
- person/thing

The landscape in (C) is based on a one-dimensional projection of the semantic landscape used by Stassen (1997: chapter 14) to model the varieties of intransitive predication in the languages of the world:

- D    event
- place
- property
- class
- entity

Stassen (1997: 578–581) argues that (D) forms “a universally valid semantic or cognitive space. It is a point of departure shared by all natural languages in the encoding of intransitive predication”.

In order to ensure a better coverage of lexical diversity, I have added the additional categories of time and quantity (cf. Anward forthcoming). I also depart from Stassen in collapsing his two categories of class and entity into the single category of person/thing. The distinction is important to Stassen’s investigation (and to a more detailed model), but need not be observed in the present context.

The semantic categories in (C)—and (D)—are ordered along a rough scale of time-stability (Givón 1984: 51–52; see also Stassen 1997: 15–16, 578–581 for a recent assessment), from the least stable entities (event) to the most stable entities (person and thing). In Stassen’s model, there is also an additional scale of spatio-temporal specification, which, however, I will disregard here.

This means that the first step can be more precisely reformulated, as in (E).

- E    Introduce an expression for category K in root function, where K is event, place, time, property, quantity, person, or thing.

An expression which by itself constitutes an independent utterance (or root sentence, in the sense of Emonds 1976) is (not yet) a predicate, since it is not construed with a term or modifier. That is why I have used root rather than predicate to designate the syntactic function of holophrastic words.

Using a few examples from the one-word utterances of the Swedish girl Embla (Lange—Larsson 1973): *oj* ‘oh’, *hjälpa* ‘help’, *ramla* ‘fall’, *där* ‘there’, *nu* ‘now’, *stor* ‘big’, *mera* ‘more’, *mamma* ‘mummy’, and *bil* ‘car’, we can construct a small concrete case of step 1 for Swedish:

semantic category	root function (r)
event	<i>oj</i> <i>hjälpa</i> <i>ramla</i>
time	<i>nu</i>
place	<i>där</i>
property	<i>stor</i>
quantity	<i>mera</i>
person/ thing	<i>mamma/</i> <i>bil</i>

Figure 8. Step 1 in Swedish

## 6.2. Identification

An interesting question is whether lexical items are ever introduced more than once at this stage, if they ever lexicalise more than one of the categories in (C). Available evidence on early stages of language acquisition indicates that multiple lexicalisation of this kind is uncommon. There are reported cases where early items lexicalise more than one category (reported as mistakes in part-of-speech assignment in Schlesinger 1982: 222–223), but these are neither frequent nor systematic. Even the oft-discussed cases of over-extension in the one-word stage typically respect semantic category (see e.g. De Villiers—De Villiers 1979: 35–42).

We can make sense of this by means of the following—almost banal—condition on the use of linguistic expressions:

### F Identification

An expression must be identifiable as to semantic category and syntactic function.

Syntactic function of expressions used in one-word utterances is of course no problem. Semantic category of such expressions may be determined either by contextual priming or by previous use. Since previous use tends to block new contextual priming (Bichsel 1969), it follows that expressions used in one-word utterances tend to get “stuck” in the semantic category they are originally placed in.

## 7. Syntagmatic expansion

### 7.1. Terms and modifiers

Further functions are introduced through a process of syntagmatic expansion. Basically, this process involves the following two moves:

#### G *Syntagmatic expansion*

1. Construe an expression for category K in function F with a term expression.
2. Construe an expression for category K in function F with a modifier expression

The distinction between term and modifier is essentially that established already by the modistae (Covington 1979). In modern terms, the contrast amounts to the following: in a head–term construction, such as verb–object, the head is predicated of the term; in a head–modifier expression, such as noun–adjective, the modifier is predicated of the head. Thus, a head requires terms to be saturated, and can only be construed with as many terms as can saturate it. Modifiers, on the other hand, are not required by a head, and there can be an indefinite number of modifiers of a single head.

When a root expression is construed with a term expression, we get a subject–predicate construction. A predicate expression can then in turn be construed with a term expression, with a transitive predicate–object construction as result. Finally, a term expression can itself be construed with a term expression, giving rise to possessor–head constructions.

Predicate and term expressions can then be construed with modifiers, giving rise to predicate modifiers (adverbials) and term modifiers (attributes), and such modifiers can themselves in turn be construed with terms and modifiers.

### 7.2. Dependent predicates

In Swedish, as in English, words such as *nu*, *där*, *stor*, *mera*, *mamma*, and *bil*, i.e. adverbs, adjectives, quantifiers, and nouns, cannot be directly construed as predicates:

- |     |    |                  |             |
|-----|----|------------------|-------------|
| (4) | a. | <i>*Det nu</i>   | ‘It now’    |
|     | b. | <i>*Hon där</i>  | ‘She there’ |
|     | c. | <i>*Han stor</i> | ‘He big’    |

- d. \**Det mera* 'That more'
- e. \**Det bil* 'That car'

Instead, adverbs, adjectives, quantifiers, and nouns are construed as dependent predicates, or predicatives, of another predicate, with which they "share" a term.

- (5) a. *Det är nu.* 'It is now.'
- b. *Hon är där.* 'She is there.'
- c. *Han är stor.* 'He is big.'
- d. *Det är mera.* 'That is more.'
- e. *Det är en bil.* 'That is a car.'

A dependent predicate, such as *hungry* in *John was hungry* and *Joan kept John hungry*, is predicated of a term of its head. The semantic operation involved is functional composition (Steedman 1985: 530–533), whereby the predicates expressed by head and dependent form a composite predicate: 'is(x)' and 'hungry(y)' become 'is(hungry(y))', 'keep(x, y)' and 'hungry(z)' become 'keep(x, hungry(z))'.

There are also cases such as *Joan wrote the book hungry*, where a dependent expresses an additional predication about the subject or object of its head. In this case, functional composition results in a conjoined predicate: 'wrote(x, the-book) & hungry(x)'.

Obviously, then, we need a third move of syntagmatic expansion:

#### H *Syntagmatic expansion*

Construe an expression in predicate function with a dependent predicate expression.

### 7.3. Functional licensing

As pointed out by Jespersen (1924), part-of-speech distinctions are licensed only by "shallow" positions in a sentence: predicate, subject/object, adverbial, attribute in main clauses. Thus, we would be surprised if a language would use a particular class of lexical items which, like the nonce-word *meddy* in (6b), can only be used as modifiers of attributes in subordinate clauses.

- (6) a. *She made a very good suggestion.*
- b. *It is evident that she made a meddy good suggestion.*

This restriction is of course already incorporated in the Amsterdam model, where only term, term modifier, and predicate modifier functions may trigger part-of-speech distinctions.

There is reason though to relax the restriction slightly. It is true that different types of terms do not seem to license distinct lexical classes. There is no known language where one class of words is used for subjects, one class of words is used for objects, and one class of words is used for possessors. However, in the case of pronouns, there might be small tendencies in this direction. Thus, personal pronouns may have suppletive forms in different term functions (e.g. *I-me*), reflexive pronouns cannot be used as subjects, and logophoric pronouns are restricted to subordinate clauses.

When it comes to modifiers, it is fairly usual for predicate modifiers and term modifiers to license distinct classes of lexical items. However, there are also items which are licensed by other modifier functions. For example, the word *ganska* 'rather' in Swedish can be used neither as term modifier nor as predicate modifier, but only as modifier of another modifier:

- |     |    |                                      |                         |
|-----|----|--------------------------------------|-------------------------|
| (7) | a. | <i>*Han sprang ganska</i>            | 'He ran rather'         |
|     | b. | <i>*Han är en ganska löpare</i>      | 'He is a rather runner' |
|     | c. | <i>Han sprang ganska snabbt</i>      | 'He ran rather fast'    |
|     | d. | <i>Han är en ganska snabb löpare</i> | 'A rather fast runner'  |

As a preliminary generalisation, we can use (I).

- I A lexical item can be licensed only by its immediate syntactic function, that function being specified as either 'ϕ' (root, predicate, term, or modifier) or 'modifier of ϕ'.

## 7.4. Optional functions

A further ingredient of the Amsterdam model is the notion that a language need not use all of the syntactic functions made possible by (G) and (H). Indeed, there seem to be languages which lack predicate modifiers, using serial or medial verbs—i.e. verbs in dependent predicate function—instead, as predicted by the Amsterdam model. Contrary to the predictions of the model, there also seem to be languages which lack term modifiers, using predicate modifiers (or something equivalent) to express term modification. Hixkaryana and other Carib languages are examples of languages that approximate this type (Derbyshire 1979). Following Whorf (1945) and Sasse (1988), Hengeveld (1992: 67) also proposes that there are languages which lack terms altogether and express everything through series of predicates.

However, proposed examples of such languages, Wakashan and Iroquoian languages, do not actually seem to fit the type (Jacobsen 1979; Mithun 1997). A possible conclusion is that the term part of (G) is the only obligatory component of syntagmatic expansion.

## 8. Paradigmatic expansion

### 8.1. Introduction and recycling

Fillers for a new functional slot made available by (G) are recruited by two methods, corresponding to D2 and D3 in section 2: a new item can be introduced as an expression for a certain category in the new function, or an expression for a certain category in an old function can be recycled as an expression for that or another category in the new function. However, it is not really motivated to treat these methods as mutually exclusive alternatives, as they are in section 2. To take a simple example, consider again the case of *ganska* 'rather' in Swedish. This is certainly an item that is introduced as an expression for quantity in modifier of modifier function in Swedish. However, it co-exists happily with other expressions of quantity in that function, for example *hemskt* 'terribly', which are best seen as recycled expressions for property in predicate modifier and/or term modifier function. Witness the sentences in (8), for example.

- (8) a. *Han sprang hemskt.*  
       'He ran in a terrible manner.'
- b. *Han är en hemsk löpare.*  
       'He is a terrible runner.'
- c. *Han sprang hemskt fort.*  
       'He ran terribly fast.'
- d. *Han är en hemskt snabb löpare.*  
       'He is a terribly fast runner.'

In the normal case, rather, lexical resources for a function are recruited by both methods. This is made explicit in (J).

#### J Paradigmatic expansion

1. Introduce an expression for category K in function F.

2. Use an expression for category K in function F as an expression for category K' in function F'.

## 8.2. Recycling and identification

Following Hopper—Thompson (1984) and Croft (1990), we recognise certain “unproblematic” combinations of semantic category and syntactic function:

semantic category	syntactic function
event	predicate
time	modifier
place	modifier
property	modifier
quantity	modifier
person/thing	term

Figure 9. Unproblematic category/function combinations

In this context, I will simply accept the arguments by Hopper—Thompson and Croft that the unproblematic nature of the combinations in Figure 9 is grounded in human experience and practice. For some further discussion, see Lyons (1977: chapter 11.3) and Anward—Lindblom (forthcoming: section 10).

A consequence of Figure 9 is that expressions in non-root function can get their syntactic functions determined by their semantic categories. An expression for event in root function which is recycled in non-root function can be identified as an expression for event in predicate function. An expression for person/thing in root function which is recycled in non-root, non-predicate function can be identified as an expression for person/thing in term function, and so on.

Thus, simple recycling of root expressions will be streamlined by the principle of identification in (F) into the combinations of Figure 9. Once a slot for a new function has been established in this way, new expressions can be introduced into that function. For example, if *Diagonalise this matrix* is heard as an answer to the question *What should I do next?*, and it is clear from the context that *this matrix* signifies a thing, then the semantic category of *diagonalise*—event—follows from its occurrence in predicate function in an utterance which as a whole signifies an event.



## 9. Inflectional elaboration and take-over

### 9.1. Inflectional elaboration

As Hopper—Thompson (1984) show, expressions for event in predicate function and expressions for person/thing in term function are loci for inflectional elaboration. Nominal morphology—inflection for definiteness, number, gender, case, and possessor agreement—is maximally elaborated on expressions for person/thing in term function, and verbal morphology—inflection for finiteness, tense, mood, aspect, subject agreement, and object agreement—is maximally elaborated on expressions for event in predicate function.

This is made explicit in (K).

#### K *Inflectional elaboration*

1. Add verbal inflection to an expression for event in predicate function.
2. Add nominal inflection to an expression for person/thing in term function.

Inflectional elaboration is subject to considerable variation in the world's languages.

Verb		Noun			Language
f	so	k	(d)		Chukchi
f	so			p	Ainu
f	s	k	d	p	Finnish
f	s	k	d		Nama
f	s	k	d		Archi
f	s	k		p	Bororo
f	s				Kobon
f		k	d		Maori
f			d		Swedish
					Yoruba

Figure 10. Inflectional elaboration in the pilot sample

In the languages of the pilot sample—as shown in Figure 10 above—nouns in argument function are maximally inflected for case (k), determiner categories (d), such as number and definiteness, and possessor agreement (p), while verbs in predicate function are maximally inflected for finiteness (f), subject agreement (s), and object agreement (o).

However, none of these inflections is obligatory. Judging just from the data in Figure 10—which of course are very limited—we can see some further tendencies at work. To begin with, nominal inflection implies verbal inflection. There are languages, such as Yoruba, which completely lack inflections, there are languages, such as Kobon, which have only verbal inflection, and there are languages that have both nominal and verbal inflection. Secondly, on verbs, object agreement implies subject agreement, and subject agreement implies finiteness inflection. Finally, as demonstrated by Allen (1964) and Seiler (1983), possessor agreement may be identical to either subject agreement or object agreement. In the pilot sample, possessor agreement is identical to subject agreement in Ainu and Bororo, and subject agreement in Nama is identical to determiner inflection.

## 9.2. Inflectional take-over

Through a process of take-over (Stassen 1997), inflections are recycled in contexts which are not subject to inflectional elaboration. The simplest cases of take-over are “vertical” and “horizontal” take-over. Vertical take-over, which is described in great cross-linguistic detail by Stassen (1997) for intransitive predication, is a process whereby the inflection on expressions for K in function F is recycled on expressions for K’ in function F. In Bororo, for example, verbal inflection is recycled on nouns in predicate function; in Swedish, nominal inflection on nouns in dependent predicate function is recycled on adjectives in dependent predicate function. Horizontal take-over is a process whereby the inflection on expressions for category K in function F is recycled on expressions for category K in function F’. For example, all of the languages in the pilot sample have the same inflection on nouns in term function and nouns in dependent predicate function.

### L *Inflectional take-over*

Use the inflection on expressions for category K in function F  
on expressions for category K’ in function F  
and/or expressions for category K in function F’.

## 10. Swedish, for example

Syntagmatic expansion—(G) and (H)—introduces predicates, terms, modifiers, and dependent predicates, and construes them with terms and modifiers. Paradigmatic

expansion—(E) and (J)—introduces root and predicate expressions and recycles them as term expressions and modifier expressions. Inflectional elaboration and take-over—(K) and (L)—introduce and recycle inflections.

items		functions					
		p	dp	t	pm	tm	mm
event	<i>oj</i>						
	<i>hjälpa</i>	f	f				
	<i>ramla</i>	f	f				
time	<i>nu</i>		—		—	—	
	<i>ofta</i>		—		—		—
place	<i>där</i>		—		—	—	
property	<i>stor</i>		d		d	d	
quantity	<i>mera</i>		d	d	d	d	
	<i>sju</i>		—	—		—	d
person/ thing	<i>mamma</i>		d	d			
	<i>bil</i>		d	d			

Figure 11. Part-of-speech differentiation in Swedish

Together, these processes split the Swedish words discussed earlier, *oj* ‘oh’, *hjälpa* ‘help’, *ramla* ‘fall’, *där* ‘there’, *nu* ‘now’, *stor* ‘big’, *mera* ‘more’, *mamma* ‘mummy’, and *bil* ‘car’ into several groups. This is shown in Figure 11, where I have also included the words *ofta* ‘often’ and *sju* ‘seven’, to better approximate the true diversity of Swedish words.

First, interjections such as *oj*, are differentiated from all other kinds of expressions. Interjections are expressions that only have a root function (r). They are not construed with subjects, and cannot be used as terms.

There are normally at least four subclasses of interjections (Ameka 1992): expressive interjections (‘ouch’, ‘oh’, ‘wow’, ‘aha’), directive interjections (‘hush’, ‘psst’, ‘hey’), phatic interjections (‘mhm’, ‘yes’, ‘no’, ‘huh’), and descriptive interjections (‘wham’, ‘thud’, ‘bang’), also called ideophones or expressives. Expressive, directive, and phatic interjections index aspects of the speech event, while ideophones signify topical events in an essentially iconic way.

In Anward (1986), I propose that expressive, directive, and phatic interjections are pragmatically saturated, i.e. predicated of speaker and/or hearer, and that this is what keeps them from being construed with terms or recycled as dependent expressions. Ideophones, on the other hand, can be recycled as dependent expressions in some languages.

Secondly, predicate use (p) differentiates verbs from other non-interjections. Only the verbal kind of event expressions, such as *hjälpa* and *ramla*, can, without formal modification, be used as predicate expressions. As shown in (4) and (5), other expressions can only be used in dependent predicate function (dp).

Note that verbs too can appear in dependent predicative function. Some languages such as Kobon and Yoruba, and to some extent Nama, in the pilot sample, have regular serial verb constructions, as in (9), from Baker (1989: 516).

(9) Yoruba

*Ajé gbé aṣọ wò.*  
 Aje took dress wear  
 'Aje put on a dress.'

In a serial verb construction, either all verbs have the same inflection, or only one verb has inflection, while the other verbs are uninflected (Foley—Olson 1985).

In Swedish, there is a much more restricted construction, with pseudo-coordinated complements of verbs of location and motion, which shares the constraint that all verbs must have the same inflection (Anward 1988):

(10) Swedish

- a. *Han är och hjälper henne.*  
 he is and helps her  
 'He is away to help her.'
- b. *Han gick och ramlade.*  
 he went and fell  
 'He accidentally fell down.'

In English, there is a peculiar version of this construction, subject to the constraint that all verbs in it must be uninflected (Perlmutter 1971). Thus, (11a) is grammatical, but not (11b).

- (11) a. *Go kiss a duck!*  
 b. *\*He went kissed a duck.*

Verbs are also differentiated from all other words by finiteness inflection in predicate function, which also spreads horizontally to verbs in dependent predicate function.

Thirdly, term use (t) differentiates nouns, quantifiers, and numerals from other non-interjections. Only quantity expressions, such as *mera* and *sju*, and person/thing expressions, such as *mamma* and *bil*, can, without formal modification, be used as term expressions. Contrast, for example, the term use of *mera* and 317 in (12a) and (12b) with the impossibility of using an adjective as *stark* 'strong' in the same way, as shown by (12c).

- (12) a. *Enligt Bataille är mer inte nog.*  
 according Bataille is more not enough  
 'According to Bataille, more is not enough.'
- b. *Enligt Chlebnikov är 317 nyckeln till världshistorien.*  
 according Chlebnikov is 317 key of world history  
 'According to Chlebnikov, 317 is the key of world history.'
- c. \**Enligt Nietzsche är stark nödvändigt*  
 according Nietzsche is strong necessary  
 'According to Nietzsche, strong is necessary'

Nouns and some quantifiers are also differentiated by nominal determiner inflection in term function, which also spreads, first horizontally to nouns and quantifiers in dependent predicate function, then vertically to adjectives in dependent predicate function, and then horizontally again to adjectives and (some) quantifiers in modifier functions.

Finally, the class of non-interjections, non-verbs, and non-nouns can, without formal modification, be used as modifier expressions. In Figure 11, we see four patterns of use in modifier functions. Words such as *mera* can be used as predicate modifier (pm), term modifier (tm), and modifier of another modifier (mm); words such as *nu*, *där*, and *stor* can be used as predicate modifier and term modifier; words such as *ofta* can be used as predicate modifier and modifier of another modifier; and words such as *sju* can be used as term modifier only. This is exemplified in (13).

- (13) a. *Vi kommer nu.* 'We are coming now.'
- b. *Vi dricker ofta kaffe.* 'We often have coffee.'
- c. *Vi sjöng där.* 'We were singing there.'
- d. *Vi förlorade stort.* 'We lost big=We lost in a big way.'
- e. *Vi arbetar mera.* 'We work more.'
- f. \**Vi har varit i Rom sju.* 'We have been to Rome seven'
- a'. *Modet nu är ganska konstigt.* 'The fashion now is fairly strange.'
- b'. \**De ofta kaffepauserna är trevliga* 'The often coffee breaks are nice'  
 \**Kaffepauserna ofta är trevliga* 'The coffee breaks often are nice'

c'. <i>Sederna där är behagliga.</i>	'The customs there are nice.'
d'. <i>De stora frågorna diskuterades.</i>	'The big questions were discussed.'
e'. <i>Sedan behövde vi mera öl.</i>	'Then we needed more beer.'
f'. <i>Vi köpte sju flaskor.</i>	'We bought seven bottles.'
a". <i>*En nu viktig fråga</i>	'A now important question'
b". <i>Den ofta viktiga frågan.</i>	'The often important question.'
c". <i>*En där viktig fråga</i>	'A there important question'
d". <i>*En stort viktig fråga</i>	'A bigly important question'
e". <i>En mera viktig fråga.</i>	'A more important question.'
f". <i>*En sju viktig fråga</i>	'A seven important question'

## 11. Spread patterns and further introduction

After syntagmatic expansion, paradigmatic expansion, inflectional elaboration, and inflectional take-over, lexical items thus become associated with characteristic spread patterns: sets of Dionysian contexts, each context specifying a semantic category, a syntactic function, and a pattern of inflection.

Spread patterns, such as those in Figure 11, serve as attractors for further paradigmatic expansion. For example, when expressions for other categories than event are introduced in predicate function and expressions for other categories than person or thing are introduced in term function, these assimilate to the pattern for verbs and nouns, respectively.

In this way, in Swedish, Figure 11 is expanded to Figure 12. We thus get verbs which express time, place, property, and quantity, such as *förflyta* 'elapse', *bebo* 'inhabit', *leva* 'live', and *förökas* 'grow in number', respectively, and nouns which express event, time, place, property, and quantity, such as *olycka* 'accident', *vecka* 'week', *botten* 'bottom', *mod* 'courage', and *dussin* 'dozen', respectively.

The assimilation of "problematic" combinations of category and function to existing spread patterns makes sense in the light of the principle of identification, (F). Given that the term function of, say, *olycka*, cannot be predicted from its semantic category, identification of its term function is only possible if *olycka* is taken over by the nominal inflection and position of concrete nouns.

Assimilation of expressions to established spread patterns concerns not only form and range of functions, but also semantic category, in a subtle way. Following basically the medieval modistic theory of parts of speech, where each lexical item

items		functions					
		p	dp	t	pm	tm	mm
event	<i>oj</i>						
	<i>hjälp</i>	f	f				
	<i>ramla</i>	f	f				
	<i>olycka</i>		d	d			
time	<i>nu</i>		—		—	—	
	<i>ofta</i>		—		—		—
	<i>förflyta</i>	f	f				
	<i>vecka</i>		d	d	d		
place	<i>där</i>		—		—	—	
	<i>bebo</i>	f	f				
	<i>botten</i>		d	d			
property	<i>stor</i>		d	d	d		
	<i>leva</i>	f	f				
	<i>mod</i>		d	d			
quantity	<i>mera</i>		d	d	d	d	d
	<i>sju</i>		—	—		—	
	<i>förökas</i>	f	f				
	<i>dussin</i>		d	d		d	
person/ thing	<i>mamma</i>		d	d			
	<i>bil</i>		d	d			

Figure 12. Part-of-speech differentiation in Swedish (2)

combines a lexical content, its individual meaning, with a mode of signification, a meaning ascribed to it through a particular part-of-speech membership, we can say that *förflyta* ‘elapse’ signifies an interval viewed as an event or process, while *vecka* ‘week’ signifies an interval viewed as a thing or entity (for a similar analysis, see Langacker 1987).

## 12. Steps two to four, take two

Let us now return to what would correspond to steps two, three, and four in the present model. As we have seen, in the case of Swedish, there are two means of lexical

differentiation involved, inflectional elaboration and recycling, and spread over a range of functions.

### 12.1. Dependent predicates

In the pilot sample, distribution over the functions of predicate and dependent predicate and inflectional elaboration of predicates and dependent predicates will distinguish at most three parts of speech.

As shown in extensive detail by Stassen (1997), inflection in predicate function can be described as an alignment of the three options of verbal inflection (v), no inflection (–), and nominal inflection (n) with the semantic landscape in (D), in such a way that “v”, “–”, and “n” form a sequence <v–n>, each inflection covers a continuous stretch of the landscape, and the leftmost inflection in the sequence is always linked to event.

The names of differentiated parts of speech in predicate function are best based on semantic category, as in Figure 13.

semantic category	part of speech
event	verb
time	adverb, adposition
place	adverb, adposition
property	adjective
quantity	quantifier, numeral
person/thing	noun

Figure 13. Part-of-speech names

The principle of naming is that a class of items that includes expressions for category K in predicate function gets the name associated with K. In addition, we need something very similar to Hengeveld’s Part-of-Speech Hierarchy (repeated below) as a preference ordering for naming.

M Verb > Noun > Adjective > Adverb

Thus, a class which includes expressions for both event and person/thing in predicate function would be called verb.

In the pilot sample, there are four attested combinations of verbal inflection (v), no inflection (–), and nominal inflection (n) in predicate position:



- |    |               |                                |
|----|---------------|--------------------------------|
| 1. | v in p:       | Bororo, Swedish, Finnish, Ainu |
| 2. | v and – in p: | Archi, Chukchi, Nama, Kobon    |
| 3. | – in p:       | Yoruba                         |
| 4. | v and n in p: | Maori                          |

In dependent predicate function, the same inflections are available. However, only no inflection and nominal inflection are distinctive. They may either be used to introduce items in dependent predicate function, which cannot be used in predicate function, or to differentiate items which can be used in predicate function. In Swedish, no inflection and nominal inflection differentiate prepositions and nouns, none of which can be used as predicates. In Nama, nominal inflection in dependent predicate function differentiates nouns and adjectives. Nouns occur with no inflection in predicate function and with nominal inflection in dependent predicate function. Adjectives occur with no inflection in predicate function, and do not appear in dependent predicate function. The differentiations appearing in the sample are shown in Figure 14.<sup>5</sup>

## 12.2. Flexibility reconsidered

Turning now to recycling of lexical items, we learn from the Amsterdam model that there is a sharp contrast between languages with and languages without a verb-noun distinction. However, when facts are reconsidered with the higher resolution provided by full Dionysian contexts, this picture is changed in an interesting way.

A first point is that what appear to be cases of verb-noun neutralisation in the low resolution description of the Amsterdam model might turn out to be not quite that when looked at with the higher resolution provided by full Dionysian contexts.<sup>6</sup>

In Maori, for example, which in a low-resolution description looks like a language where both nouns and verbs can be used as both terms and predicates, apparently nouns cannot be used as expressions for event. There seem to be no basic nouns which refer to events, and a basic noun which refers to person or thing cannot be recycled as an expression for event in predicate function, but must preserve its semantic category in predicate function. Moreover, there is a fairly sharp distinction between verbal and nominal sentences in Maori, and although verbs can appear in both nominal and verbal sentences, nouns cannot appear in verbal sentences. Thus, the verb-noun contrast in predicate and term functions in Maori takes the form as shown in Figure 15 (“v” and “n” stand for verbal and nominal inflection, respectively).

language	predicate		dependent predicate	
Bororo	Verb	v		
Archi	Verb	v		
	Noun	—		
Chukchi	Verb	v		
	Num	—		
	Noun	v	Noun	n
Finnish	Verb	v	Adposition	—
			Noun	n
Swedish	Verb	v	Verb	v
			Adposition	—
			Noun	n
Nama	Verb	v	Verb	—
	Adjective	—		
	Noun	—	Noun	n
Kobon	Verb	v	Verb	
	Adjective	- μ		—
	Noun	- μ	Noun	n
Yoruba	Verb	—	Verb	—
	Adjective	—	Noun	—
Ainu	Verb	v	Noun	—
Maori	Verb	v		
	Noun	n		

Figure 14. Step 2, first part, in the pilot sample

	infl	predicate	term
event	v	Verb	
	n		Verb
person/ thing	v		
	n	Verb Noun	Verb Noun

Figure 15. Maori

A second point is that apparently rigid languages may be more flexible than the Amsterdam model would lead us to believe. Consider the situation in Swedish, which has a traditional verb-noun contrast. As we have seen, there is a class of basic abstract nouns in Swedish, but they are clearly too few to secure even a modest expressivity for the combination of event and term. Rather, what is being used in Swedish to secure such expressivity is what we might call marked recycling:<sup>7</sup> deverbal action nouns, derived by means of the suffix *-ände*. Likewise, the counterparts in Swedish to recycled verbs with nominal inflection as expressions for person/thing are deverbal agentive nouns, derived by means of the suffix *-are*. The Swedish system is summarised in Figure 16 ("Noun(ii)" indicates basic abstract nouns, and the distinction between true predicate and dependent predicate is ignored).

	<b>infl</b>	<b>predicate</b>	<b>term</b>
event	v	Verb	
	n		Verb- <i>ände</i> Noun(ii)
	—		
person/ thing	v		
	n	Verb- <i>are</i> Noun	Verb- <i>are</i> Noun
	—		

Figure 16. Swedish

What is significant about Figure 15 and Figure 16 is that Maori, a flexible language in the narrow sense, and Swedish, a language with a more traditional verb-noun distinction, both manage to provide expressions for all four possible combinations of semantic category and syntactic function. Both languages, one by simple recycling, the other by marked recycling, thus manage to achieve full expressibility for the combinations of event, person/thing, predicate, and term.

In fact, as De Groot (1997) has shown, this kind of balance of simple and marked recycling is common. When simple recycling cannot land an expression in a new function, often marked recycling will do the trick.<sup>8</sup> And this means that part-of-speech flexibility, in a looser sense than Hengeveld's, might be a much more common situation than the Amsterdam typology would lead us to think.

### 12.3. Recycling re-analysed

The information available in full Dionysian contexts also allows for a sharper description of what actually happens in lexical recycling. Suppose we start with the following contexts in (N) and look at what happens when verbs are recycled as term expressions.

N 1. *Verb*

Expression for event in predicate function.

Construed with subject in predicate function.

Verbal inflection in predicate function.

2. *Noun*

Expression for person/thing in term function.

Construed with possessor in term function.

Nominal inflection in term function.

The simple generalisation, due to Koptjevskaja-Tamm (1993), is that the verb acquires a new context, which is a combination of the contexts in (N1) and (N2). This new context ranges from a completely verbal context, a balancing subordinate clause, where the verb is construed with a subject and takes main clause verbal inflection in term function, to a completely nominal context, a complete nominalisation, where the verb is construed with a possessor and takes nominal inflection in term function. An interesting intermediate case is where a subordinate clause takes nominal inflection as an external inflection, but keeps verbal inflection and government in its internal structure. For example, in the Salish language Lushootseed (Van Eijk—Hess 1986: 324), a main clause, such as (14a), can also, construed with an article, be used as term expression, as in (14b).

- (14) a.  $k^w \dot{a}x^w a-c$   
           help:3SG-TRANSITIVE.ISG  
           ‘(s)he helps me’
- b. *ti*            $k^w \dot{a}x^w a-c$   
           ART       help:3SG-TRANSITIVE.ISG  
           ‘the one who helps me’

Example (14b) also illustrates the general point that a verb in term function, even though fairly verbal in its trimmings, may also assimilate to the dominant semantic category of the part of speech typically associated with that function, namely the

category of nouns. Compare also the two meanings, activity and resulting thing, of the English deverbal nouns *painting* and *invention*.

In general, an expression for semantic category K, which is recycled in function F, will either retain its category or be taken over by the category that is typical of expressions in F. Given the requirement on identification of semantic category, these are in fact the only possible outcomes of recycling, unless the recycled expression is explicitly marked.

The fate of an expression in a new function can then be described as any combination of the following submoves:

- O 1. The recycled expression loses its original inflection.
- 2. The recycled expression is taken over by the dominant inflection of the new function.
- 3. The recycled expression is taken over by the dominant semantic category of the new function.
- 4. The new function and/or category is marked on the recycled expression.

## 12.4. Terms

If we now add term function to Figure 14, we get Figure 17.<sup>9</sup>

In all 10 languages of the pilot sample, both verb and noun occur in both (dependent) predicate function and term function. The generalisation proposed in section 12.2—that part-of-speech flexibility, in a less narrow sense than Hengeveld's, might be the normal situation—is thus heavily supported for nouns and verbs in predicate and term functions. Thus, term function is in fact not very differentiating. There is only a small increase of part-of-speech distinctions from Figure 14, with 15 distinctions, to Figure 17, with 18 distinctions.

There is a further interesting generalisation in Figure 17. If we compare the markings (inflection and function-indicating marking ( $\mu$ )) of verbs in predicate function and verbs in term function, we note that they are different in 8 out of 10 cases. The markings of nouns in predicate function and term function are different in 7 out of 8 cases.

Moreover, we note that in Maori, where nouns are not differentiated in predicate and term functions, there is an invariant predicate position which serves to differentiate nouns in predicate function and nouns in term function. Indeed, Hengeveld—Rijkhoff—Siewierska (1997) have argued that flexibility in the narrow sense is strongly correlated with easily identifiable predicate positions.

language	predicate		dependent predicate		term	
Bororo	Verb	v			Verb	(n) S
	Noun	v			Noun	n
Archi	Verb	v			Verb	n $\mu$ S
	Noun	–			Num	–
Chukchi	Verb	v			Noun	n
	Num	–			Verb	n $\mu$
	Noun	v	Noun	n	Noun	n
Finnish	Verb	v	Adposition	(n)	Verb	(n) $\mu$ (S)
			Noun	n	Noun	n
Swedish	Verb	v	Verb	v	Verb	(n) $\mu$ (S)
			Adposition	–		
			Num	–	Num	–
			Noun	n	Noun	n
Nama	Verb	v	Verb	–	Verb	(n) $\mu$ (S)
	Adjective	–				
	Noun	–	Noun	n	Noun	n
Kobon	Verb	v	Verb		Verb	$\mu$ (S)
	Adjective	– $\mu$		–		
	Noun	– $\mu$	Noun	– $\mu$	Noun	–
Yoruba	Verb	–	Verb	–	Verb	((S)
	Adjective	–				
Ainu			Noun	–	Noun	–
	Verb	v			Verb	((S)
Maori	Verb	v			Noun	–
	Noun	n			Verb	n (S)
					Noun	n

Figure 17. Step 2, second part, in the pilot sample

In other words, judging from the pilot sample, we come very close to the conclusion that noun-verb flexibility in predicate and term functions is all-pervasive, although its form is constrained by the principle of identification, (F). If simple recycling is sufficient for identification of non-typical functions of nouns and verbs, simple recycling is used. If not, marked recycling is used.

## 12.5. Modifiers

Finally, if we add predicate modifier function and term modifier function to Figure 17, as in Figure 18,<sup>10</sup> we see that differentiation is much increased.

language	p		dp		t		pm		tm	
Bororo	V	v			V	(n) S	V Adv	n –		
	A	v							A	–
	N	v			N	n	N	n		
Archi	V	v			V	n $\mu$ S	V P	$\mu$ (n)	V P [A]	n $\mu$ n $\mu$ –
					Num	–	Num	– $\mu$	Num	–
	N	–			N	n	N	n	N	n $\mu$
Chukchi	V	v			V	n $\mu$	V Adv [P]	n – n	V	n $\mu$
	A	v							A	n $\mu$
	Num	–								
	N	v	N	n	N	n	N	n	N	n $\mu$

language	p		dp		t		pm		tm	
Finnish	V	v			V	(n) $\mu$ (S)	V Adv P A	(n) $\mu$ (S) – (n) – $\mu$	V	(n) $\mu$ (S)
			P	(n)					A	n
			A	n	Num	n			Num	n
			Num	n	N	n	N	n	N	n $\mu$
Swedish	V	v	V	v	V	(n) $\mu$ (S)	V Adv P A	(n) $\mu$ (S) – – –	V	(n) $\mu$ (S)
			P	–					P	–
			A	n	Num	–			A	n
			Num	n	N	n	N time	n		
Nama	V	v	V	–	V	(n) $\mu$ (S)			V	n $\mu$ S
	A	–					P	–	A	(n)
	N	–	N	n	N	n	N	n	Num	–

language	p		dp		t		pm		tm	
Kobon	V	v	V		V	( $\mu$ ) S			V	- $\mu$
	Adv	- $\mu$					Adv	-	Adv	- $\mu$
	A	- $\mu$		-			P	-	A	-
	N	- $\mu$	N	- $\mu$	N	-	N place	-	Num N	- $\mu$
Yoruba	V	-	V	-	V	$\mu$ (S)			V	( $\mu$ ) (S)
	A	-					[P] A N	- - - $\mu$	A N	- - $\mu$
			N	-	N	-				
Ainu	V	v			V	$\mu$ (S)	V state P	- -	V	-
			N	-	N	-			N quant	-
Maori	V	v			V	n (S)	V	- S	V	- S
	N	n			N	n	N place	n	N	-

As we can see, the picture that emerges from (43) is fairly different from that of the Amsterdam model.

First, as we have already seen, a distinct class of nouns does not exclude verbs from term function. All languages in the sample use verbs in term function.

Secondly, there is no general tendency for languages which use specialised classes of lexical items in modifier functions to exclude nouns and verbs in modifier functions. Rather, there seems to be a tendency to use nouns and verbs as flexibly as possible. Of the 10 languages in the sample, 8 can use both nouns and verbs as modifiers. Verbs seem to be easier than nouns to recycle, though. In all 10 languages, verbs can be used as modifiers, but there are 2 languages where nouns cannot be so used.

This is all the more impressive when we take into account the fact that typical nouns and verbs need to change category, from event or person/thing to place, time, property or quantity, in order to serve as modifiers. That this might be something that actually tends to block recycling is shown by cases where only atypical nouns and verbs, such as do not need to change category, can be recycled. Such cases in the sample are place nouns in Kobon and Maori, and temporal nouns in Swedish, which unlike other nouns can be recycled in predicate modifier function, quantitative nouns in Ainu, which unlike other nouns can be recycled in term modifier function, and stative verbs in Ainu, which unlike other verbs can be recycled in predicate modifier function.



In predicate modifier function, it appears, though, that recycling requires a fairly transparent functional identification, which also identifies the new semantic category of the recycled items. Typically, this is done by means of case on nouns, and sometimes on verbs. If case-marking is not available in predicate modifier function, recycling is more limited, and there tends to be a more extensive use of adpositions and/or verbs in dependent predicate function (serial verbs). Term modifier function, on the other hand, does not seem to require any distinctive kind of functional identification, even though there are languages in the sample, such as *Archi* and *Chukchi*, which have a general way of indicating term modifier function. Thus, it might be the case that it is in some way easier to recycle items in term modifier function than in predicate modifier function.

Finally, we can note that the languages in the sample which use adjectives in predicate modifier function also have adverbs and/or adpositions. Thus, we do not see, contrary to the predictions of the Amsterdam model, any complementarity between recycled adjectives and adverbs in predicate modifier function.

There is one fairly robust limitation on modifier categories (adverb, adposition, adjective, numeral) in the sample, though. Except for quantifiers and numerals (and certain classes of adjectives, such as colour adjectives), modifier categories are not used in term function. Partly, this result may be an effect of my naming strategy. Thus, stative verbs in *Ainu* might just as well have been called adjectives, and quantitative nouns in the same language might have been called quantifiers (or numerals). However, there is a fair number of well-discriminated modifier categories in the sample and they typically do not appear in term function.

### **13. Conclusion**

Returning to the three questions I posed in the introduction, I would like to propose answers along the following lines. As we have seen, languages tend to make optimal use of their lexical resources. Instead of coining distinct items for every combination of concept and function, languages tend to recycle items in several functions. But new functions of old items must be identifiable. This means that each language must strike a balance between flexibility (recycling) and contrast (identification), and such balances tend to block complete recycling of all items. Hence, languages tend to have part-of-speech systems. Since there are several ways in which languages can strike a balance between flexibility and contrast, languages furthermore tend to have different part-of-speech systems. And, finally, since part-of-speech systems are the

outcome of a particular balance of flexibility and contrast, and not of any particular process of part-of-speech learning, questions of design are beside the point. As I said in the introduction: speakers do not set out to acquire part-of-speech systems; part-of-speech systems are what “happen”, as language users strive to maximise meaning and minimise effort.

## Notes

- \* This is a substantially revised and condensed version of a paper that was originally presented at a conference on “Functional Approaches to Grammar”, in Albuquerque, New Mexico, July 1995, and then expanded into a longish manuscript entitled “The Dao of Lexical Categories”. The research reported herein was partially supported by a grant from The Swedish Research Council for the Humanities and Social Sciences (“Part-of-speech systems”, 1988–1992). I am grateful to Masja Koptjevskaja-Tamm, Edith Moravcsik, and Leon Stassen for their stimulating co-construction of much of the contents of this paper. Listening to several heterodox talks by David Gil over the years has been an invaluable source of inspiration. I also wish to thank Petra Vogel for much-needed encouragement and outstanding patience. Remaining inadequacies and errors are of course solely my responsibility.
- 1. It would be instructive to review ideas of what a well-designed part-of-speech system would be like, as they have appeared in critiques of natural languages, from Ockham to Reichenbach (see, for example, Eco 1995). I suspect that most of them include the notion that the principle of one form–one meaning is basic to any well-designed part-of-speech system.
- 2. More or less the same kind of examples that the modistae used were used by American structuralists some six hundred years later, to make the same point; see, for example, Gleason (1961).
- 3. The sources for information on these languages are:  
 Nama: Van Bulck (1952), Westphal (1971); Yoruba: Bamgboṣe (1966), Rowlands (1969); Finnish: Hakulinen—Karlsson (1979), Karlsson (1978); Archi: Kibrik (1977); Chukchi: Bogoras (1922), Skorik (1961–1977), Comrie (1981, 240–251); Ainu: Shibatani (1990, 1–86); Maori: Biggs (1969), Bauer (1993); Kobon: Davies (1981); Bororo: Huestis (1963). For Yoruba, Archi, Chukchi, and Maori, I also draw heavily on unpublished sketches by Masja Koptjevskaja-Tamm.
- 4. I should point out, though, that there is a long tradition of recognising only four basic parts of speech, starting with Varro (Robins 1990: 58–59). In the 20th century, representatives of this tradition are Brøndal (1928, 1948), Tesnière (1959), and Chomsky (1970).

Brøndal argues forcefully that parts of speech cannot be grounded in morphological or syntactic properties, since such properties are accidental and can change. Instead, he advocates a return to the foundations of the Greek grammatical tradition, the Aristotelian categories. However, Brøndal argues that only four of the categories are really needed, that the other categories can be defined in terms of these four, which are substance (R), relation (r), quantity (D), and quality (d), or, in modern terms, thing, relation, quantity, and property.

Tesnière (1959) regards only verb, noun, adjective, and adverb as “full words” (*mots pleins*), relegating all other words to derivational markers, or “empty words” (*mots vides*).

Chomsky's (1970) revival of Varro's [ $\pm$ case;  $\pm$ tense] model, with N substituted for case, and V substituted for tense, so that we get noun: [+N; -V], verb: [-N; +V], adjective: [+N; +V], and adposition: [+N; -V], is easily the most influential of these four-category models.

5. “ $\mu$ ” indicates marked recycling (see section 12.2). “n” and “v” indicate nominal and verbal inflection, respectively. “-” means uninflected. An empty cell indicates that a class of words is not used in the function in question.
6. This is not to say that there are no genuine cases of verb-noun neutralisations. See Jelinek—Demers (1994), Gil (1994), and Broschart (1997) for some well-documented cases.
7. This is what Kuryłowicz (1936) calls syntactic derivation and what Croft (1990) calls function-indicating morphology. For some further discussion, as well as a more detailed typology of recyclings, see Anward (forthcoming: section 4.3).
8. I am ignoring here the argument by Vogel (1996) that flexibility and derivation (including conversion) are not the same thing. I hope to return to this issue in another context.
9. “S” indicates verbs which are recycled with full verbal government, being construed with subjects and objects as in finite main clauses. The case where a subordinate clause takes nominal inflection as an external inflection, but keeps verbal inflection and government in its internal structure, is represented as S with nominal inflection.
10. “[X]” means that X is a closed class.

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# Word classes and sentential functions

D. N. S. Bhat

## 1. Introduction

There is an enormous amount of variation among languages concerning the number and type of word classes that they possess. For example, some languages have three distinct, open classes of nouns, verbs and adjectives, whereas some have only two, namely nouns and verbs. Some restrict the use of their word classes to specific functions, like nouns for reference, verbs for predication, and adjectives for modification of nouns, and require the words to be modified in various ways in order to use them in other functions (like nominalising verbs or adjectives in order to use them for reference, verbalising nouns or adjectives in order to use them for predication, and adjectivalising nouns or verbs in order to use them as modifiers of nouns). On the other hand, some languages allow their words to occur freely in any of the sentential positions without undergoing any modification whatsoever. These cross-linguistic variations are generally considered to represent real differences between languages, even though some linguists would like to believe that the distinctions occurring in familiar languages can be postulated as the underlying distinctions for all languages. The question that has generally remained unexplored is the *reason* why languages show this enormous amount of variation.

I would like to argue in this paper that a functional basis can be established for this cross-linguistic variation. We can assume that languages differ from one another in the strategies that they use for sentence structure, and because of this, they also differ from one another in the number and type of sentential functions that need to be expressed; the variations that we find in the number and type of word classes that these languages possess can then be regarded as a reflection of this variation in the occurrence of sentential functions. For example, we may have reason to assume, in the case of languages like Sanskrit, that the strategy used in the structuring of noun phrases is to juxtapose two different referring words (nouns) rather than to modify a referring word by a property word (adjective) as in the case of familiar languages like English; the use of this alternative strategy makes it unnecessary for the former type of languages to have a distinct class of adjectives, and that is the reason why such a distinct class did not get lexicalised in them.

The establishment of such correlations between the occurrence of certain specific sentential functions and of word classes would also allow us to regard the various characteristics that the word classes show as being *derived* from the sentential functions for which the classes have been formed. For example, the assumption of a correlation between the existence of adjectives as a distinct word class on the one hand, and of the sentential strategy of modification (i.e. modifying a noun by a property word) on the other, would allow us to regard the various characteristics that are manifested by adjectives as being derived from the sentential function of modifying a noun. Thus the tendency of adjectives to denote a single property can be regarded as being derived from the fact that the function of modification requires a single property to be specified; this requirement can also be regarded as being responsible for the possibility that adjectives, but not nouns or verbs, occur with degree modifiers, since there is a need to indicate a single property in order to establish degree modification.

One difficulty that we face in establishing these correlations is that there is a lot of variation among natural languages in their manifestation of these word class distinctions. The adjective-noun (or adjective-verb) distinction, for example, is sharp and clear cut in some languages, whereas in others it is rather vague, with only a few minor differences to separate adjectives from nouns (or verbs). The characteristics that we assign to a given word class would not therefore be shown in their entirety by all the languages which possess that word class. In order to overcome this problem, we might postulate two or more idealised language types which represent the extreme positions; individual languages can then be regarded as being more or less close to those idealised languages. For example, we can postulate an idealised language in which adjectives are maximally distinct from both nouns as well as verbs, and two additional ones in which adjectives are completely indistinguishable from (a) nouns and from (b) verbs. These idealised languages would also show to the maximum the correlatable characteristics for the word classes that they possess.

## 2. Adjectives as nominal modifiers

The possibility of correlating the presence (or absence) of a particular word class with the presence (or absence) of a specific sentential function can be illustrated by examining the occurrence (or non-occurrence) of adjectives as a distinct word class in various languages. It is generally conceded that there do occur some languages in which adjectives do not form a distinct word class. For example, Dixon (1982) points out that most languages of Europe, North Africa, North Asia and Australia

tend to treat adjectives in a similar way to nouns, whereas in a large number of languages found over most of North America, East and Southeast Asia, and also the Pacific, adjectives are indistinguishable from verbs. There are also, of course, several languages like English and Kannada (Dravidian) in which adjectives are distinct from both nouns as well as verbs. These latter languages, however, differ from one another concerning the constitution of the adjectival class, with some like English having a large, open class of adjectives, and others having only smaller, closed classes. For example, Sango has about sixty adjectives, Kilivila has about fifty, Acoli has about forty, Luganda has about thirty, Bemba has about twenty, Supyire has about ten and Igbo has only eight (see Dixon 1982).

As mentioned earlier, we can account for this cross-linguistic variation by establishing three different idealised languages, namely (a) in which there would be a large, open class of nouns, verbs and adjectives, (b) in which there would only be two comparable major word classes, namely nouns and verbs, with the words which correspond to the adjectives of the first one being indistinguishable from nouns, and (c) which is similar to the second one in having only nouns and verbs as the two major word classes with words which correspond to the adjectives of the first idealised language being indistinguishable from verbs rather than from nouns. We may assume further that these three idealised languages differ from one another in the strategy that they use for constructing noun phrases. In the case of the first one, for example, we may assume that the strategy in use is the familiar one, namely the use of words belonging to the adjectival word class as modifiers of nouns. In the case of the other two languages, however, the strategies would have to be different. In the second idealised language, we may assume, as pointed out above, that the strategy in use is juxtaposition; that is, phrases which are comparable to the adjective-noun constructions of the first idealised language would involve two different nouns used in juxtaposition. The third idealised language, on the other hand, can be assumed to use presupposed predication as the strategy for the structuring of its noun phrases; that is, it would only use verbal (relative) participles even in contexts in which the first idealised language uses adjectives, and hence there would not be any distinction between participles and adjectives (presupposed predication and modification) in this third idealised language.

There do occur natural languages which appear to be very close to these three idealised languages (see Bhat 1994 for details). For example, Kannada is fairly close to the first one; it has three distinct open word classes of nouns, verbs and adjectives; its noun phrases involve structures in which adjectives modify their head nouns; verbal participles can occur in the position of adjectives, but they are different from adjectives in denoting presupposed predication rather than modification as shown below:

- (1) a. *muri-d-a* *mane*  
 break-PAST-PARTIC house  
 'a broken house'
- b. *kempu mane*  
 red house  
 'a red house'

Nouns cannot be used in juxtaposition with other nouns; they need to be changed into their genitive form in order to be related with other nouns in this fashion.

- (1) c. *maNNin-a mane*  
 mud-GEN house  
 'a mud house'

On the other hand, we may regard Sanskrit as being very close to the second idealised language mentioned above. It has only two major word classes, namely nouns and verbs; its noun phrases involve structures with two (or more) juxtaposed nouns, both of which take the relevant gender/number/case markers; either of them can occur by itself (see (2c)) and further, their ordering is free (see (2d)), and hence there is no basis for regarding either of them as the head; either of them can be moved to other positions in the sentence (see (2e)), since their relatedness (as parts of a constituent) is manifested by the gender/number/case marker that they share.

- (2) a. *kRSNam* *sarpam* *apaśyat*  
 black:MASC.SG.ACC snake:MASC.SG.ACC saw:3SG  
 '(he) saw a black snake'
- b. *mRttikam* *ghaTam* *apaśyat*  
 mud:NEUT.SG.ACC pot:NEUT.SG.ACC saw:3SG  
 '(he) saw an earthen pot'
- c. *kRSNam* *apaśyat*  
 black:MASC.SG.ACC saw:3SG  
 '(he) saw a black object'
- d. *sarpam* *kRSNam* *apaśyat*  
 snake:MASC.SG.ACC black:MASC.SG.ACC saw:3SG  
 '(he) saw a black snake'
- e. *mRttikam* *apaśyat* *ghaTam*  
 mud:NEUT.SG.ACC saw:3SG pot:NEUT.SG.ACC  
 '(he) saw an earthen pot'

Notice that none of these possibilities are available in languages of the first type; in Kannada, for example, modifiers can only precede the head noun; they cannot be shifted to other positions in the sentence; and further, they cannot also be used (generally) by themselves without the support of the head noun.

Manipuri, a Tibeto-Burman language, can be regarded as being very close to the third idealised language mentioned above. It also has only two major word classes, namely nouns and verbs, but its noun phrases involve structures which contain verbal (relative) participles in all contexts in which languages of the first type use adjectives (it also has such participles occurring in contexts in which the latter use relative participles). That is, it does not differentiate between modification and presupposed predication; it uses only the latter strategy in the structuring of noun phrases. Words which translate as adjectives are similar to the ones which translate as verbs in showing all the tense, aspect and mood distinctions in these usages.

- (3) a. *cəy*      *ə-saŋ-bə*  
 stick      PREFIX<sup>1</sup>-long-PARTIC  
 'a long stick'
- b. *cəy*      *saŋ-ŋəm-bə*  
 stick      long-PERF-PARTIC  
 'a stick which had been long'
- (4) a. *mi*      *ə-ca-bə*  
 man      PREF-eat-PARTIC  
 'a man who eats'
- b. *mi*      *ca-rəm-bə*  
 man      eat-PERF-PARTIC  
 'a man who had been eating'

It is possible to regard the three idealised languages mentioned above as representing three distinct language types, and consider different languages as belonging to one of them (or to some other language type representing some other kind of idealised language), but as more or less close to the idealised language in question. This would allow us to take care of the enormous amount of cross-linguistic variation that exists concerning the differentiation between the three major word classes. For example, languages like Gujarati (Indo-Aryan) can be regarded as belonging to the second type, but less close to the idealised language than Sanskrit, as Gujarati nouns divide into two subgroups of which one can generally translate as adjectives in languages of the first type. Similarly, Chemehuevi (Uto-Aztec) can be regarded as belonging to the third type, but less close to the idealised language than Ma-

nipuri, as there are some characteristics which allow adjectives to form a subgroup under the category of verbs in Chemehuevi (Press 1979).

### 3. Functional explanation

The postulation of a correlation between word classes and sentential strategies has an explanatory power in the sense that the word classes can now be regarded as having distinct sentential functions of their own, and the characteristics that they show while occurring in those functions can be seen as deriving from those functions. For example, by assuming that languages in which adjectives form a distinct word class make use of modification as a strategy in the structuring of noun phrases, we are able to regard modification (of a noun) as the categorial function of adjectives, and the characteristics that adjectives manifest while occurring as modifiers in a noun phrase as deriving from that function. As I have pointed out in Bhat (1994), most of the characteristics that adjectives show in this attributive position appear to derive directly from the requirements of the function of modifying a head noun. These include the following:

1. Denoting a single property.
2. Allowing degree modification and occurring as the basis of comparison and exclamation.
3. Avoiding vagueness and being very general in application.
4. Depending upon a head noun and not showing any gender-number distinctions.
5. Not being affected by processes like topicalisation and focusing.
6. Not taking any complements of their own.
7. Modifying the meaning of the head noun (rather than its referent).
8. Denoting fairly permanent properties.

Notice that the characteristic of denoting a single property makes adjectives the most apt for constraining the meaning of nouns and can therefore be regarded as fulfilling one of the important requirements of the function of modifying a noun. Further, the characteristic of allowing degree modification and occurring as the bases of comparison and exclamation is crucially dependent upon the characteristic of denoting a single property. As pointed out by Jespersen (1924: 80), degrees of comparison necessarily deal with one quality at a time. Other characteristics given above similarly derive from the modifying function of adjectives. Notice that the primary function of a noun phrase in a sentence is the identification of one of the participants of the event that the sentence denotes, and an adjective occurring in a noun phrase

has the function of assisting a noun in this function by way of modifying its meaning (as in *a red house* rather than merely *a house*). It therefore needs to be closely attached to the noun and be subordinated to it. Languages in which adjectives form a distinct word class show characteristics which derive from this requirement, such as, for example, that the adjectives occurring in the attributive position do not show gender-number distinction, are not topicalised or focused, and do not take any complements of their own. They also tend to denote fairly permanent properties, which is apparently required for identifying the participants which, unlike the events in which they participate, are more permanent, and have the ability to participate in several events.

The assumption can also account for the fact that there are some languages like Takelma (Sapir 1922) and Tinrin (Osumi 1995) in which adjectives can occur only in the attributive position and certain others like Kui (Winfield 1928), Turkana (Dimmendaal 1983) and Tzutujil (Dayley 1985) in which adjectives require certain markers, like those of aspect or agreement, to be attached to them in order to occur in positions other than the attributive one. It can also account for the fact that in most of the languages in which adjectives form a distinct category, they (adjectives) show their identifying (and differentiating) characteristics mainly when used in the attributive position; when used in other positions, like predication or reference, they tend to lose some of these "categorical" characteristics and also tend to take on characteristics of word classes to which these latter positions (or functions) categorially belong.

For example, when used in the predicative position, adjectives tend to lose their dependency status; they tend to take agreement markers as pointed out above, and also complements, as in English; they also tend to denote transient rather than permanent properties (Bolinger 1967) and are similar to verbs on this point. If we regard the use of adjectives in the predicative position as an extended (non-categorical) use, these tendencies can be explained as resulting from their de-categorisation (as adjectives) and also re-categorisation (as verbals) in this predicative use. Similarly, when used in the referential function, adjectives tend to lose some of their categorical properties like denoting a single property, allowing degree modification and being dependent upon nouns. They also tend to take on some of the characteristics of nouns like occurring with case markers and definiteness markers. By regarding this usage as an extended one for adjectives, we are able to explain these tendencies as involving de-categorisation (as adjectives) and re-categorisation (as nominals).

In the case of languages in which adjectives do not form a distinct word class, on the other hand, the absence of many differentiating characteristics that can be assigned to a word class of adjectives can now be explained as resulting from the fact that the corresponding categorial function of modification is absent in those languages. In Sanskrit, for example, we assume that the strategy used in the structuring



of the noun phrases is one of juxtaposition and not modification; this strategy involves the use of two different nouns (or rather noun phrases) both of which are referential, and hence the function of modification does not find any place in the structuring of noun phrases in this language. Similarly, in the case of languages like Manipuri, we assume that the strategy used is one of presupposed predication and hence there is no place for the function of modification. We can therefore claim that this absence of modification as a sentential strategy is responsible for the non-occurrence of adjectives as a distinct word class in these languages.

It is interesting to note, in this connection, that some of the generalisations that we establish about grammatical elements or processes get constrained by the type of language in which the elements or processes occur. For example, there is a possible generalisation that only the word class of nouns typically manifests the process of compounding (see Bhat 1994: 31). This claim is based upon the fact that the typical characteristic of compounds, namely the establishment of a compact word whose meaning need not necessarily depend upon its constituent elements (i.e. compounding crucially involves meaning particularisation—see Meys 1975), is ideally suited for the word class of nouns. This is because, most importantly, the function of nouns is to name persons, things and such other entities. However, this generalisation does not hold good in the case of some of the languages of the second type in which adjectives, though forming a distinct category, are more like a subgroup of nouns. They would show a greater number of nominal characteristics, and these might include the occurrence of compounding as well. The generalisation is exemplified most convincingly by languages in which nouns are sharply differentiated from verbs and other word classes as I will point out in the following section 4.

#### **4. Noun-verb distinction**

Linguists are generally rather reluctant to concede that there can be languages in which even the noun-verb distinction is absent. Unlike other word class distinctions like adjective-noun or adjective-verb, the noun-verb distinction is considered to be of crucial importance to the functioning of language, a distinction which is “imperatively required for the life of language” (Sapir 1921: 121); hence, it is argued, that no language would wholly fail to distinguish between noun and verb. It is generally conceded, however, that there is a gradation among languages, with some showing a sharp and clear-cut distinction between nouns and verbs, some showing practically no distinction whatsoever, and others falling in-between these two extremes. There is clearly a need to account for this cross-linguistic variation.

Consider, for example, the case of Manipuri, a Tibeto-Burman language; there is a sharp and clear-cut distinction between nouns and verbs in this language; verbs are used to denote actions, processes or states, whereas nouns are used for denoting persons, objects and other types of entities which participate in actions or processes, or are characterised by states. This functional distinction between nouns and verbs gets reflected in the fact that the formation of nominal bases involves primarily the process of compounding as a derivational process whereas that of verbal bases involves no derivational process as such. Further, there are two distinct sets of inflectional affixes which are associated, rather exclusively, with these two lexical categories. Nouns take case suffixes, and also other suffixes like plural, possessive, conjunction<sup>2</sup> and demonstrative (proximate, remote); verbs, on the other hand, take a distinct set of directional and deictic affixes, adverbial affixes, valency changing affixes like causative, reflexive, reciprocal and benefactive, and also tense, aspect and mood affixes. The following sets of sentences exemplify this contrast between nouns and verbs:

- (5) a. *məhak oja ni*  
           he       teacher   is  
           ‘he is a teacher’
- b. *oja-nə           cel-li*  
           teacher-NOM   run-NON.FUT  
           ‘the teacher ran’
- c. *əy-nə       oja-bu           cen-bə           yerŋ-ŋi*  
           I-NOM       teacher-ACC   run-NOMINALIS   look-NON.FUT  
           ‘I watched the teacher run’
- (6)   *yum-siŋ-du       yol-li*  
        house-PL-that   sell-DUR  
        ‘those houses are being sold’
- (7)   *əy-nə       trək-tə       layrik       hap-kət-li*  
        I-NOM       truck-LOC   book       put-up-NON.FUT  
        ‘I put the book(s) in the truck’

It is possible for the verbal bases of this language to occur with some of the nominal inflections, but they need to be nominalised for this purpose; nominal bases, on the other hand, cannot occur with any of the verbal inflections, as there is no comparable process of verbalisation in the language.

- (8)      *əy-nə*    *ləphoy*    *ca-bə-bu*                      *yam-nə*    *haw-wi*  
          I-NOM   banana   eat-NOMINALIS-ACC       much-ADVL   taste-NON.FUT  
          ‘I find the eating of banana very tasty’

Verbal bases can also occur as modifiers of nouns, but they need to be changed into participles for this purpose; these participles, which can be regarded as “nominal” or “relative” (they are distinct from nominalised verbs, even though both take the suffix *bə*), contrast with adverbial participles which can be regarded as “verbal” (see Bhat—Ningomba 1997, for details).

- (9) a.    *layrik*    *pa-bə*                      *mi*  
          book   read-PARTIC       man  
          ‘the man who reads the book’  
       b.    *məhak*    *layrik*       *pa-nə*                      *u-y*  
          he       book       read-ADVL       see-NON.FUT  
          ‘he appears to have read the book’

We may contrast this situation with that of Mundari, an Austro-Asiatic (Munda) language; in this language, there is practically no distinction whatsoever between nouns and verbs. Any given word (including the ones which translate as common nouns, proper names, pronouns, numerals, etc.) can be used as a predicate, and can directly take verbal inflections like tense and aspect markers, agreement markers and voice markers (examples Hoffmann 1903):

- (10) a.    *dal-ked-ko-a-e*  
          strike-PAST-DIROBJ:3PL-PRED-SUBJ:3SG  
          ‘he struck them’  
       b.    *sim-ked-ko-a-le*  
          fowl-PAST-DIROBJ:3PL-PRED-SUBJ:1PL  
          ‘we (acquired) some fowls’  
       (11) a.    *dal-ó-tan-a-ing*  
          strike-PASSIVE-PRES-PRED-SUBJ:1SG  
          ‘I am being beaten’  
       b.    *duRa-ó-tan-a-ing*  
          dust-PASSIVE-PRES-PRED-SUBJ:1SG  
          ‘I am being (covered) with dust’  
       (12)    *mid-jan-ge-a-le*  
          one-INDEF.PAST-EMPH-PRED-SUBJ:1PL  
          ‘we are equal (in game)’

One can also use any given word (including the ones which translate as verbs or adjectives) as arguments, and use case markers like the locative or instrumental without nominalising them or making any other changes in them.

- (13) a. *ranchi-tá*      *mena-i-a*  
           Ranchi-at      be-DIROBJ:3SG-PRED  
           ‘he is at Ranchi’
- b. *daru*    *má-tá*    *mena-i-a*  
       tree    cut-at    be-DIROBJ:3SG-PRED  
       ‘he is at (the place where they) cut the tree’

Thus, the notion of “deriving” nouns from verbs or verbs from nouns does not have any place in the grammar of this language. Further, the familiar distinction in the semantic prototype that can be associated with nouns and verbs (namely denoting things or objects versus denoting actions or processes respectively) cannot be associated with a word class distinction in this language, as any word can be used freely either for denoting a thing or an event as shown below:

- (14) *buru* ‘a mountain, to heap up’  
       *gapa* ‘tomorrow, to procrastinate’  
       *haTing* ‘a part, to divide’  
       *kumRu* ‘a thief, to steal’  
       *kali* ‘a language, to speak’  
       *lutur* ‘ear, to listen’

The point to be noted here is that the distinction between a thing and an event appears to be absent in this language; it is only the translation which manifests that distinction; there is no basis to claim that it is an aspect of the language itself (see Hoffmann 1903).

The two languages mentioned above form the two extreme ends of a gradation, with some like the Salishan, Wakashan and Chimakuan languages of North America being closer to Mundari, and some like English and other familiar languages being closer to Manipuri on this point. Other languages fall in-between these two sets of languages. The question that interests us here is whether there can be an explanation for this cross-linguistic variation. I would like to suggest that the variation reflects a distinction in the strategy that these languages use for the structuring of sentences. That is, we can postulate another idealised language for representing one of the extreme ends of this gradation (namely the one occupied by languages like Mundari) and assume that it makes use of a strategy of sentence structure which is quite different from the one that is used by familiar languages like English. We can assume

that this idealised language *restricts* the function of reference to personal affixes that occur in the predicate such that the main participants of events like agent, patient, experiencer and beneficiary are indicated primarily and obligatorily by those affixes. Words or phrases other than the predicate, which translate as arguments (subjects or objects) in familiar languages, are only embedded (presupposed) predicates which provide additional information about these participants. The possibility of such a sentence strategy occurring in natural languages has been suggested by several scholars like Hoffmann (1903: 1), Boas (1911: 673), Kinkade (1983: 32) and Van Valin (1985: 398).

The advantage of making such an assumption is that it provides an explanation for the absence of the noun-verb distinction in languages like Mundari. Since the function of reference is carried out by personal affixes occurring in the predicate itself in these languages, there is no need to have a word class of nouns which is distinct from that of verbs; one only needs a single word class of predicates (or verbs) which occurs both in the position of main predicates as well as that of “arguments” (embedded predicates). This strategy is clearly exemplified by the Mundari sentences given above, in which the predicate represents a whole sentence by itself, by indicating the major participants with the help of personal affixes that occur after it. It would apparently be necessary, in the case of such languages, to have a complex system of personal affixes; Mundari exemplifies the existence of such a complex system, showing distinctions of person (three-fold), number (also three-fold—singular, dual and plural), and gender (two-fold—animate, inanimate), with additional complexity created by the occurrence of an inclusive-exclusive distinction in the dual and plural forms of the first person; there is also a distinction between subject and object marking, and between direct and indirect object marking.

## 5. Correlatable characteristics

The characteristics that the classes of nouns and verbs show in familiar languages are clearly derivable from the two functions that we can assign to them, namely reference and predication respectively. For example, nouns prototypically denote fairly permanent entities like persons, objects or locations—entities that can be referred to again and again, whereas verbs denote transient events in which the entities that the nouns denote can function as participants. Further, verbs are inherently relational in nature, whereas nouns are non-relational; the entities that nouns denote are related together as different types of participants (like agents, patients, experiencers, recipients, etc.) by the events that verbs denote. These distinguishing characteristics of

nouns and verbs are clearly derivable from the two categorial functions that can be assigned to them, namely reference and predication respectively.

What is interesting in this context is that in the case of languages in which the noun-verb distinction is absent (or is rather vague and not very clear-cut), it is the *nominal* rather than the verbal characteristics which appear to be missing. In Mundari, for example, all words can function as predicates, can be intransitive or transitive (i.e. can occur with a personal marker which denotes the direct or indirect object), can take tense or aspect suffixes, and can have a transient connotation. Further, the language does not manifest the typical nominal characteristics like the formation of compound words or other derivational processes, and the use of case markers for denoting the primary relations like agent, patient or recipient. As I have suggested earlier, a possible explanation for this state of affairs is that the language does not use the familiar strategy of sentence structure for which referring words need to be distinct from predicating words. Instead, it uses a strategy in which the function of reference is restricted to certain personal affixes occurring in the predicates. Expressions which correspond to the referring words or other complex constructions (noun phrases) of other languages are only truncated predicates which are devoid of the predication marker and the subject marker.

## 6. Other functional correlations

It would be possible, I believe, to postulate similar correlations between other word classes like adverbs, pronouns, numerals, prepositions, etc. which need to be established in some languages but not in others. Their characteristics would be derivable from the functions for which they have been lexicalised as forming a distinct word class, and they would manifest those characteristics maximally only when used in those functions. Further, languages in which they do not form a distinct lexical category or word class would use an alternative strategy for which the relevant sentential function would not be needed.

Consider, for example, the case of the adverbial word class. As I have pointed out in Bhat (1994), the categorial function of adverbs is the modification of verbs (the so-called adverbs which modify adjectives or other adverbs (degree modifiers) are quite different from these verbal modifiers) and the characteristics which differentiate them from other word classes are clearly derivable from that function. They resemble adjectives in some respects as both of them share the function of modification, but the two also differ from one another, and these differences derive from the fact that adverbs modify verbs whereas adjectives modify nouns. Both adverbs as well as ad-

jectives share the characteristic of denoting a single property and both allow degree modification; both can occur in comparative constructions and be the bases of exclamations. These shared characteristics derive from the function of modification that they share, as I have pointed out earlier. Adverbs differ from adjectives in their dependency status; they are less dependent upon verbs than are adjectives on their head nouns; they can be more easily shifted to other positions in the sentence as compared to adjectives. This difference is apparently due to the fact that adjectives are more crucially involved in the function of nouns (namely the identification of a referent) than are adverbs in the function of verbs; the latter only provide additional information about the event that the verb denotes. The two also differ in their semantic prototypes; the prototypical concepts that are associated with adverbs are time, speed, manner and directionality, whereas the concepts connected with the adjectival category are primarily those of dimension, value, age and colour. The former are clearly transient whereas the latter are fairly permanent. This distinction in the semantic prototype of adverbs and adjectives derives from the type of words that they need to modify, namely verbs which denote transient events and nouns which denote, typically, entities that have a more permanent status respectively.

We also find the other type of functional correlation, namely the occurrence of an alternative sentential strategy for which the function of verbal modification would not be needed as a "lexical" function in the case of languages in which adverbs do not form a distinct word class. For example, Boro, a Tibeto-Burman language, makes use of a large class of verbal suffixes for expressing adverbial notions like manner, frequency and directionality; that is, it uses a suffixal strategy for verbal modification and hence it has no basis for lexicalising a word class of adverbs (examples Bhat 1968):

(15)	<i>masa</i>	'to dance'	vs.	<i>masaglo</i>	'to dance quickly'
	<i>zá</i>	'to eat'	vs.	<i>zagló</i>	'to eat quickly'
	<i>bay</i>	'to purchase'	vs.	<i>baykma</i>	'to purchase secretly'
	<i>zá</i>	'to eat'	vs.	<i>zakmá</i>	'to eat secretly'
	<i>kam</i>	'to burn'	vs.	<i>kamklay</i>	'to burn from top to bottom'
	<i>zá</i>	'to eat'	vs.	<i>zakláy</i>	'to eat from top to bottom'

Some of the Australian languages like Yidiny, on the other hand, use the sentence strategy of apposition, instead of modification, in the case of both nouns as well as verbs, and hence the concepts which translate as adjectives get included in the word class of nouns, and ones which translate as adverbs get included in that of verbs (see Dixon 1977: 122, 252). What is interesting here is that the lexicalisation of a word class once again appears to be determined by the sentence strategy that is in use and the sentential function that the strategy uses.

## 7. Two conflicting approaches to typology

There is a conflict between two different approaches to typology that we can call "Universalistic" and "Differentiating"; the former emphasises the similarities that occur among the languages of the world, whereas the latter emphasises the differences. For example, the claims about grammatical relations like Subject and Direct Object, or about hierarchies of different kinds like the accessibility hierarchy of noun phrases for reflexivisation or relativisation can be regarded as Universalistic; linguists who postulate them believe that they are applicable to all natural languages. In contrast to these, there are generalisations which depend upon a typological sub-grouping of languages. For example, word order based division of languages into SOV, SVO and VSO has made it possible to establish several generalisations which are restricted to one or to the other of these three language types. The division of languages into configurational and non-configurational has also allowed us to establish generalisations which are restricted to only one of them.

These two types of studies conflict in the sense that the generalisations that the Universalistic approach establishes are questioned and disconfirmed by the Differentiating approach. For example, some of the Universalistic claims about the sentence structure of natural languages like Subjacency and Movement have been disconfirmed by the Differentiating approach which divided languages into configurational and non-configurational types and showed the claims to be true of configurational languages only. Similarly, the Universalistic claims about the centrality of transitivity and the universality of grammatical relations like Subject and Direct Object have been disconfirmed by the Differentiating approach which divided languages into active and non-active (accusative or ergative) and showed the claims to be true of non-active languages only. The conflict between the two, however, is only an apparent one; actually, the two complement one another in the sense that the Universalistic approach provides the foundation upon which the Differentiating approach builds its typology.

The claims about the universality of word class distinctions (like the one between nouns and verbs) are based upon a Universalistic approach which, I think, is now rightly being questioned by a Differentiating approach. The point to be decided is whether the latter has sufficient grounds to establish its typology such that the claims of the Universalist can be restricted to only some types of languages. I believe that the postulation of distinctions in the sentence strategies that are in use, and the sentential functions which result (or do not result) from them, provide sufficient basis for making such a Differentiating claim regarding word classes.



## Notes

1. The prefix  $\partial$  is attached to verbs (including adjectivals) when they are used in relative clauses; however, it is used only when the verbs occur in their root form, i.e. without any inflectional markers other than the suffix  $-b\partial$  attached to them, and without any arguments (NPs) accompanying them. Traditionally, it is considered to be an adjective-forming prefix, but as can be seen in (4a) it can occur with any type of verb.
2. I am referring here to the use of the genitive suffix for denoting the meaning 'and'.

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# Parts of speech as language universals and as language-particular categories

William Croft

## 1. Introduction

There appears to be a widely accepted view, among typologists and also many other syntacticians, that the two assertions in (A1–2) about parts of speech—the major syntactic categories noun, verb and adjective—should be part of syntactic theory:

- A
1. Noun, verb and adjective are categories of particular languages.
  2. But noun, verb and adjective are not language universals—that is, they are not found in some languages.

In this paper, as in previous work (Croft 1984, 1986, 1991), I argue that the diametrically opposed assertions in (B1–2) should be part of syntactic theory:

- B
1. Noun, verb and adjective are not categories of particular languages.
  2. But noun, verb and adjective are language universals—that is, there are typological prototypes (Croft 1990a: chapter 6) which should be called noun, verb and adjective.

To set the stage for the problem, I will begin with the analysis of parts of speech in traditional grammar, note its obvious inadequacies, and then turn to the shortcomings of more recent attempts to deal with the question, before presenting the alternative view outlined in (B1–2).

The traditional, so-called *notional* analysis of parts of speech is given in (C1–3):

- C
1. Nouns denote persons, places or things.
  2. Adjectives denote properties/qualities.
  3. Verbs denote actions/events.

It has long been noted that the notional definition is inadequate because it is based on the semantic class of lexical items rather than their morphosyntactic behaviour (cf. for example Radford 1988: 57). In fact, words of any of the semantic classes in (C1–3) can be found as nouns (1a), adjectives (1b), or predicates (1c—they can be outright verbs in other languages, as seen below in example (21) from Makah):

- (1) a. *movement, eruption, kiss, strength, whiteness, size*
- b. *waste (incinerator), electrical (appliance), sleeping (child), broken (mirror)*
- c. *(be) happy, (be a) doctor*

For this reason, the notional analysis has been rejected. But in many cases, nothing has really been put in its place. It is merely assumed that morphosyntactic behaviour of some sort will establish parts of speech in a particular language, and in many if not all languages we may label those parts of speech with the terms Noun, Verb and Adjective. (From here onwards, I follow the convention found in Comrie (1976) and Bybee (1985) (inter alia) of indicating a language-particular grammatical category by capitalisation and a universal conceptual category of the same name by lower case.) As Langacker (1987a: 2) notes: "Every linguist relies on these concepts but few if any are prepared to define them in an adequate, explicit, and revealing way".

For example, most generative and related syntactic theories posit two binary features,  $[\pm N, \pm V]$ , to define Noun, Verb, Adjective and Preposition. The features are intended to capture similarities and differences in syntactic behaviour among these four parts of speech; but they do not tell us what behaviour should be used to determine those four parts of speech in the first place. In fact, most of the effort in X-bar theory in generative syntax has been employed to demonstrate the *identity* of syntactic patterning of the major parts of speech, and more recently minor parts of speech and even inflectional affixes. No guidelines are given as to how to *differentiate* parts of speech in a particular language; it is merely assumed that the inventory of parts of speech are universal because the features  $[\pm N, \pm V]$  are innately given.

The lack of interest in determining parts of speech in generative theory is illustrated by the lack of coverage in standard textbooks. Haegeman (1994: 36–37) simply assumes that words belong to syntactic categories such as Noun and Verb, and gives no criteria for establishing parts of speech. Radford (1988: 57–63) assumes that morphosyntactic behaviour can be used to identify categories, and discusses a number of examples, but nothing more specific is said about what sort of morphosyntactic behaviour can serve the purpose. It appears that there is simply no theoretically motivated set of criteria for establishing parts of speech in generative theory.

The situation worsens when we turn to cross-linguistic studies. How do we know that a syntactic category established in an exotic language X corresponds to the category Noun, Verb, both, or neither in our better-known European languages (Croft 1991: 3, 1990a: 11–18)? In his survey of parts-of-speech systems, Schachter (1985: 3) argues that grammatical criteria must be employed; but in labelling such categories, he proposes a semantic heuristic based on the notional definition in (C1–3)

above (Schachter 1985: 4). But heuristic definitions are no substitute for a sound methodology and theory.

Stassen (1997: 32) expresses his frustration at the absence of any criteria for parts of speech by noting how in Sundanese, two different linguists arrive at the opposite conclusion as to whether the language has adjectives. Stassen (1997: 32) concludes, "different grammarians may propose different practical solutions, but all of these solutions will inevitably suffer from a certain degree of arbitrariness". In the next two sections, we will observe the same problem at a much more general level. That is, in the absence of theoretically motivated criteria for parts of speech, some linguists—the "lumpers"—argue for the absence of major parts of speech or more precisely their conflation into one or two categories, while other linguists—the "splitters"—argue for the presence of the major parts of speech, and many minor ones as well. In section 2, I will discuss perhaps the most sophisticated "lumping" approach, that of Hengeveld (1992), and argue that lumping is possible only by ignoring important facts about the languages analysed. In section 3, I will discuss "splitting", and show that once one accepts splitting (as one must do, empirically), there is in principle no end to the splitting that one could do. In fact, the real problem is that parts of speech are not grammatical categories of particular languages (see (B1) above). Once one accepts that, the analytic problems go away, and one can turn to the proper domain for a theory of parts of speech, typological patterns (section 4). I conclude in section 5 by briefly comparing the typological and cognitive theories of parts of speech.

## **2. The alleged absence of parts of speech in particular languages**

Many linguists claim that there are languages that lack Adjectives or even lack the Noun-Verb distinction. The alleged absence of Adjectives is particularly widespread: words denoting qualities are described as (Stative) Verbs or as Nouns, depending on their morphosyntactic properties. Some languages, notably Nootkan languages, Iroquoian languages and Polynesian languages, are said to lack even the Noun-Verb distinction. These assertions are commonly found in reference grammars of languages, most of which are written with no particular theoretical syntactic approach in mind. However, some recent typological research has begun to analyse parts of speech according to a "lumping" approach.

The most detailed and systematic exploration of a "lumping" approach to the typology of parts-of-speech systems is found in Hengeveld (1992). Hengeveld (1992:

58) uses a functional grammar approach to define four parts of speech—Verb (V), Noun (N), Adjective (A), and Adverb (Adv):

A *verbal* predicate is a predicate which, without further measures being taken, has a predicative use *only*.

A *nominal* predicate is a predicate which, without further measures being taken, can be used as the head of a term [referring expression—WAC].

An *adjectival* predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head.

An *adverbial* predicate is a predicate which, without further measures being taken, can be used as a modifier of a non-nominal head.

What Hengeveld means by “without further measures being taken” is the obligatory presence of additional morphemes in order to use the lexical item in a particular function (predicative, term head, modifier). Hengeveld compares the term modifier in *the intelligent detective* to those in *the singing detective*, *the detective who is singing* and *the detective from London*. The modifiers *sing* and *London* require further measures (indicated by boldface in the examples), while *intelligent* does not. Hence, *intelligent* is an Adjective, while *sing* and *London* are not (Hengeveld 1992: 58–59). These further measures are what I have called *function-indicating morphosyntax* (Croft 1991: 58).

Hengeveld uses these criteria to determine what parts of speech a language has. In many instances according to him, languages lack part-of-speech distinctions, that is, further measures need not be taken to use lexical items in certain functions. Hengeveld argues that such languages fall into two types.

In the first type, which Hengeveld calls *flexible*, there simply is no overt function-indicating morphosyntax for two or more basic functions. Hengeveld gives Quechua as an example of a flexible language with respect to the Noun-Adjective domain (Hengeveld 1992: 63, from Schachter 1985: 17; neither source indicates the variety of Quechua cited):

- |   |   |
|---|---|
| (2) a. <i>rikaška:            alkalde-ta</i><br>see:PAST.1SG    mayor-ACC<br>‘I saw the mayor.’ | b. <i>rikaška:            hatun-ta</i><br>see:PAST.1SG    big-ACC<br>‘I saw the big one.’ |
| (3) a. <i>chay      alkalde    runa</i><br>that    mayor    mayor<br>‘that man who is mayor’    | b. <i>chay      hatun    runa</i><br>that    big    man<br>‘that big man’                 |

Hengeveld labels the lumped category N/A, since for him there is no priority of one label over another in a flexible language.

In the second type, which Hengeveld calls *rigid*, there is overt function-indicating morphosyntax, but the same morphosyntax is used for two or more basic semantic classes (objects, properties, actions, to use the traditional notional labels). Hengeveld gives Mandarin Chinese as an example of a rigid type with respect to Adjectives (more precisely, property words) and Verbs (action words). Action words and property words both lack function-indicating morphosyntax predicatively but require a relativiser when modifying a term (Hengeveld 1992: 63, from Schachter 1985: 18; tones are not indicated in either source):

- (4) a. *neige nūhaizi liaojie*  
           that girl understand  
           ‘That girl understands.’
- b. *neige nūhaizi piaolang*  
           that girl beautiful  
           ‘That girl is beautiful.’
- (5) a. *liaojie de nūhaizi*  
           understand REL girl  
           ‘a girl who understands’
- b. *piaolang de nūhaizi*  
           beautiful REL girl  
           ‘a beautiful girl’

Hengeveld describes the lumped category as V, since there is no term modifier type without function-indicating morphosyntax that could be called A.

Hengeveld’s analysis has a clear theoretical basis, but it is applied haphazardly and succeeds only by ignoring important empirical facts and distinctions within particular languages. The most fundamental problem is that Hengeveld ignores what happens to a lexical root’s *meaning* when used in more than one function. (This is a particularly disturbing feature for a theory couched in terms of essentially semantic-pragmatic concepts.)

For example, in the Quechua examples above, the lexical item *hatun* denotes a property (‘bigness’) in its modifying function in (3b), but denotes an object possessing that property (‘a big one’) in its term or referring function in (2b). This is a big semantic difference. More importantly, it is a language-particular semantic difference: English *big* does not have both meanings, only the property meaning. Yet Hengeveld (1992: 64) writes: “Quechua combines the functions of adjectival and nominal predicates in one part of speech”.

Instead, *hatun* should be analysed either as polysemous, with *hatun* (Noun) ‘a/the big one’ zero-derived from *hatun* (Adjective) ‘big’; or the phrase in (2b) should be



analysed as what is traditionally called a headless, absolute or independent Adjective. In fact, with the same facts in Spanish, Hengeveld makes this very argument: “Yet it would be incorrect to consider *moderna* ‘modern’ a noun, since the absolute use of adjectives, as illustrated in [6], is limited to those contexts in which a head noun is understood from the context” (Hengeveld 1992: 61–62):

- (6)        *prefiero*                *es-a*                *modern-a*  
              prefer:1SG.PRES        that-FEM.SG        modern-FEM.SG  
              ‘I prefer that modern (one).’ [e.g., house]

Hengeveld is applying his own criteria inconsistently from one language to another.

The ignoring of semantic differences is more extreme with languages claimed to be extremely flexible or rigid. Hengeveld describes Tongan as “an extremely flexible language” based on the following data (Hengeveld 1992: 66; examples from Tchekhoff 1981: 4):

- (7)        *na'e*        *si'i*        *'ae*        *akó*  
              PAST        small        ABS        school:DEF  
              ‘The school was small.’

- (8)        *'i*        *'ene*        *si'i*  
              in        3SG.POSS        childhood:DEF  
              ‘in his/her childhood’

- (9)        *na'e*        *ako*        *'ae*        *tamasi'i*        *si'i*        *iate*        *au*  
              PAST        study        ABS        child        little        LOC        1SG  
              ‘The little child studied at my house.’

The absence of function-indicating morphosyntax for the various uses of *si'i* and *ako* in (7–9) is supposed to indicate that Tongan has one category, N/V/A.

Hengeveld describes Tuscarora as “an extremely rigid language”, based on the following data (Hengeveld 1992: 66–67; examples from Williams 1976: 32, 234, 256, as glossed and translated in Hengeveld 1992):

- (10)        *ra-kwá:tihs*  
              MASC.SUBJ-young  
              “he is young” = ‘boy’

- (11)        *ka-téskr-ahs*  
              NEUT.SUBJ-stink-IMPERF  
              “it stinks” = ‘goat’

- (12)      *ra-kwá:tihs*                      *wa-hr-Ø-atkáhto-?*                      *ka-téskr-ahs*  
 MASC.SUBJ-young    PAST-MASC.SUBJ-OBJ-look.at-PUNCT    NEUT.SUBJ-stink-IMP  
 ‘he is young, he looked at it, it stinks’ = ‘the boy looked at the goat’

The fact that *kwá:tihs* and *téskr* take the same, allegedly predicative function-indicating morphosyntax in all of their uses is supposed to indicate that Tuscarora has a single part of speech V (for a critique of the alleged identity of the morphological affixes in all functions in Iroquoian languages, see Mithun, this volume).

The problem with this argument is that there are language-specific semantic differences in the meanings of the lexical items used in each function. A comparison of Tongan and English illustrates this clearly:

- (13) a. *The school was small.*    [= 7]  
       b. *We schooled him in proper manners.*    [≠ 9]
- (14) a. *The little child studied at my house.*    [= 9]  
       b. *I retired to my study.*    [≠ 7]
- (15) a. *The school was small.*    [= 7]  
       b. *the small child*    [= 9]  
       c. *There are a lot of smalls at this fair.*    [≠ 8]

English *school* used predicatively does not mean the same thing as Tongan *ako* used predicatively, namely ‘study’. Going in the opposite direction, English *study* used referentially does not mean the same thing as Tongan *ako* used referentially, namely ‘school’. Finally, English *small* used referentially does not mean the same thing as Tongan *si’i* ‘childhood’ used referentially. In (15c), *small* refers to small antiques (not furniture); it can also be used to mean ‘underwear’ in laundry, at least in British English (Carolyn Cook, personal communication). And in Tuscarora, the phrase supposedly literally translated as (16a) that means (16b) presumably cannot mean that some other type of young male looked at some other type of stinking object, such as in (16b’):

- (16) a. ‘he is young, he looks at it, it stinks’  
       b. *The boy looked at the goat.*    [= 12]  
       b’. *\*The lamb looked at the dirty blanket.*    [≠ 12]

All of these language-specific semantic differences imply that, as in English, Tongan and Tuscarora lexical items have multiple conventional meanings, each of which happens to fall into different parts of speech of the usual sort (Noun, Verb, Adjective).

A further problem with Hengeveld's model is that not only does he ignore conventional lexical semantic differences in classifying lexical items into parts of speech, he also ignores whole small syntactic categories. Hengeveld (1992: 67) notes that "Tuscarora has a reduced number of true nouns" and writes (Hengeveld 1992: 69):

Note that languages at best show a strong tendency towards one of the types. It is on the basis of these tendencies that I have assigned them a particular position in this classification. For instance, the rigid language Wampon is listed as a language without manner adverbs, but it has at least one. Mandarin, another rigid language, is listed as a language without adjectives but has in fact an extremely limited set of adjectival predicates. The situation is even more complicated in flexible languages ...

But there is no justification for ignoring the "true nouns" of Tuscarora or the "at least one adverb" of Wampon or the "extremely limited set of adjectives" of Mandarin, when counting the parts of speech of these languages. Conversely, Hengeveld (1992: 69: Figure 20) considers English as having the full set of four parts of speech. But if we ignore semantics like Hengeveld does in his analysis of Tongan for example, then there is no justification for ignoring the flexible lexical items of English such as in examples (13–15)—of which there are very many. And if we ignore semantic differences as Hengeveld does for Quechua, then the Spanish headless adjectives—which, like the Quechua construction, is completely productive—should also be analysed as belonging to a lumped flexible N/A category in Hengeveld's theory. But in fact, this ignoring of grammatical and semantic data is simply empirically unacceptable.

### 3. From lumping to splitting

#### 3.1. Distributional analysis and the analysis of parts of speech

Hengeveld's recognition that many "lumping" languages indeed have parts of speech indicates that claims that some languages lack certain parts of speech are exaggerated. A more far-ranging criticism of Hengeveld's and other lumpers' analysis of parts of speech in various languages is that other relevant morphosyntactic evidence is ignored. Function-indicating morphosyntax represents only one or two pieces of evidence for parts of speech such as Noun, Verb and Adjective. Distribu-

tional analysis, the standard method of syntactic analysis, often reveals covert categories, that is, categories not obligatorily flagged by some piece of function-indicating morphosyntax. For example, one can distinguish two different classes of predicates indicating transfer of possession, which both have the same form (as English Verbs), according to whether they occur in the ditransitive or double-object construction:

- (17) a. *Ellen gave/sent the books to Laura.*  
       b. *Ellen donated/contributed \$500 to the Save-the-Redwoods League.*
- (18) *Ellen gave/sent Laura the books.*
- (19) *\*Ellen donated/contributed the Save-the-Redwoods League \$500.*

The fundamental fact that is overlooked in much typological syntactic research is that difference of form entails difference in categorisation, but identity of form does *not* entail identity of categorisation. Distributional differences such as those illustrated in examples (18–19) reveal covert grammatical and/or semantic categories of a language.

A clear illustration of this lesson can be found in Jacobsen's (1979) excellent critique of claims that Makah and other Nootkan languages lack any major parts-of-speech distinctions. Such claims are based on one distributional context, predication, as illustrated in the following examples (Jacobsen 1979: 110–111):

- (20) *k'upšil*                      *baʔas*              *ʔu:yuq*  
       point:MOM.INDIC.3      house              OBJ  
       ‘He's pointing at the house.’
- (21) *babaʔdis*  
       white.man:INDIC.1SG  
       ‘I'm a white man.’
- (22) *ʔi: ʔi: xʷ ʔi*  
       big:INDIC.3  
       ‘He's big.’
- (23) *hu: ʔaxis*                      *haʔukʷ 'ap*  
       still:INDIC.1SG      eat:CAUS  
       ‘I'm still feeding him.’

In all of these examples, the predicated word occurs in the same, initial, syntactic position and takes the “verbal” inflections. Nevertheless, when one looks at other

distributional contexts in Makah, not only can Noun, Verb and Adjective be identified, but so can Adverb and Auxiliary. It is worth reviewing the arguments of this difficult-to-find paper in some detail.

Nouns (generally object words) have some distinctive behaviour even as predicates. Predicated nouns can occur without change of meaning in the (zero-marked) durative aspect only (Jacobsen 1979: 114; see example (21) above). Although Jacobsen does not explicitly note this fact, the use of Nouns in momentaneous aspect involves a change of meaning to inchoative process or associated action in all the examples given in the paper (Jacobsen 1979: 114):

- (24)      *la·xukšʔal*  
              man:MOM:now:INDIC.3  
              'He's gotten to be a man.' (cf. *la·xuk* 'man')

- (25)      *p'atqčil*  
              baggage:MOM.INDIC.3  
              'He's packing.' (cf. *p'atuq* 'baggage')

When used as referring expressions (terms), Nouns occur in what appear to be the—zero-marked—"durative aspect". However, Jacobsen (1979: 114) points out that "in the absence of a contrast it is misleading to speak of nouns as being in the durative aspect". That is, there is no reason to assume that the zero form of Nouns as referring expressions is the durative aspect found in predicates (see section 4.3 for the interpretation of zero-marking in referring expressions in the theory advocated here).

As modifiers, Nouns require possessive suffixes or the suffix *-i-c* 'belonging to' (Jacobsen 1979: 139; example from Jacobsen 1979: 136):

- (26)      *quʔaci-c*                      *t'aši*  
              human:BELONGING.TO      trail  
              'human trails'

Verbs (generally action words) occur as predicates in both durative and momentaneous aspect. Verbs can function as subject referring expressions only when suffixed with *-ʔiq*, unlike Nouns (which may occur without it). Even then, the *-ʔiq* form refers to a person/place/thing associated with the action, not the action itself:

- (27)      *da:sʔits*                      *t'iqʷ'asiq*  
              see:PASS.INDIC.2SG          sit:on.ground:ART  
              'The one sitting on the ground sees me.'

Moreover, the  $-^{\circ}iq$  forms take a restricted range of demonstratives (Jacobsen 1979: 122). When Verbs are used as modifiers, they require the  $-^{\circ}iq$  form, or a prefix (Jacobsen 1979: 123):

- (28) *t'iaq<sup>w</sup>'asiq*                      *ʔ'icux<sup>w</sup>adi*  
 sit:on.ground:ART    person  
 'the person who is sitting on the ground'

Adjectives (generally property words) occur as modifiers without additional morphology (Jacobsen 1979: 136):

- (29) *ʔusubas*                      *ʔi:ʔi:x<sup>w</sup>*    *baʔas*  
 REF:need:INDIC.1SG    big            house  
 'I need a big house.'

Adjectives require  $-^{\circ}iq$  when functioning as referring expressions, and moreover refer to a thing possessing the property, not the property itself, just as in Quechua and Spanish (Jacobsen 1979: 138):

- (30) *waha:ʔal*                      *ʔi:ʔi:x<sup>w</sup>ʔiq*  
 go:now:INDIC.3SG    big:ART  
 'A large one goes.'

Certain minor parts of speech can also be identified on distributional grounds. For example, Auxiliaries only occur in a construction with a following verb in the absolute form (Jacobsen 1979: 133):

- (31) *wiki:s*                      *haʔuk*  
 not:INDIC.1SG    eat  
 'I'm not eating.'

Auxiliaries do not occur as modifiers of other predicates (Jacobsen 1979: 134). And Adverbs can occur following predicates as modifiers (Jacobsen 1979: 131), and never take the object affixes when predicated (Jacobsen 1979: 132).

In discussing his arguments for parts of speech in Makah, Jacobsen (1979: 107) makes the following observation: "In saying that there are these parts of speech, however, I am not excluding cases of multiple class membership, of sporadic occurrence in atypical roles, and especially, of lexicalization (internally verbal formations used as nouns), all of which seem to occur". In fact, English is not that much different. In English, there are many cases of multiple class membership, of sporadic oc-

currences in atypical roles, and even of verbal lexicalisation—compare for example *forget-me-not* and *heaven knows what*.

Distributional analysis provides the complete picture of the grammatical patterning of a language. “Lumping” analyses of parts of speech succeed only by ignoring distributional patterns. Even language families claimed to lack a Noun-Verb distinction, such as Nootkan, Salishan (Kuipers 1968; Kinkade 1983) and Iroquoian (Sasse 1988, 1991), have the usual parts of speech under careful distributional analysis (in addition to Jacobsen 1979 for Nootkan, see Van Eijk—Hess 1986 and Croft 1991: 42–45 for Salishan, and Mithun in this volume for Iroquoian).

### 3.2. Splitting: where does one stop?

The empirical facts seem to point to success for the “splitters”. But the “splitters” have their own problem. There is no way to stop splitting. For example, the Makah data do not allow us to distinguish between the major parts of speech (Noun, Verb and Adjective) and the minor ones (Auxiliary, Adverb, Preposition). Worse, careful distributional analysis demonstrates that even the traditional parts of speech should be split. (It is presumably the desire not to split parts of speech that led Hengeveld to ignore small parts-of-speech classes, as noted at the end of section 2.)

A simple, cross-linguistically common example, is the existence of more than one class of Adjectives (property words) in Lango (Noonan 1992). Again, I will go into this example in some detail, since it will be used to illustrate the universal typological theory of parts of speech in section 4.3. Distributionally, Lango has two classes of property words and one class of action words. The first class of property words have distinct singular and plural stem forms, all of which are listed under (32) (Noonan 1992: 105):

(32)	SG	PL	
	<i>dīt</i>	<i>dītò</i>	‘big, old, important’
	<i>dwóp</i>	<i>dópò</i>	‘large, old’
	<i>ràc</i>	<i>rəcù</i>	‘bad’
	<i>bēr</i>	<i>bēcò</i>	‘good’
	<i>cèk</i>	<i>cègù</i>	‘short’
	<i>tídí</i>	<i>tìnò</i>	‘small’
	<i>bòr</i>	<i>bòcò</i>	‘long, high, far away’

In modification, this class normally uses only the attributive particle, and uses either the singular or plural stem forms in agreement with the head noun, whether the latter inflects for number or not (Noonan 1992: 155). These forms are interpreted by

(33) a. *gwókk*      *à*                      *bèr*  
           dog:SG    ATTR                (3SG:)good:SG(.HAB)  
           ‘the good dog’

      b. *gwóggí*      *à*                      *bècò*  
           dog:PL    ATTR                (3SG:)good:PL(.HAB)  
           ‘the good dogs’

(34) a. *án àràc*  
I 1SG:bad:HAB  
'I am bad.'

b. *án àbédò rác*  
I 1SG:stay:PERF bad  
'I was bad.'

(35) *ómittò d̀òk̀ò b̀èr*  
 1PL:want:PROGR become:INFIN good:SG  
 'We want to be good.'

(36) *kùll*      *à*      *ɲwé*  
warthog    ATTR    (3SG):smelly(:HAB)  
'a smelly warthog (= 'a warthog that's smelly')

The third class of words are mostly action words. Like both the property word classes, in predication the action word class inflects with subject agreement prefixes.



Like the second property word class, the action word class lacks distinct singular and plural stem forms. Unlike either property word class, the action word class inflects in perfective, progressive and habitual aspects: *àgikò/àgikò/àgikkò* [1SG:stop:PERF/HAB/PROGR] 'I stopped/stop/am stopping something' (Noonan 1992: 92). The action word class never requires a copula. The action word class has habitual tone in non-gerund habitual inflection (H HL for disyllables, HL for monosyllables; Noonan 1992: 91, 97):

- (37) *nénê*  
 3SG:see:HAB  
 'he sees it'

The action word class forms infinitives and subjunctives directly (Noonan 1992: 213), and uses plural subjunctive inflectional forms (unlike the first property word class; Noonan 1992: 92–93):

- (38) *àdâg*                      *kwànnò*                      *bukki*  
 1SG:refuse:HAB          read:INFIN                  book:this  
 'I refuse to read this book.'

In modification, the action word class occurs in relative clauses, inflectable in any tense/aspect, with either the attributive particle + relative pronoun, the attributive particle, or even zero (Noonan 1992: 217–218):

- (39) *gwókk*      *àmê/à/Ø*                      *òtòò*  
 dog          ATTR.REL/ATTR/Ø                  3SG:die:PERF  
 'the dog that died'

These three options are possible with the two property word classes as well, but the particle + relative pronoun with attributive property concept words is less normal for the property classes, but preferred for the action word class (Noonan, personal communication).

All linguists would call the action word class Verb; but what about the two property word classes? If the second, larger property word class is called Adjective, what is the first class to be called? One could say there are two subclasses of the class Adjective. But the only justification for doing so is the semantic heuristic—property word classes should be called Adjectives—not a theoretically motivated principle. (One might argue that the main difference between the two property word classes in Lango is morphological; but morphological properties are often used to define parts of speech, and other languages, such as Japanese described below, anyway distinguish property word classes by syntactic means.)

Even standard European languages have the same problems. Property words—Adjectives—in English can be defined in part by their occurrence in the simple, comparative and superlative degree. But degree is expressed in three different ways in English, defining three difference classes of property words:

Table 1. Degree in English property words

Class I:	Suppletive degree forms	<i>good/better/best, bad/worse/worst</i>
Class II:	Inflectional degree forms	<i>tall/taller/tallest, small/smaller/smallest</i>
Class III:	Periphrastic degree forms	<i>loquacious/more loquacious/most loquacious</i>

(The distinction between Class II and III is not phonological, incidentally—cf. *ill/\*iller/\*illest, whole/\*wholler/\*whollest*. Class II has been shrinking over the history of English; many more property words fell into Class II in Shakespeare's time.) Again, distributional analysis does not tell us whether to treat these as three parts of speech or as three subclasses of one part of speech. Only the semantic heuristic suggests they are subclasses of Adjective, and this heuristic has long been discredited.

### 3.3. Further problems with distributional analysis and parts of speech

The splitting into multiple classes of what seems to be a single major part of speech is a serious theoretical problem. But the problems with establishing parts of speech in the grammar of a single language do not end there.

Traditional Japanese grammarians long ago decided that Japanese has not three but four major parts of speech: Nouns, Verbs, Adjectives and Nominal Adjectives. This is another manifestation of the problem described in the preceding section. However, the application of the usual distribution criteria for establishing the categories of Noun, Adjective and Nominal Adjective in Japanese demonstrates that there are more categories than just those three.

Nouns are characterised by a copular construction in predication and a construction with the genitive particle *no* in modification (Uehara 1998: 64, 56):

- (40)     *Hon*     *da*.  
           book    COP  
           'It is a book.'
- (41)     *Ainu-go*            *no*            *kenkyuu*  
           Ainu-language    GEN            research  
           '(the) study of the Ainu language'

Nominal Adjectives also use the copular construction in predication but use a linking particle *na* in modification (Uehara 1998: 88):

- (42) a. *Kirei da.*  
pretty COP  
'It is pretty.'
- b. *kirei na hon*  
pretty LINK book  
'a pretty book'

Adjectives use an adjectival inflection in predication and in modification (Uehara 1998: 88):

- (43) a. *Yasu-i.*  
cheap-INFL  
'It is cheap.'
- b. *yasu-i hon*  
cheap-INFL book  
'a cheap book'

But there are other classes defined by different distributional patterns. A class that I will call Type I Nominal Adjective/Adjective occurs with either the adjectival inflection or the copular construction in predication, and either the adjectival inflection or the linking particle construction in modification (Uehara 1998: 89):

- (44) a. *Atataka-i. / Atataka da.*  
warm-INFL / warm COP  
'It is warm.'
- b. *atataka-i hi / atataka na hi*  
warm-INFL day / warm LINK day  
'a warm day'

Another class, which I will call Type II Nominal Adjective/Adjective occurs only with the adjectival inflection in predication but with either the adjectival inflection or the linking particle construction in modification (Uehara 1998: 89):

- (45) a. *Tiisa-i. / \*Tiisa da.*  
small-INFL / small COP  
'It is small.'
- b. *tiisa-i hon / tiisa na hon*  
small-INFL book / small LINK book  
'a small book'

Finally, there is a class which alternates between Nominal Adjective and Noun (Uehara 1998: 106):

- (46) a. *heiwa*      *na*      *kuni*  
 peace(ful)      LINK      country  
 'a peaceful country'
- b. *heiwa*      *no*      *sisya*  
 peace      GEN      messenger  
 'a messenger of peace'
- (47) a. *kenkoo*      *na*      *hito*  
 health(y)      LINK      person  
 'a healthy person'
- b. *kenkoo*      *no*      *zyootai*  
 health      GEN      condition  
 'health condition'

The corresponding English translations of (46) and (47) use the same lexical root but in different syntactic category forms—in both of the examples here, a base Noun and a derived Adjective form. However, the Japanese lexical forms are identical except for their syntactic occurrence, which is ambivalent between Noun and Nominal Adjective behaviour, corresponding to the English Nominal-Adjectival formal difference.

It has been suggested by one reviewer that one could argue that there are in fact only the three traditionally named word classes, Noun, Nominal Adjective and Adjective, and the three additional classes described above represent multiple class membership. But distributional analysis cannot tell us whether to describe the latter three classes as examples of multiple membership or simply as three classes with different distribution patterns.

If this were not enough, speakers vary as to which words have which distributions, and words fit into different constructions with varying degrees of (un)grammaticality (Uehara 1998: 98–99, 103–115). Hence category membership is not clear-cut even for individual lexical items. Distributional analysis not only reveals a myriad of syntactic classes, but also reveals sometimes fuzzy category behaviour at the boundaries of those classes.

We may summarise the fundamental problem of the standard approach to parts of speech, in fact to grammatical categories in general as follows. Distributional analysis is the basic method for determining what categories exist in a language. It is assumed that distributional analysis will reveal parts of speech, in fact, it will reveal grammatical categories which we can take as the primitive atomic elements that syntactic theories use to describe grammars. But distributional analysis does nothing of the sort.

First, distributional analysis reveals a myriad of classes, and gives us no method for deciding between parts of speech and minor syntactic categories. This fact was noted by Schachter (1985) as well as in Croft (1991):

Such subclasses are not ordinarily identified as distinct parts of speech, since there are in fact properties common to the members of the different subclasses, and since the label parts of speech is ... traditionally reserved for 'major classes'... . It must be acknowledged, however, that there is not always a clear basis for deciding whether two distinguishable open classes of words that occur in a language should be identified as different parts of speech or as subclasses of a single part of speech ... . What this means is that there may in some cases be considerable arbitrariness in the identification of two open word classes as distinct parts of speech rather than subclasses of a single part of speech. (Schachter 1985: 5-6)

Finding grammatical behaviour that distinguishes the putative syntactic categories is not the real problem in identifying "nouns" and "verbs"... . The real problem is deciding what kind of grammatical evidence justifies distinguishing the major categories "noun" and "verb", as Jacobsen argues, and what kind of evidence would merely support, say, the existence of two subclasses of a major category "predicate". (Croft 1991: 45-46)

That is to say, there is no a priori way to choose a separate class analysis vs. a subclass analysis on the basis of the distributional method alone. All that distributional analysis can give us is categories of words (or syntactic subunits) defined by their occurrence in certain roles in various constructions, as in Table 2:

*Table 2.* Separate word classes or subclasses or one word class?

	Construction A	Construction B
Word Class 1	√	√
Word Class 2	*	√

The distributional method does not tell us whether occurrence in Construction B in Table 2 is necessary and sufficient for defining membership in a word class.

Likewise, there is no a priori way to choose a distinct class analysis over a multiple class membership analysis on the basis of the distributional method alone.

The distributional method simply gives us the pattern in Table 3:

*Table 3. A third word class or multiple word class membership?*

	Construction A	Construction B
Word Class 1	√	√
Word Class 2	*	√
Word Class 3	√	√

The distributional method does not tell us whether occurrence in each of Constructions A and B is necessary and sufficient for defining membership in distinct word classes. In both cases, it is asking too much of distributional analysis to give us more than the distributional patterns of the types illustrated in Table 2 and 3, or any other distributional pattern.

Second, the systematic application of distributional analysis does not yield a small number of parts of speech with sharp boundaries (leaving aside fixes such as subclasses and multiple class membership, which must be motivated by other means). This latter fact suggests that the categories which distributional analysis defines are not only not the traditional parts of speech, but that they aren't the sort of atomic primitives that we would like to use as the building blocks of our syntactic models. Is there a way out of this dilemma?

#### **4. A universal-typological theory of parts of speech**

A proper theory of parts of speech that applies to all languages must satisfy the following three conditions in order to be successful. First, there must be a criterion for distinguishing parts of speech from other morphosyntactically defined subclasses. Second, there must be a cross-linguistically valid and uniform set of formal grammatical criteria for evaluating the universality of the parts-of-speech distinctions. Third, there must be a clear distinction between language universals and particular language facts.

It should be clear from the discussion at the end of section 3 that the first condition is lacking in the theories of parts of speech that have been discussed here. The second condition is closely tied to the first. It has not really been addressed in any of the aforementioned theories except Hengeveld's, which I will argue is too limited. It may not be obvious to many readers that the third condition is important or relevant to a theory of parts of speech. But I believe that the failure to satisfy the first two conditions follows directly from not recognising the importance of distinguishing language universals from language-particular facts. So I will first address

the third condition in section 4.1, before turning to the other two conditions in section 4.2. In the process, a radical new view of the nature of syntax will be outlined, albeit one firmly based in typological practice.

#### 4.1. Radical construction grammar: separating the universal from the language particular

There are two common responses to the paradoxes presented in section 3. The first is to say that there are no parts of speech in syntactic theory, and that “languages could differ from each other without limit and in unpredictable ways”, in Joos’ (1957: 96) famous passage. This is in effect a denial of the existence of language universals in the description of particular languages.

The other response is to essentially abandon distributional analysis. Haegeman appears to do this, as noted in section 1; that is, she assumes that category membership determines distribution, not the other way round. In practice, Haegeman and most others are merely economical with the truth, using only the distributional facts they find useful for their theoretical hypotheses. They ignore some distributional patterns, focusing on a small subset of constructions (or even just one, like predication), and using those to construct a syntactic theory with parts of speech and other atomic syntactic primitives. This strategy tends to lead to a “lumping” approach. For example, looking only at the presence/absence of function-indicating morphosyntax in predication leads to the idea that there is only one part of speech in Makah and other such languages. Hengeveld’s model looks at referring expressions and adnominal and adverbial modifiers as well as predications, but still examines only function-indicating morphosyntax. Together with the ignoring of semantic differences, it still leads to a broadly “lumping” approach. The “lumping” approach is expressed in hypothesis (A2) at the beginning of this paper: parts of speech are not found in all languages.

There is a third way, which combines the positive features of both of the earlier responses. To reach this third way, however, we must abandon the negative features of both of the earlier responses. The aim of the selective abandonment of distributional analysis is to preserve hypothesis (A1): that parts of speech which we label Noun, Verb, Adjective etc. are categories of particular languages. But we do not need to preserve it. In fact, distributional analysis tells us that we must abandon it. That is the positive feature of the Joos interpretation of American structuralism (pace Anward—Moravcsik—Stassen 1997: 168). Categories in a particular language are defined by the constructions of the language. Moreover, the constructions are the primitive elements of syntactic representation; categories are derived from constructions.

The reasoning for this view, which I call *radical construction grammar* (see Croft forthcoming, in preparation), is simple. Constructions define grammatical categories. But all contemporary syntactic models insist on taking these categories as atomic syntactic primitives, and defining constructions as being made up of these atomic primitives. Yet those syntactic “primitives” are defined by constructions. This approach is circular. The circularity can be broken by abandoning the notion that categories are atomic syntactic primitives. Syntactic categories, including those commonly labelled as parts of speech, are derivative from the constructions that define them.

Radical construction grammar offers a solution to the problem of representing syntactic categories, relations and constructions for particular languages without compromising empirical accuracy and completeness. Radical construction grammar takes the Joos view seriously. But in radical construction grammar, parts of speech cannot be categories of particular languages. We could choose to label certain English syntactic categories defined by certain English constructions as Noun, Verb and Adjective. But we would then have no theoretical motivation to label the categories defined by constructions in any other language with the same labels. We have only the discredited semantic heuristic, or terminological convenience (cf. Dryer 1997, who makes this argument for grammatical relations such as Subject and Object). And anyway, the constructions of English would still define many more classes than the three major parts of speech, or even the dozen or so usually found in traditional grammars.

Here we must discard the main negative feature of the Joos approach (and much of the generative grammar that followed American structuralism). This is the narrow view that universals of language are only categories and structures which are found in all languages, or almost all languages. That is, we must discard the view that universals of language are only what typologists call absolute universals, properties true of all languages. In this narrow view, Universal Grammar is just a template of pre-given syntactic categories and structures which particular languages are fit into, or which particular language grammars choose from (the “smorgasbord” approach to Universal Grammar; see Croft forthcoming). This view of Universal Grammar is not only too narrow, but radical construction grammar shows that it is simply untenable. Grammatical categories of particular languages are irreducibly language particular; in fact, they are also construction-specific.

Instead, Universal Grammar is revealed through cross-linguistic patterns of variation of the sort discovered by typology. In particular, there is a cross-linguistic pattern of variation which I believe can appropriately be described as a universal theory of the parts of speech, that is, the pattern captures the intuition underlying the traditional use of the terms noun, verb and adjective:



The evidence presented in this section [chapter 2 of Croft 1991—WAC] demonstrates the existence of the syntactic categories “noun”, “verb” and “adjective” as *typological universals*. That is, the evidence presented here represents *systematic cross-linguistic patterns of variation* ... The typological universals do not predict the exact behaviour of individual languages; rather, they predict that a language will fit somewhere in the pattern of variation allowed by typological marking theory. (Croft 1991: 93–94; emphasis added) .

Syntactic categories are language particular and defined by constructions, and language universals are not a template of grammatical structure but systematic patterns of variation (and ultimately, change; see section 4.3). In this way, we can separate the language particular from the language universal. We may now turn to how the language-particular facts give evidence for the language universals which they represent.

#### 4.2. The distributional method, propositional acts, and the typological theory of markedness: the criteria for parts of speech

Let us go back to the positive features of the selective use of the distributional method, which I had criticised above. Following Jacobsen, I criticised those linguists who used only the predication construction to define parts of speech, and so for example argued that Makah had no parts of speech (or just one, Verb). But what is wrong with those linguists’ analyses is not what they discovered about Makah and other languages. What is wrong with their analyses is that they believed that their discoveries were about parts of speech. They were not. What they discovered was a typological pattern about the predication construction, or more precisely, the family of inflectional constructions they used to define predication (subject and/or object agreement, tense-aspect-mood inflection, etc.). More specifically, they discovered typological patterns about the relationship between the predication construction and the semantic classes of lexical items that fit into the predication construction.

All of that is legitimate, valid and interesting empirical and theoretical linguistic research. Just how interesting it can be is found in ’s massive and brilliant study of the predication of various semantic classes (actions, properties, objects and locations)—appropriately titled *Intransitive predication* (Stassen 1997; see also Wetzer 1996). (Unfortunately, Stassen and Wetzer still refer to the semantic classes by syntactic category labels and use potentially misleading terms like “nouny” and “verby”.) But no reference to parts of speech is necessary to do such research, or to appreciate it.

Hengeveld's (1992) study is broader in scope, in that he examines not just predication but also reference (terms in his terminology) and modification. My objection to his work (besides the empirical, methodological and semantic problems I raised in section 2) is his claim that it is about parts of speech. It is in fact about function-indicating constructions—copular and non-copular constructions, relativising or other attributive constructions, and nominalisation constructions. Nevertheless, Hengeveld's model (properly carried out) does survey the interaction between a family of constructions and a family of semantic classes of lexical items (predicates in his terminology).

However, the universal-typological theory I presented in earlier work (Croft 1984, 1986, 1991), and which finds an antecedent in Dixon's (1977) seminal study of adjectives, is still more general. In fact, it is a theory which I believe is general enough to be thought of as a theory of parts of speech as language universals. It is broader than Stassen's (1997) or Hengeveld's (1992) models, although it is sketched out in somewhat less detail and tested on a much smaller sample. (Nevertheless, the results of Stassen's and Hengeveld's studies do not contradict the theory in Croft (1991).) It is broader in that the typological interactions among a much wider family of constructions are analysed. It is more general in that it is couched in terms of independently motivated typological principles (see below), which allows us to compare the results to other typological patterns.

The range of constructions in the universal-typological theory of parts of speech covers constructions for predication, reference and modification, as with Hengeveld's model. Most important, it explicitly recognises that predication, reference and modification are pragmatic (communicative) functions, or as Searle described them, propositional acts (see Searle 1969: 23–24; Croft 1990b, 1991: 109–111). Predicative, nominal (term) and attributive constructions encode the pragmatic functions. The three pragmatic functions are in fact the foundation for the three-way distinction of the traditional major parts of speech. This is the first step towards satisfying the first condition, a means of identifying the major parts of speech as opposed to other, "lesser", categories (either language universal or language particular).

The universal-typological theory of parts of speech embraces constructions with and without function-indicating morphosyntax. Function-indicating morphosyntax overtly encodes the functions of reference, predication and modification for various classes of lexical items. As such, function-indicating morphosyntax falls under the structural coding criterion of the theory of typological markedness. The theory of typological markedness (see Greenberg 1966; Croft 1990a) is a general theory of the relationship between form and meaning across languages. It is often misunderstood because of important differences between it and the Prague School theory of markedness (see Croft 1996 for historical discussion). The theory of typological markedness (along with the distributional method) satisfies the second condition given

above: it provides valid cross-linguistic grammatical criteria for testing the universality of the three parts of speech across individual languages.

Typological markedness has two important characteristics that differentiate it from Prague School markedness. First, typological markedness is a universal property of a conceptual category, not a (language-particular) grammatical category as it is in Prague School markedness. When it is argued that singular is typologically unmarked, a hypothesis is being put forward about the conceptual category singular as it is encoded in the world's languages, not the grammatical category Singular found in English or any other particular language.

In the case of parts of speech, I argue that there are unmarked combinations of pragmatic function and lexical semantic class (Croft 1984, 1986, 1991):

- noun = reference to an object
- adjective = modification by a property
- verb = predication of an action

Any other combination of pragmatic function and semantic class is marked. These unmarked and marked combinations are conceptual categories. The assertion that the combinations above are unmarked and other combinations are marked refers to a hypothesis about a pattern of variation with respect to how those conceptual categories are encoded across languages. I believe that it is appropriate to describe these unmarked combinations of pragmatic function and semantic class with the names of the parts of speech. This view is not without precedent; Sapir (1921: 119) expressed the same view over three quarters of a century ago:

There must be something to talk about and something must be said about this subject of discourse once it is selected. This distinction is of such fundamental importance that the vast majority of languages have emphasised it by creating some sort of formal barrier between the two terms of the proposition. The subject of discourse is a noun. As the most common subject of discourse is either a person or a thing, the noun clusters about concrete concepts of that order. As the thing predicated of a subject is generally an activity in the widest sense of the word, a passage from one moment of existence to another, the form which has been set aside for the business of predicating, in other words, the verb, clusters about concepts of activity. No language wholly fails to distinguish noun and verb, though in particular cases the nature of the distinction may be an elusive one.

The relevant patterns of variation are described by the formal criteria of typological markedness. The first is the structural coding criterion, manifested by function-indicating morphosyntax as discussed above. The proper definition of the structural

coding criterion reveals the second significant difference between typological markedness and Prague School markedness. In Prague School markedness, an unmarked category is expressed by zero, and a marked category is expressed by an overt morpheme. If this were a typological universal claim, it would amount to an absolute universal. This condition is untenable cross-linguistically. Instead, the structural coding criterion specifies only that the marked member is encoded by *at least as many* morphemes as the unmarked member (Croft 1990a: 73)—an implicational universal. This formulation allows for overt marking of both unmarked and marked members in a language, and for zero marking of both—for example, in languages such as Makah that allow predication of properties and object classes without overt derivation and without a copula. The only excluded type is where the unmarked member is expressed by *more* morphemes than the marked member—if, for example, a language required a “copula” or auxiliary for the predication of actions but had zero marking of the predication of properties and/or object classes.

The distribution of function-indicating morphosyntax conforms to the structural coding criterion of typological markedness. The traditional names for the function-indicating morphosyntax used to overtly mark the marked combinations of pragmatic function and semantic class are given in Figure 1 (from Croft 1991: 67):

	REFERENCE	MODIFICATION	PREDICATION
OBJECTS	<b>unmarked nouns</b>	genitive, adjectivalisations, PPs on nouns	predicate nominals, copulas
PROPERTIES	deadjectival nouns	<b>unmarked adjectives</b>	predicate adjectives, copulas
ACTIONS	action nominals, complements, infinitives, gerunds	participles, relative clauses	<b>unmarked verbs</b>

Figure 1. The conceptual space for the parts of speech

At this point, I have utilised only the same constructions as Hengeveld (1992) has in his theory, although I have interpreted the cross-linguistic patterns very differently. However, the typological theory of markedness also integrates another class of constructions through the behavioural potential criterion. The additional constructions are those that indicate cross-cutting conceptual categories, such as the inflectional categories of number, gender and case for nouns; gender/number agreement and degree for adjectives; and person agreement and tense-aspect-mood for verbs. (I use the parts of speech in their universal-typological theoretical sense from here onwards.) The behavioural potential criterion specifies that the unmarked member displays *at least as wide a range* of grammatical behaviour as the marked member.

The behavioural potential criterion is again formulated as an implicational universal. It allows for the possibility of marked members (say, predicated properties) to have the same inflectional possibilities as unmarked members (predicated actions) in some language. It excludes the possibility of marked members having *more* inflectional possibilities than unmarked members.

The behavioural potential criterion also allows for the limited or “defective” behaviour of the marked member of a category—e.g. no tense/aspect marking of predicated property words, restricted range of demonstratives with action words in reference, etc.—without having to commit to the marked member being “in” or “not in” the category in a universal-typological sense. Consider for example the Lango predicated properties illustrated in section 3.2, which lack certain verbal inflections (such as the generic habitual tone), but possess other verbal inflections, and yet require a copula in certain tense/mood forms. Are they verbs or adjectives? This question simply makes no sense in language-particular terms. The different inflections represent different constructions; the Lango property words simply have a different distribution from the Lango action words, and hence belong to a different language-particular grammatical category (in fact two different categories) than action words.

Moreover, the terms verb and adjective do not describe language-particular grammatical categories anyway. They describe cross-linguistic patterns of variation. In particular they describe a *prototype*. A prototype describes the core of a category; it does not say anything about the boundary of a category (cf. Cruse 1992; Croft—Cruse 1996). In fact, the universal typological theory of parts of speech defines only prototypes for the parts of speech; it does not define boundaries. Boundaries are features of language-particular categories. The category defined by the presence vs. absence of habitual tone in Lango predications has a sharp boundary, at least according to the available description. Other categories in other languages may not have sharp boundaries. For example, the boundary between the language-particular Japanese categories of Adjective and Nominal Adjective appears to be fuzzy, as noted in section 3.3 (see Uehara 1998 and references cited therein). The status of boundaries of language-particular grammatical categories is a matter of empirical linguistic and psycholinguistic investigation of the speakers of that language. It is not a matter to be decided by a universal theory of parts of speech.

### 4.3. Conceptual space and the dynamicisation of syntax

The universal-typological theory of parts of speech allows us to relate functional categories identifiable across languages—pragmatic function and semantic class—to their syntactic expression within particular languages—the constructions used to express the pragmatic functions of various semantic classes, and the constructions

used to express cross-cutting conceptual distinctions for those classes. The theory defines universal prototypes for the three major parts of speech, but does not define boundaries for these categories. Boundaries are aspects of language-particular grammatical categories, determined by distributional analysis. Boundaries may be sharp or fuzzy depending on the distributional patterns found with words in the language. In fact, I would like to propose the following general hypothesis, following a more general proposal in Croft—Cruse (1996):

D *Grammatical Category Structure Hypothesis*

The internal category structure (e.g. prototype and extensions) of a grammatical category is provided by the universal theory of grammar, while its boundaries are provided by the particular language grammar.

The theory of parts of speech advocated here is not simply a cluster of functional properties defining a prototype. The functional properties define a *conceptual space*, also known as a mental map, cognitive map or semantic space. The conceptual space for parts of speech (in simplified form) is represented by Figure 1. The conceptual space approach to cross-linguistic research has increased in importance in recent work (see for example Anderson 1974, 1982, 1986, 1987; Croft—Shyldkrot—Kemmer 1987; Kemmer 1993; Haspelmath 1997; Stassen 1997; Van der Auwera—Plungian 1998). The hypothesis behind a conceptual space approach to syntax is that language-particular grammatical categories occupy a connected region in conceptual space. This hypothesis should work for languages in general, that is, there is a single conceptual space and the categories of particular languages can be mapped in that space. Of course, I have just argued that language-particular grammatical categories are defined by constructions (radical construction grammar). Hence the conceptual space hypothesis is really that the distribution of elements of a construction or set of constructions occupies a connected region in conceptual space. Moreover, the conceptual space has a certain “topography”. In the case of parts of speech, that topography is a privileged status of the prototypes for noun, verb and adjective.

We may illustrate the conceptual space/radical construction grammar approach to syntax with the categories of Lango described in section 3.2. The radical construction grammar model of particular language grammars simply specifies that the language-particular categories of Lango property and action words are defined by the constructions that they occur in. Those constructions define three Lango categories: two property word categories (called core properties and peripheral properties below) and one action word category. The distributional patterns of the three categories are described in Table 4:

Table 4. Distribution of Lango property/action words

	I	II	III	IV	V	VI	VII
Core properties	√	√	√	√	*	*	*
Peripheral properties	*	√	√	√	*	*	*
Actions	*	*	√	(√)	√	√	√

I: singular/plural stems

II: non-habitual copula

III: subject agreement

IV: attributive particle (*attributive particle + relative pronoun preferred*)

V: habitual tone in non-gerund habitual forms

VI: inflections for non-habitual forms

VII: possess infinitive, subjunctive forms

The distributional pattern given in Table 4 appears to be what Lango speakers know about this subset of lexical classes and constructions in their language. But there is nothing universal about this distributional pattern. As such, it is actually an inadequate description of what Lango speakers know about their language. Universals of parts of speech are brought into the picture by examining not just the constructions and lexical items but also their semantic/pragmatic functions as represented in the conceptual space found in Figure 1. That is, we can map the distributional pattern of lexical classes and constructions onto the two-dimensional conceptual space of Figure 1, as in Figure 2:

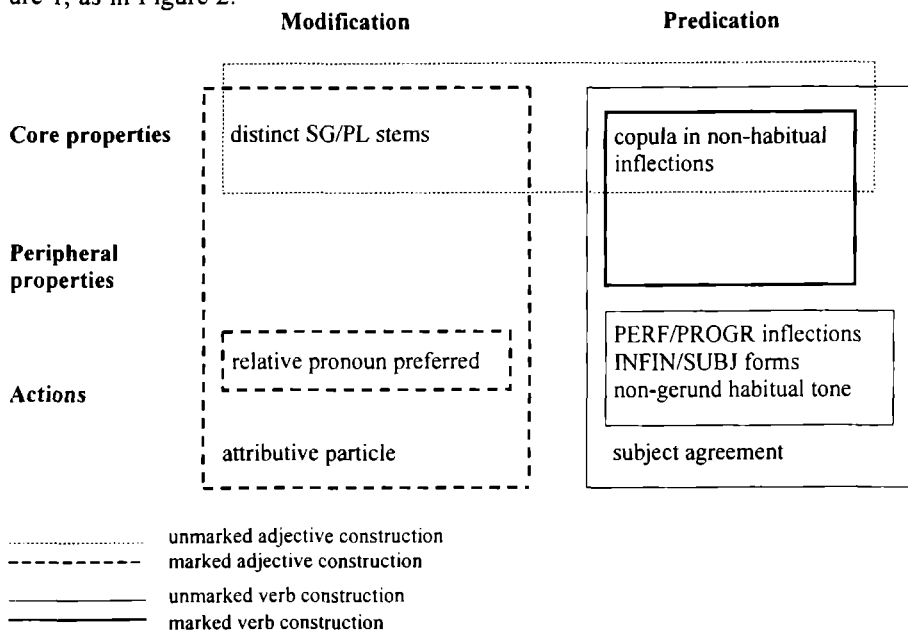


Figure 2. Map of Lango property/action categories in conceptual space

The distribution of semantic classes across constructions in Lango conforms to the general hypothesis regarding conceptual spaces and language-particular facts: the distributional patterns for each construction occupy a connected region of the conceptual space. But that is not all. The typological theory of markedness, combined with the theory of parts of speech as typological prototypes, allows us to classify the constructions in a cross-linguistically valid way, as indicated by the various shadings of the rectangles in Figure 2. Unmarked adjective constructions are constructions indicating behavioural unmarkedness, that is, cross-cutting adjectival inflections such as (suppletive) number agreement. Marked adjective constructions are overt function-indicating morphosyntax for modification, such as the attributive particle and relative pronoun. Unmarked verb constructions include cross-cutting verbal inflections, such as subject agreement, infinitive and subjunctive inflections, perfective and progressive inflections, and the non-gerund habitual tone pattern. Marked verb constructions are function-indicating morphosyntax for predication, such as the copula.

The distribution patterns defined by the constructions of Lango also conform to the typological-universal theory of parts of speech. Unmarked adjective constructions include core properties as modifiers (the upper left cell in Figure 1); marked adjective constructions include classes other than core properties as modifiers. Unmarked verb constructions include actions as predicates (the lower right cell in Figure 1); marked verb constructions include classes other than actions as predicates. It is true that core properties as modifiers also require the attributive particle, and core properties as predicates also have subject agreement. But these possibilities are not excluded by the proper formulation of typological markedness (see section 4.2). If the attributive particle or subject agreement were found on core properties but not on actions, that would violate the typological-universal theory of parts of speech.

Most important, the combination of the conceptual space approach to typological universals with radical construction grammar allows us to dynamicise the theory of parts of speech advocated here, following the general principles of the dynamicisation of markedness patterns (Croft 1990a: 214). An overt function-indicating construction (such as modification or predication) will arise in a marked context first and spread to an unmarked context later; or it will be lost from an unmarked context first and from a marked context last. One of these scenarios is what is hypothesised to have happened with the attributive particle in Lango. It appears that the relative pronoun is now spreading to property words: it is a possible but less preferred construction for that semantic class. Likewise, the copula is currently developing with predicated property words, though it has yet to spread to all tenses of Lango; or (less likely) it may be that the copular constructions are retreating.

Likewise, a construction expressing a cross-cutting distinction will arise in the unmarked context first, then spread to marked contexts later; or it will be lost from



marked contexts first and from the unmarked context last. One of these scenarios is presumably what has happened with subject agreement and suppletive number agreement in Lango. Suppletive number agreement is used in only a limited fashion in predication—it is not found in the subjunctive, for instance—which suggests either that it is just now spreading to the marked predication function, or is retreating from it. Either way, we would expect to find suppletive number agreement among core property words as modifiers in Lango if it is found in any predicated property word contexts.

The conceptual space for parts of speech in Figure 1 is more complex than a mere core/prototype-periphery semantic pattern implies. For example, it includes the hypothesis that properties are intermediate between objects and actions, and modification is intermediate between reference and predication. There is some evidence supporting both of those hypotheses. It appears that overt expression of predication—copulas or an auxiliary (as it is called when it accompanies action word predications)—conforms to the hierarchy *object* < *property* < *action* (Croft 1991: 130; Stassen 1997: 127). Stassen also proposes a more detailed hierarchy of properties: *object* < *material*, *gender* < *value*, *age*, *form* < *dimension*, *colour* < *physical properties* < *human propensity* < *action* (Stassen 1997: 168–169). Stassen's research demonstrates that detailed cross-linguistic research—his sample consists of 410 languages—reveals further fine-grained detail of the topography of conceptual space that could not be discovered otherwise.

It also appears that overt expression of pragmatic function with actions—nominalisation—conforms to the hierarchy *reference* < *modification* < *predication*. That is, if nominalised forms are found in modification of actions, then they are also found in reference to actions; further research is necessary to confirm this speculation. Also, participial (modifying) derivation appears to be dependent on the existence of nominalisation (Croft 1991: 131), further suggesting the intermediate status of modification. Finally, there is a plausible functional explanation for the intermediate status of properties and of modification. Properties are relational (like actions) but stative and permanent (like objects; Croft 1991: 131–132). Modification both helps to enrich reference (cf. Wierzbicka 1986) and to give a secondary assertion about the referent (Croft 1991: 131).

The two-dimensional conceptual space defined by Figure 1 is of course a gross oversimplification of the actual relationships among semantic classes and pragmatic functions. There are many other semantic classes, and they will not necessarily line up in a single dimension with respect to the pragmatic functions. Stassen's account of intransitive predication (Stassen 1997), which incidentally supports the universal-typological theory of parts of speech presented here, includes the category of predication of location, and it represents a "branch" linked to the predication of properties but not directly linked to the predication of actions or objects. In earlier work, I

argued that properties and modification are not only intermediate in their dimensions, but that adjectives are also less prominent as a typological prototype than nouns and verbs (Croft 1991: 130–133). The exact grammatical status of other sorts of modification—quantification, enumeration, deixis, anaphoric reference, selection from a set—with respect to property modification remains an interesting and open question. Hence the universal-typological theory of parts of speech outlined here is only the first step in a more comprehensive mapping of conceptual space and the dynamic patterns of the syntactic constructions that occupy that space.

#### 4.4. Summary of the theory

Radical construction grammar argues that one is not going to find universals of grammar in the syntactic patterns of individual languages taken by themselves. Grammatical categories in particular languages are defined by the patterns of distribution of grammatical constructions, which themselves are language particular. But this is not to say that there are no universals of grammar. Although grammatical constructions are language particular, they possess formal properties which can be compared across languages, such as the properties grouped in the theory of typological markedness. And the constructions of particular languages can be compared to each other by relating them to their semantic/pragmatic function, in time-honoured typological fashion (see Croft 1990a: 11–18 and references cited therein). Universals of grammar are found in the relationship between cross-linguistically comparable formal properties of constructions and the categories they define on the one hand, and the functions that they express on the other. Those functions in turn are structured, namely in a conceptual space and its topography, which is revealed by the cross-linguistic formal patterns. Certain functions in the topography of conceptual space are appropriately described as the universal parts of speech, in keeping with the intuitions of traditional grammarians and of earlier linguists such as Sapir.

This theory is essentially that advocated in the earlier work cited above (Croft 1984, 1986, 1991). However, that work focused mainly on the typological universals of parts of speech. It did not make fully explicit the theories of syntactic and semantic representation that follow naturally from the typological approach to language. I had not pursued the question of the syntactic representation of particular language grammars to its logical conclusion—radical construction grammar—at that point (but compare Croft 1990a: 100–101, 150–154; Croft 1991: chapter 1). Nor had I explicitly stated that the two-dimensional chart in Figure 1 is intended to be interpreted as a conceptual space (but compare the analysis of participant roles in Croft 1991: 184–185). The explication in this section is intended to remedy this

shortcoming, at least in outline form; the theory will be treated in greater detail in Croft (in preparation).

## 5. Categorisation and construal

In sections 2 and 3, I argued that those analyses that ignored significant semantic differences in nominal and verbal usage of a lexical stem, or nominal and adjectival uses of a lexical stem, misrepresent the facts of the languages in question, namely the conventional, language-particular semantic derivation process involved in a change in category. From the perspective of the universal-typological theory of parts of speech, these facts can be re-interpreted as a conventional, language-particular (and sometimes word specific) semantic shift when used in constructions expressing different pragmatic functions. I excluded such cases from the theory described in section 4. For example, the Quechua form *hatun-ta* 'the big one [ACCUSATIVE]' in example (2b) in section 2 does not tell us anything about how reference to properties is expressed in Quechua, since *hatun-ta* denotes an object, not a property.

Nevertheless, it is quite common cross-linguistically to find a lexical item used in more than one pragmatic function without overt derivation but with a significant and often systematic semantic shift (cf. the discussion of "conversion" in Tokelau and Russian in Vonen 1997). The relevant cross-linguistic universal is that these shifts are always towards the semantic class prototypically associated with the pragmatic function. The following patterns are particularly common cross-linguistically. Property words used as referring expressions shift meaning to an object (person or thing) which possesses the property, as with Quechua *hatun-ta* in example (2b). Action words used in referring expressions shift meaning to a person, place or thing which is a typical salient participant in the action in its semantic frame (in the sense of Fillmore 1982), as may be the case with Tongan *ako* in example (7). Conversely, an object word used in a predication construction shifts meaning to an action typically or saliently associated with the object in its semantic frame, as with Makah example (25) (see Clark—Clark 1979 for this process in English). Or it shifts meaning to the inchoative process "become an Object", as in Makah example (24). Finally, it is quite common for property words used in predication constructions to shift meaning to the inchoative process "become Property" (Stassen 1997: 163–164).

Even where there is no major semantic shift, there is usually a subtle semantic shift towards the semantic class prototypical for the pragmatic function. For instance, predicate nominals do not denote an object in itself, but rather a relation. The norm is taken to be the relation of membership in the object class (as it was in Croft 1991; Stassen 1997), but there is also the relationship of identity and a variety

of other relations (see Croft 1991: 69–71; Hengeveld 1992: 75–91; Stassen 1997: 100–106). Object words as modifiers must also be construed as relational, and become less object-like the more modifier-like their syntax (Croft 1991: 103–104; cf. Uehara 1998: 121–130). For example, the Turkish *izafet* construction with the genitive suffix (function-indicating morphosyntax for the marked modifier class of objects) has a more specific, object meaning, whereas the *izafet* construction without the genitive treats the modifier more as a property (Lewis 1967: 42–43):

- (48) a. *üniversite-nin profesörler-i*  
           university-GEN professors-3SG.POSS  
           ‘the professors of the university’
- b. *üniversite profesörler-i*  
           university professors-3SG.POSS  
           ‘university professors’

The same is true of the English glosses of the Turkish sentences: the zero marked prenominal compound noun in (48b) is more property-like than the postposed genitive NP in (48a).

Likewise, the more predicate-like the syntax of object words and property words in predication, the more transitory and less inherent is the property asserted (Wierzbicka 1986; Bolinger 1967, 1980; Croft 1991: 105–106). Bolinger (1980b: 79) provides a nice example of a scalar increase in inherence from *Jill fusses* to *Jill is fussy* to *Jill is a fussbudget*. Finally, Langacker (1987a: 207–208) argues that even action nominalisations represent an alternative conceptualisation or construal of the action as a static whole.

Langacker has proposed a conceptual analysis of parts of speech (Langacker 1987a, 1987b). A noun is conceptually a thing, that is, a concept construed as non-relational and summarily scanned (roughly, conceived statically and holistically). A verb is a process, that is a concept construed as relational but summarily scanned (roughly, mentally viewed across time). Modifiers, including adjectives, are concepts construed as relational but summarily scanned.

The semantic shifts we have described in this section conform with Langacker’s conceptual analysis. However, it must be pointed out that the construals of particular concepts are conventionally established for a particular language, and often for particular lexical items. For example, the construal of the Makah word for ‘baggage’ as the process of packing is language particular; English does not use *baggage* but instead the object word *pack* to describe this process. And as noted in section 3, some languages (such as English) do not allow the general construal of a property word to indicate an object possessing that property.

Nevertheless, there is no inherent conflict between these two theories of parts of speech. The solution is to recognise that the language-particular categories which linguists prefer to call Noun, Verb and Adjective are what Lakoff (1987a, 1987b) calls *radial categories*. Radial categories are categories with internal structure, typically with a prototype with extensions that are conceptually motivated but linguistically conventional. These extensions themselves involve a degree of conceptualisation, which sometimes manifests itself as a fairly dramatic semantic shift.

The difference between the cognitive and typological theories of parts of speech is chiefly a matter of emphasis. The cognitive theory emphasises the uniformity of the semantic construals found over and over again across languages with respect to constructions expressing the pragmatic functions. The typological theory focuses on the variation found in the distributional patterns of constructions and lexical classes within and across languages, and the varied topography of the conceptual space that underlies the typological universals.

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# Kinship verbs

Nicholas Evans

## 1. Introduction\*

The difference between nouns and verbs is generally held to be the most fundamental word class distinction, in the sense that if a language has just two open classes, these will normally correspond to the noun and verb classes of other languages; other classes, such as adjectives, will then be assimilated to subclasses of one of these two.<sup>1</sup>

This makes the question of how lexical items are assigned to one of these two classes a fundamental one, and there have been many attempts to discover which ontological properties are crucial. Four main types of external motivation have been sought: (a) properties of entities in the world, such as their time-stability (Givón 1979: 320–322, 1984: 51–56), (b) properties of how people manage discussion of those entities in discourse, e.g. by treating them as “reported events” vs. “discourse-manipulable participants” (Thompson 1988), (c) properties of how humans construe and categorise these entities, with nouns construed as “a region in some domain” and verbs as the profiling of a process (Langacker 1987), (d) properties of ontological types in logic, such as entities, events, situations and properties, with nouns expressing predicates of entities and verbs expressing predicates of events or situations (Bach et al. 1995: 7).

It is not the place to evaluate these different approaches here, or to seek a synthesis among them. Rather, I wish to expand the empirical base on which such theorising is built by considering a lexical domain that has not yet been seriously considered in such research: that of kinship expressions, which are variously realised by nouns and verbs cross-linguistically. Consider the translation of the English noun phrase ‘my father’ into the Australian language Ilgar<sup>2</sup> as *ɲanimayyarwun*. This word is built up by prefixing the verbal root *mayyarwu* ‘be father to’ with the subject/object prefix *ɲani-* ‘he <SUBJ>/me <OBJ>’ and suffixing it with non-past *-n*; cf. the use of the more “normal” transitive verb *wun* ‘hits’ in *ɲaniwun* ‘he is hitting me’. In languages with fully-fledged systems of kinship verbs, such as Ilgar, these verbs can be used both as main predicates, as in (1), and as referring expressions, via interpretation as headless relative clauses, as in (2). They may also be inflectable for

tense/aspect/mood, as in (1), where the past tense is used to stress that the kinship relationship no longer holds due to the death of the son.<sup>3</sup>

- (1) a. *ip-anad ip-i-maga-n*  
 FEM-3SG 3SG.FEM.ABS-3SG.MASC.ERG-be.husband.to-NON.PAST  
 'She is his wife.' (literally: "she (is the one), whom he is husband to", or "she, he is husband to her")
- b. *jaga anad ip-i-maga-n*  
 DEM 3SG.MASC<sup>4</sup> 3SG.FEM.ABS-3SG.MASC.ERG-be.husband.to-NON.PAST  
 'He is her husband.' (literally: "it (is) he, who is such that he is husband to her", or "he, he is husband to her")
- (2) *jagabaja yi-wu-wu-ŋ*  
 that 3SG.MASC.ABS-3PL.ERG-kill-PAST
- ŋabi a-maŋyarwu-ŋ*  
 1SG 1SG/3MASC-be.father.to-PAST
- aŋmun-maŋarbu-n jagas<sup>5</sup> ar-argbi*  
 2SG/3PL-clean.out-NON.PAST DEM REDUP-person
- [A father is summoning up a cloud of poisonous gas to avenge his son's death:]  
 'Because they killed my son (i.e. the one whom I was father to), you clean out those people.'

Kinship verbs such as those in Ilgar are interesting for word class studies because they illustrate another dimension relevant to the categorisation into noun or verb. Rather than the "thing" vs. "action" dichotomy that underlies traditional European grammatical approaches since the Greeks, or the "time-stability" dimension more recently introduced by Givón (1984: 51–56), the salient difference with kinship verbs is the number of arguments: as relational terms, taking two arguments,<sup>6</sup> their argument structure most closely resembles that of transitive verbs in many languages (see Vogel 1996: 232 on the correlation between the "absolute vs. relational" opposition and that of nominal vs. verbal encoding). In other words, the exploitation of verbs to encode kinship relations in many languages appears to use their relational semantics rather than "dynamic" vs. "static" semantics as the basis for assigning kin terms to this class, although we shall see later (section 5.4) that interpersonal pragmatics, usually ignored as a factor in influencing nominal vs. verbal encoding, also play a role.

The relevance of relationality has been well put by Kay (1975: 206):

[T]he apparent uncertainty [in Oneida—NE] whether to treat kinterms as verbs or nouns is perhaps not to be treated as a random vagary of superficial structure

but rather may have something to do with the semantic/pragmatic fact that kin-terms (and other relational nouns) are in fact used both to assert that certain relations hold between given individuals and to identify individuals.

Recognition that kinship relations can be expressed by verbs in some languages came relatively late. Tarascan material representing the phenomenon was recorded in 1558 by Gilberti and in 1574 by De Lagunas but was apparently not analysed as kinship verbs (Amith—Smith-Stark 1994b: 542). The first published mention of kinship verbs was by Sapir (1917: 88) who, after insightfully discussing the semantic differences between human relationships and other types of possession, and noting that the 'my' and 'thy' prefixes on 'mother' and 'father' in Wishram "are evidently closely related to the verbal pronominal prefixes", turned to

... the Iroquois usage of expressing many such relations as transitive verbs; thus, one cannot say MY GRANDFATHER or MY GRANDSON in Iroquois, but uses formal transitives which may be respectively translated as HE GRANDFATHERS ME or I GRANDFATHER HIM.

Subsequently, Jakobson ([1971]: 360) saw that kinship nouns have a special status as two-place predicates: "... kinship is treated in Russian as performing a kind of a function; cf. *obe prixodjatsja emu [D]<sup>7</sup> vnuchkami [I]* [both are granddaughters (I) of his (D)]", though he was discussing this not in the context of word class studies, but in the context of nouns assigning cases to their arguments. To my knowledge, the first thorough discussion of kinship verbs in a particular language was by Abraham Halpern (Halpern 1942: 425), who showed that Yuma kinship terms can "occur as verbs and nouns, but not as interjections", and gave a usefully detailed discussion of the morphology and semantics of the difference (see section 3.3). According to Langdon (1997: xvii), Halpern "attributed to Sapir the insight that, in [Yuma], kinship terms are verbs, a revolutionary proposal at the time".

In the following decades discussions of isolated languages with the phenomenon followed. Most of these were from North America: Bloomfield (1946) on comparative Algonquian, Chafe (1967) on Seneca, Williams (1976: 221–224) on Tuscarora, Kay (1975) re-analysing Lounsbury's Seneca data, Langdon (1978) on Yuman, Seiler (1977, 1980, 1982a, 1982b, 1983) on Cahuilla, Sasse (1993) on Cayuga and Mithun (1996) on Mohawk. However, Pym—Larrimore (1979) describe a couple of kinship verbs in the Australian language Iwaidja.

To date the only cross-linguistic survey of the phenomenon is an important pair of recent papers by Amith—Smith-Stark (1994a, 1994b). These contain a wealth of new empirical material on Oapan Nahuatl and other Uto-Aztecan languages, important generalisations about the phenomenon and transitional cases on the noun-verb

continuum, and an innovative discussion of the role of pragmatics in selecting verbal vs. nominal encodings through the differential implicatures they generate. However, these articles do not consider non-North American data, which reflects rather different factors in the noun-verb split to those they consider, fail to consider two major previous works on North American kinship verbs (Halpern 1942 and Kay 1975), ignore the issue of how kinship verbs can have two quite different types of meaning (the 'be a K<sup>8</sup> to' meaning found in Iroquoian, and the 'call/have as a K' meaning found in Yuman and Uto-Aztecán), and do not examine the interaction of these two meaning types with the structure of the kinship lexicon.

The structure of the present article is as follows. In section 2 I define exactly what counts as a kinship verb, distinguishing pure kinship verbs, whose semantics only includes the assertion of a particular kinship relation K, from various other types of kinship verb which include additional elements, such as 'call K', 'have as a K', 'do something to create kinship relationship K', and 'act like a K'. Many languages, including English, have verbs to express some of these predicate types, but express kinship relations proper by nouns. In section 3 I begin with a detailed consideration of two closely related languages, Ilgar and Iwaidja, to give an overview of how such a system works as well as to make data available on a non-Amerindian language with kinship verbs; I go on to examine several other language families more briefly in order to fill out the grid of typological properties of kinship-verb systems, looking at Iroquoian, Yuman, Uto-Aztecán and Gunwinyguan. In section 4 I look at the question of how "verby" kinship verbs are, in comparison with verbs proper. In section 5 I examine the factors responsible for splits between nominal and verbal encoding, breaking these into five types: address vs. reference, actual vs. classificatory kin, kin type, the nature of any extra semantics, and the person value of the arguments. Finally, in section 6, I outline some issues calling for further typological research, including the interaction between nominal vs. verbal encoding and the structure of the kinship lexicon, and the predictability of nominal vs. verbal encoding from other typological characteristics of the language.

## 2. Delimiting the phenomenon: What counts as a kinship verb?

To qualify as a kinship verb on the definition I use in this paper, a lexical item must satisfy two criteria:

1. It must be a verb, in the sense of sharing the criterial morphosyntactic characteristics of core verbs (e.g. 'hit', 'tell') in the language in question.

While one expects that it will be a transitive verb, linked to subject and object relations in the form '<SUBJ> be (a) K [to <OBJ>]', this more restrictive formulation is not included as a definitional criterion, for two reasons: the grammatical relations may not be definable for the language in question, and it is also logically possible that such expressions could take the form of an intransitive verb (e.g. 'be a mother') with the second term given as some sort of benefactive (e.g. 'to me'). In fact, however, kinship verbs are largely transitive over my whole sample, and major problems with the definition of subject and object relations do not arise with the languages under discussion.

What is more variable is the degree to which kinship verbs share all the characteristics of prototypical verbs: in some languages, for example, the only verbal characteristic they exhibit is the presence of subject/object affixes, while in others they allow more core verbal characteristics, such as inflection for tense/aspect/mood. This question is examined in section 3 and section 4.

2. In at least one of its senses, its semantics must be of the type '<X> be K [to <Y>]', where K is a kinship relation of the type 'mother', 'father' etc.

This criterion is intended to distinguish pure kinship verbs from other verbs that include an assertion of a kinship relation as part of their meaning, such as 'call K', 'cause someone to exist by acting as a K', 'treat in the way a K treats one', 'have as a K' and so on.

These four meanings are encoded by verbs in many languages that lack pure kinship verbs. English can be used as an initial example of the first three:

- (3) *Don't "uncle" me!*
- (4) *He fathered a whole string of illegitimate children.*
- (5) *She mothers him too much.*

In each of these, there is extra semantics, beyond the pure kinship meaning, and a lexical coverage that is either broader or narrower than the set of kinship terms.

In (3) the meaning is 'call "uncle"'. This pattern has three major features:

- (i) it accepts other non-kin address terms (e.g. *Don't "darling" me!*),
- (ii) it is limited to this syntactic frame; in my dialect it can't even be used for the corresponding affirmative: *\*Uncle me!* is unacceptable),
- (iii) it only works with kin terms that sound plausible as address terms. *Don't "niece" me!* sounds wrong, and for people of my generation, who use *father* as a reference term only, *Don't "dad" me!* sounds better than *Don't "father" me!*.

This use then, is a specific construction allowing the delocutive use of address terms, which happens to include some but not all kin terms, and many other address terms besides. The delocutive nature of the construction is shown by the preference for using quotation marks in English.

In (4) *father* is synonymous with *beget*; the meaning is roughly 'cause someone to exist by acting as their father'. In English this is the main kin term with such a meaning: \**he grandfathered/uncled a whole string of children* is completely unacceptable. Whether *X fathered Y* entails *X is the father of Y* depends on the cluster of prototypicality conditions that can be teased out with certain kin terms (see Lakoff 1987 on comparable problems with English 'mother'), so that *John fathered me, but he's not really my father* is possible in the case of a one night stand, for example. However, in my dialect the verb *father* requires at least an act of sexual intercourse—\**John fathered 125 children as a sperm donor* sounds distinctly odd; similar remarks apply to *beget*.

In (5) *mother* means 'treat as a mother treats OBJ' with further connotations of being protective; the OED gives a sense 'protect as a mother'. The OED also lists the sense 'give birth to [usually fig.]', though in my dialect this sense sounds forced.

Amith—Smith-Stark (1994b: 513) comment that "in English some kin terms may function as verbs ... . Such terms seem to be those most heavily laden with expectations of normative behavior. As transitive verbs, however, often these terms do not refer to the relation itself, but rather to the social behaviour that is associated with the kinship relation", and it is certainly true that the English verb *mother*, which for me is the only example of this pattern in English, does not require the specified kin relation to exist, as shown by Amith—Smith-Stark's (1994b: 513) example *I hate it when nurses mother me*.

It appears to be a language-specific question as to whether such verbs detach the behaviour normative for a particular kin from the kin relationship itself. In the following Classical Chinese example the verb means something like 'fulfil one's duties as a father'; here it is used intransitively, and the meaning includes both a true kinship component 'be a father (to someone)' and a normative-behaviour component 'act in the way one expects of a father' (example from Norman 1988: 88).

- (6)      *cài*      *hóu*      *yín*      *ér*      *bú*      *fù*  
           [place] marquis profligate and not father  
           'The marquis of Cai was profligate and would not fulfil his duties as a father.'

The fourth type of extra semantics—'have (as) a K'—cannot be exemplified with an English verb, but occurs frequently in North American languages, especially in Uto-Aztecan. In Yaqui, for example (Jelinek—Escalante 1988), nouns can be produc-

tively used in the verbal slot, taking the full range of TAM inflections, and receiving the interpretation 'have a N'. (7a) illustrates the use of the perfective suffix with a regular verb, (7b) with a non-kin noun (literally: "he will house" for 'he will have a house'), and (7c) with the kinship noun 'daughter' (literally: "I daughtered" for 'I have a daughter').

- (7) a. *'aapo*     *Peo-ta*                      *kari*            *veeta-k*  
          he           Pete-POSS           house        burn-PERF  
          'He burned Pete's house.'
- b. *'aapo*           *kari-ne*  
          he               house-FUT  
          'He will have a house/houses.'
- c. *'inepo*        *maara-k*  
          I                daughter-PERF  
          'I have a daughter.'

In Yaqui, then, the use of kin terms in verbal frames is part of a regular conversion-like process applying to most nouns; Jelinek—Escalante (1988) in fact argue that the noun in (7b) or (7c) is incorporated by one of the set of TAM suffixes.<sup>9</sup> In our discussion of kinship verbs in Uto-Aztecan languages we shall see rather similar phenomena, in terms of semantics, though usually 'have OBJ as a K' rather than simply 'have a K', and restricted to kin terms rather than being available for nouns in general.

A potential problem arises in the glossing of such constructions. If they are glossed just by the kin term, as has been done with 'daughter' in (7c), the meaning 'have (as) a' is left out of account (or, at best, is implicitly claimed to reside in the construction as a whole); this problem is not avoided simply by capitalising the gloss (e.g. as DAUGHTER, which is the practice of Amith—Smith-Stark). This becomes particularly confusing when, in languages like Central Guerrero Nahuatl, Hopi and Cahuilla to be discussed below, the root means 'be K to' when it occurs in a true nominal construction, and 'have (as) a K' in the verb-like construction, so that [I-her-daughter] would mean 'I am her daughter' on the first interpretation, and its converse 'I have her as a daughter, i.e. I am her parent' in the second. Throughout this paper I therefore adopt full glosses to avoid this problem.

Verbs expressing kinship relations plus one or another of the extra semantic components outlined above are far more widespread than kin verbs proper, though it appears to be the case that in any given language only the delocutive and 'have as a K' type are ever productive in the sense of applying to most or all kin terms.

In Tongan (Churchward 1953: 247), the suffix *-'aki*, whose basic meaning is 'to treat or use as', can be attached to kin terms:



[T]he noun *tamai* is often applied to one's father's brothers, as well as to one's actual father. But whatever relationship is indicated, in any particular context or circumstances, by the noun *tamai*, the word *tamai'aki*, used as a transitive verb, implies a somewhat more distant relationship.

In other words, this suffix derives, from a kin term K, the meaning 'to call or treat as a K', or (in a formulation suggested by Jürgen Broschart, personal communication) 'to be more or less related to as a K'. This illustrates a common semantic tendency for 'to call someone K' to be interpreted as 'to regard someone (who is not a K) as equivalent to a K in some sense'. This is found with English phrasal verbs of the type 'call someone aunty/uncle', and the Gunwinyguan 'call K' verbs to be discussed in section 3.5 are likewise normally be used in a context of deciding how to fit people who are not close kin into an overall society-wide system of classificatory kinship.

None of the verbs considered in this section can be used for pure assertions of kinship, and in general they will not be considered further in this article.<sup>10</sup> This leaves open the possibility that a verb could be polysemous between a pure kinship sense, and one of the derived types considered here, and my criterion (2) is deliberately formulated to include such cases, as long as one of the senses expresses pure kinship. There is another situation in which, exceptionally, I include verbs with the meaning 'have as a K' or 'call K' in the purview of this survey: where they are the only means of expressing kin relationships, e.g. for particular kin types. In Yuma (section 3.3) the basic root for certain kin types means 'call K', 'my K' then being expressed by a deverbal construction meaning 'the one whom I call K'.

Before concluding this initial section we need to consider two more definitional issues.

Firstly, although kinship forms the core of the semantic domain under consideration, other types of human relationship such as 'friend', 'lover' and 'boss' may form part of the same lexical class; like kinship terms these are all logically two-place predicates. To make this extent more explicit, Amith—Smith-Stark (1994a) used the more general term "expressions of interpersonal relations". Although I prefer to use the shorter term "kinship", to reflect the semantic core of the domain, I will include such other human relationship terms in the survey where appropriate.

Secondly, in discussing kinship relations we need a number of technical terms. In line with established anthropological usage I employ the term "propositus"<sup>11</sup> for the person from whose perspective the kinship relationship is calculated, and "referent" for the person referred to by evaluating the kinship expression with the propositus plugged in. In most languages the propositus shifts between first, second and third person according to a range of factors. If I say "Where's mum?" to my young son, he is the propositus (i.e. there is a second person propositus here); when he says

“Mum’s not home yet”, there is a first person propositus (i.e. “my mum” is implicit). In empathetic discourse the propositus may be third person, as when a child-care worker, discussing a young girl in her care, says “she was fretting for mum all day”. In most societies there are conventions that young children will be taken as the propositus regardless of their role in the speech act; once adults get involved complex considerations of politeness and seniority may come into play (see e.g. Merlan 1982).

Note that, when kinship relations are expressed by verbs, two types of alignment are possible between subject vs. object on the one hand, and propositus vs. referent on the other.<sup>12</sup> If I say [she-him-be.mother.to], in other words, this could in principle be used for either ‘she is his mother’ (i.e. subject is referent and object is propositus) or ‘he is her son’ (i.e. he is such that she is mother to him; here the object is referent and the subject is propositus), if the language allows non-subject topics. Of course these two meanings are equivalent in truth value, though they differ in what they take as point of perspective.

More serious problems arise when a kinship verb is used as a referring expression in a headless relative construction; this is potentially ambiguous between ‘the (male) whom she is mother to’, with the subject as propositus and the object as referent, and ‘the (female) who is mother to him’, with the object as propositus and the subject as referent. How languages deal with this potential ambiguity depends in part on their strategies for constructing ascriptives and for forming relative clauses, and is one of the parameters we shall examine below.

### 3. Systems of kinship verbs: Some case studies

To give an idea of the variation in how languages organise kinship verbs into systems, we will submit five groups of languages to case study, in decreasing order of detail: the Australian languages Ilgar and Iwaidja, the Iroquoian languages (particularly Seneca and Cayuga), the Yuman languages (particularly Yuma), the Uto-Aztecan languages (particularly Central Guerrero Nahuatl and Cahuilla), and the Gunwinyguan languages (particularly Kunwinjku/Mayali and Dalabon).

#### 3.1 Ilgar/Iwaidja

Ilgar and Iwaidja<sup>13</sup> are two closely related languages of Northern Australia, belonging to the Iwaidjan family; the other languages of this family (Maung, Marrgu and

Amurdak<sup>14</sup>) also have kinship verbs but will not be discussed here.<sup>15</sup> They are a convenient starting point, partly to correct the prevailing view that kinship verbs are only found in the Americas, but also because the kinship verbs in these languages have such well-developed verbal characteristics. It should be stressed, however, that we are far from having a complete grammatical analysis of either of these languages (see Pym—Larrimore 1979 and Evans 1998 for summaries), or of the sociolinguistics of kin term use, so that the information given below must be regarded as provisional. Unless otherwise indicated I use Ilgar examples.

### 3.1.1 Overview of word class system

Verbs in Ilgar and Iwaidja take prefixes for subject, object, direction (optional) and future tense, and suffixes for tense/aspect/mood. Within the transitive prefixes, the order of subject and object depends both on person (first and second persons preceding third, and first↔second combinations having portmanteau realisations), and on grammatical relations, with object preceding subject when both are third person. Intransitive prefixes are substituted for transitive prefixes under certain conditions, such as in reflexives (e.g. example (15)) and reciprocals. A subset of nouns—mostly body parts—may be prefixed for possessor; a few nouns showing gender contrasts take gender prefixes identical to these, while other nouns take no prefixes. Many nouns have irregular suffixes showing plurality. The possessor prefixes on nouns are identical to the absolutive prefixes on verbs and the agreement prefixes on adjectives:

- (8)      *ŋa-maju*                                      *ŋa-waya*  
 1SG.ABS-suffer:NON.PAST                      1SG-head  
 ‘I suffer as regards my head’ = ‘I have a headache’
- (9)      *aŋ-maju*                                      *aŋ-baya*  
 2SG.ABS-suffer:NON.PAST                      2SG-head  
 ‘you suffer as regards your head’ = ‘you have a headache’
- (10)    *ijp-balgbaragan*      *Jaga*      *ijp-maju*                                      *ijp-baya*  
 3SG.FEM-old.person      DEM      3SG.FEM.ABS-suffer:NON.PAST      3SG.FEM-head  
 ‘The old woman has a headache.’
- (11)    *yi-walgbaragan*      *Jaga*      *yi-maju*                                      *yi-waya*  
 3SG.MASC-old.person      DEM      3SG.MASC.ABS-suffer:NON.PAST      3SG.FEM-head  
 ‘The old man has a headache.’

- (12) *yi-lijumaral*    *argbi*    *yi-waralga*  
 3.MASC-little    man    3.MASC.ABS-cry:NON.PAST  
 'The little man is crying.'
- (13) *yip-jijumaral*    *wuruwajba*    *yip-baralga*  
 3.FEM-little    woman    3.FEM.ABS-cry:NON.PAST  
 'The little woman is crying.'

In other words, a great deal of agreement morphology is shared across nouns, verbs and adjectives, but these word classes can still be distinguished morphologically: the verbs by the existence of other affixal slots (transitive subject, direction and future prefixes, and TAM suffixes), adjectives by their obligatory agreement with governing nouns, and nouns by the fact that they govern gender agreement in adjectives. Within the set of nouns, kinship nouns are distinguished by taking one of two plural suffixes: most nouns for senior kin take a plural suffix *-((b)u)lar* (cf. *magamaga* 'aunt', *magamagalar* 'aunts') while words for junior kin (as well as *gumbala* FM(B), FZC/MBC, and *wulubulu* MMM) take plural *-(p)un*: cf. *gunbuj* 'older sibling', *gunbujun* 'older siblings'.

The main difference between Ilgar and Iwaidja is that Ilgar maintains a masculine vs. feminine distinction that has been almost completely lost in Iwaidja, and that Iwaidja has developed initial consonant mutation under a range of conditions, but mostly where Ilgar has third person singular prefixes.

Word order is very free and cannot be used as a diagnostic of word class. To add to the difficulties of determining word class by syntactic means, the same free-pronoun forms are used for subject, object and possessive, so that the first person pronoun *ɲabi*, for example, in a phrase of form *ɲabi X*, may function either as a possessive pronoun 'my' (14), or as a subject 'I' (15). Though the order [POSS.PRON N] is preferred, there are also examples of the order [N POSS.PRON], e.g. *yaɾa anad* [seed 3SG.MASC] 'its seed'. This leaves morphology as the main criterion for distinguishing nouns from verbs.

- (14) *ɲabi*    *wunag*,    *ɲabi*    *maɭulguj*  
 1SG    country    1SG    island  
 'my    country, my islands'
- (15) *ɲabi*    *ɲa-ɭalgun*    *ɲa-yirag*    *ɭaga*    *mapjawag*  
 1SG    1SG.ABS-cut:NON.PAST    1SG-self    DEM    knife  
 'I cut myself with a knife'
- (16) *ɭaga*    *ɲabi*    *ɲa-yirag*    *a-na-wura*  
 that    1SG    1SG-self    1/3.MASC-FUT-tie:NON.PAST

*a-na-ma[algu*

1/3.MASC.SG-FUT-cook:NON.PAST

*maŋalbijuju*

turtle

'I'll take that turtle myself, tie it up and cook it.'

### 3.1.2 The kinship system

With this background, let us turn to the question of kinship terms. Ilgar and Iwaidja, typically for Australian languages, have rich and complex kinship systems, which are extended to everyone in the social universe by various methods of category extension. Kinship relations are a main factor in regulating interpersonal behaviour, and kin terms are one of the two normal methods for referring to individuals.<sup>16</sup> All this makes kin terms a frequently used part of the vocabulary. The Ilgar/Iwaidja system is summarised in Figure 1. Note that same-sex siblings use the same term, so that *bupi* actually covers both 'father' and 'father's brother', and *gamu* covers both 'mother' and 'mother's sister', even though only the first meaning is shown on the chart.

### 3.1.3 Kinship nouns

In first eliciting<sup>17</sup> kinship terms, all the kin terms I was given were nouns. These are the terms shown in smaller italics under the kin types in Figure 1. Only later, in recorded texts, many dealing with genealogical information, did kinship verbs come up. These are the roots shown in larger italics in Figure 1.

In address, only the nouns are used: one can call out, for example, *gamu!* 'mother!' or *wawu!* '(paternal) grandfather!' but would never use a verbal kin term in this context. The noun terms, in combination with the verb *min* 'do, say, call', are also used in reporting how you call or classify a particular person, as in (17a–b); in this respect Ilgar and Iwaidja differ from Dalabon and Mayali (see section 3.5), which in such circumstances use verbs incorporating vocative forms. Such quotative uses may refer either to situations where someone is being fitted into the kinship system by being assigned a particular category, or they may be used with actual kin, as in (17b).

- (17) a. *ŋabi*      *ŋa-mi-ŋ*                      *jumuŋ*                      *gumbala*  
 1SG      1SG.ABS-say-PAST                      3SG.MASC.OBLIQUE                      cousin(FM)  
 'I call him 'cousin'.'

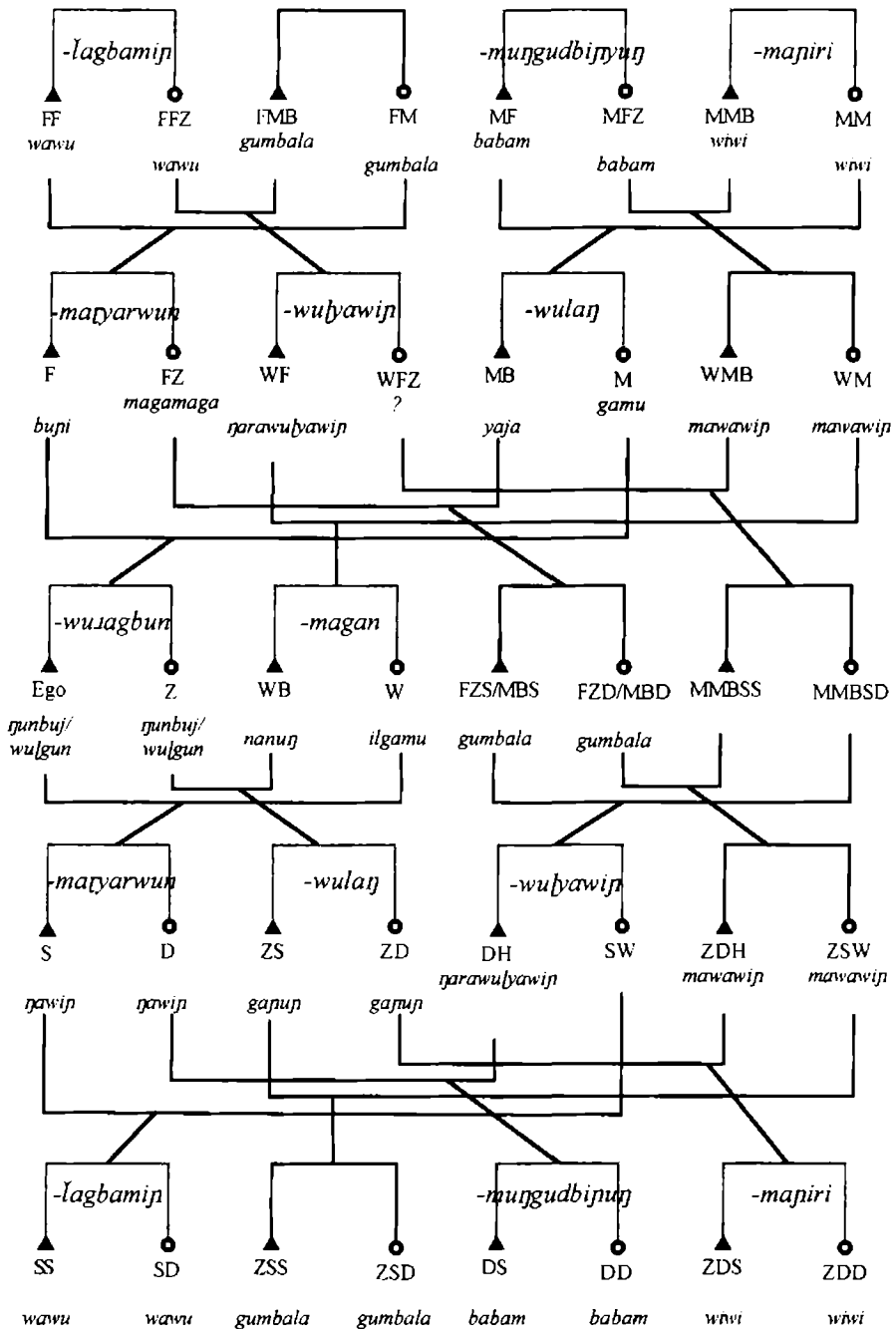


Figure 1. Iwaidja/Ilgar kin terms, showing superclassing by kinship verbs; male ego

- b. *ŋabi*      *ŋa-ni-ŋagbami-ŋ*,  
 1SG      1SG.ABS-3SG.MASC.ERG-be.father's.father.to-PAST  
 'my late father's father,
- ŋa-ni-maɣarwu-ŋ*      *yaŋŋijaŋŋi*  
 1SG.ABS-3SG.MASC.ERG-be.father-PAST      [name]  
 my late father Yaŋŋijaŋŋi,
- jaɣabasa*      *ŋad-bi-ŋ*      *wawu*      *aɣad*  
 that      1PL.EXCL-call-PAST      FF      one  
 and that one we called *wawu* (paternal grandfather),
- aɣad*      *ŋad-bi-ŋ*      *wawu*      *madbuga*  
 one      1PL.EXCL-call-PAST      FF      [name]  
 that one we called *wawu*, Madbuga,
- madbuga*      *ŋad-bi-ŋ*      *wawu*  
 [name]      1PL.EXCL-call-PAST      FF  
 we called Madbuga (paternal) grandfather. (Madbuga was in fact the speaker's father's father.)'

The noun terms are also used when discussing kinship in English (e.g. *I went to live with my wiwi.*). Finally, they are used when explaining what kin relationship a new acquaintance holds, whether to the speaker, the hearer or to a third person, e.g. 'she is my aunty' would normally be expressed as *ŋabi magamaga* '(there is/that is) my aunty'.

Turning to the verbal terms, five main points must be made: the interaction of the prefixal system with the structure of the lexicon (section 3.1.4), the specific semantics of choosing a verbal root as opposed to a nominal one (section 3.1.5), the possibility of using such kinship verbs to refer to either subject or object provided neither actant is a speech act participant, related to the fact that such terms are essentially headless relatives allowing subject or object to be pivot (section 3.1.6), and the availability of TAM categories with kinship verbs (section 3.1.7).

### 3.1.4. Kinship verbs and the structure of the lexicon

The set of verb kin roots is much smaller than the set of nominal kin roots, but the use of subject and object prefixes, which in Ilgar systematically distinguish gender, means that the inflected word makes at least as many distinctions as the nominal, and sometimes more. This is achieved by exploiting the converse semantics of kinship terms (such that 'X is Y's grandparent' entails 'Y is X's grandchild', etc.), and allowing either subject or object to be the referent. Thus [he-her-be.husband.to]

can be either 'he, who is husband to her, i.e. her husband' or 'she, whom he is husband to, i.e. his wife'. The issue of how to decide which actant is the pivot, determining which of the two readings is obtained is taken up in section 3.1.6, but in the meantime we will avoid this problem by having one actant first or second person and the other third person, which will always result in the third person actant being the referent: [I-him-be.father.to] means 'my son, i.e. the one whom I am father to', while [he-me-be.father.to] means 'my father, i.e. the one who is father to me'. Of course when these verbs are used as main predicates the issue of pivot does not arise.

Consider the kinship verbal root *wulaŋ*, which is used in paraphrasing the nominal roots *gamu* 'mother, mother's sister', *yaja* '(maternal) uncle', and *gapuŋ* 'sister's child (male speaker), child (female speaker)'. On the assumption that 'mother' is the core meaning (since it is genealogically the closest to ego), I shall gloss it as 'be mother to'. Now each of these kinship relations can be made explicit through the appropriate prefixal combinations, as in (18), and in fact the sex of the sister's children can be distinguished in a way that is impossible with the noun terms (18c-d). Note in passing that this verb cannot be used of someone who has engaged in the process of raising a child. For example, if someone's daughter had died, leaving her children to be brought up by the grandmother, this verb would not be used and a root meaning 'to raise' ('growimup' in Aboriginal English) would be used instead.

- (18) a. *ŋan-ŋa-wulaŋ*  
 1SG.OBJ-3SG.FEM.ERG-be.mother.to:NON.PAST  
 'my mother' (she is mother to me)
- b. *ŋa-ni-wulaŋ*  
 1SG.OBJ-3SG.MASC.ERG-mother:NON.PAST  
 'my maternal uncle' (he is (as a) mother to me)<sup>18</sup>
- c. *a-wulaŋ*  
 1SG/3SG.MASC-mother-NON.PAST  
 'my son (female speaker), my sister's son (male speaker)'
- d. *aŋ-bulaŋ*  
 1SG/3SG.FEM-mother-NON.PAST  
 'my daughter (female speaker), my sister's daughter (male speaker)'

Plural affixes can of course also be used. For example, the combination *ayun-* 'I→them' can be combined with the root *bulaŋ* to give *ayunbulaŋ* 'my children (female speaker), my sister's children (male speaker)'.

Finally, in some cases "cognate object gender" prefixes are used: these are archaic markers of genders that are no longer productive, but remain with certain verbs giving special meanings (see Evans 1998). When this happens the object is no longer



the junior kin but some non-human referent, and a free pronoun must be used to represent the junior kin. An example is *nuyi aŋamaŋiri* 'your granny' (MM(B)), which takes the prefix *aŋa* < *aŋ-ŋa* 'she (*ŋa*) acting upon neuter object (*aŋ*)'; the prefix appears originally to have referred to an abstract concept like 'sign of ownership'. Revealingly, the corresponding Maung term for MMB is *animapiŋiri mayagbu*, literally "the one who arranges marriage" (*ani* < *aŋ-ni* [3.NEUT.ABS-3.MASC.ERG]); in Ilgar *mayagbu* means 'sign of ownership'.

Further illustrations of combinations (18a–d) are given in Figure 2.

Meaning of kin-verb root	With <i>ŋani</i> 'he→me'	With <i>ŋanŋa</i> 'she→me'	With <i>a</i> 'I→him'	With <i>aŋ-</i> 'I→her'
<i>maŋyarwun</i> 'be father to'	<i>ŋanimayyarwun</i> 'my father'	<i>ŋanŋamayyarwun</i> 'my paternal aunt'	<i>amayyarwun</i> 'my son (male speaker), my brother's son (female speaker)'	<i>aŋmaŋyarwun</i> 'my daughter (male speaker), my brother's daughter (female speaker)'
<i>wuŋagbun</i> 'be older sibling to'	<i>ŋaniwuŋagbun</i> 'my older brother'	<i>ŋanŋawuŋagbun</i> 'my older sister'	<i>awuŋagbun</i> 'my younger brother'	<i>aŋbuŋagbun</i> 'my younger sister'
<i>magan</i> 'be husband to'	<i>ŋanimagan</i> 'my husband'	<i>ŋanŋamagan</i> 'my husband's sister'	<i>amagan</i> 'my wife's brother'	<i>aŋmagan</i> 'my wife'
<i>laŋbamip</i> 'be father's father to'	<i>ŋanilaŋbamip</i> 'my father's father'	<i>ŋanŋalaŋbamip</i> 'my father's father's sister'	<i>alaŋbamip</i> 'my son's son (male speaker), my brother's son's son' (female speaker)	<i>aŋjaŋbamip</i> 'my son's son (male speaker), my brother's son's son' (female speaker)

Figure 2. Examples of specific kinship readings obtained by combining subject/object prefixes with abstract kin roots in Ilgar

There is one verbal kin term root which never takes transitive prefixes: the root *wuŋyawip*, designating the father-in-law/son-in-law relationship. This is always used with an intransitive plural prefix, as befits a reciprocal, e.g. *ŋara-wuŋyawip* 'we, father-in-law and son-in-law' (*ŋara-* 'we'). The lack of transitive marking here is not unexpected: in the specially constrained situation between parent-in-law and child-in-law, many oblique linguistic registers are employed in Australian languages, and in one of these (e.g. Gurindji—McConvell 1982) all transitive verbs are collapsed to a single lexical root. Moreover, while self-converse roots are common between members of the same generation (as with English 'cousin', and Kayardild *kularrind* 'opposite sex sibling'), and between members separated by two generations (e.g.

Kunwinjku *mawa* 'father's father; son's child'), the only self-converse roots regularly found between adjoining generations in Australian languages are those for child-in-law and parent-in-law, e.g. Kunwinjku *na/ngal-kurrng* 'male/female in a relation of son-in-law to mother-in-law or her brother'. Interestingly, the other child-in-law/parent-in-law relationship in Ilgar/Iwaidja has no true verbal root, although its form, *mawawin*, is compatible with it being a frozen kinship verb.

### 3.1.5 Semantics of choice between nominal and verbal kin terms

The conditions under which nominal kin terms are used have already been mentioned: in address, in reporting how to classify kin and in giving initial orienting information about one's kin relations to new acquaintances. All of these are compatible with the widest interpretation of the referential scope of kin terms, which in Ilgar and Iwaidja as in other Australian languages must potentially be able to designate individuals of any genealogical distance who have been fitted into the logic of the kinship system (e.g. through assigning a stranger of known subsection affiliation a relationship to oneself, on the basis of how one normally relates to close kin of that subsection).

The verbal kin terms, on the other hand, are used to refer to close kin: in (1) the speaker is bemoaning the loss of his son, and in (17b) the speaker is giving genealogical information and mentioning either a classificatory 'father' (his father's father's brother's child) in the case of *yarrngijarrngij*, or his actual father's father in the case of Mardbuga. In (19) the speaker is referring to his own wife, not to a classificatory wife:

- (19) *ŋabi a-ŋ-magan*  
 1SG 1SG.ERG-3SG.FEM.ABS-be.husband.to:NON.PAST  
*yi-ŋa-wu-n* *yi-muraŋ* *ipa:li*  
 3SG.MASC.ABS-3SG.FEM.ERG-hit:NON.PAST 3SG.MASC-big yam  
 ‘My wife is digging up a big yam.’

There are other clues stressing the association of these verbs with tracing actual descent. Firstly, in discussions of kindred within the same patriline, one may use the Iwaidja term *arundagbamiŋ*, literally "we are grandfather to them", in the following circumstance: a pair of brothers A and B are talking to their father C about the children who are C's grandchildren and A and B's children—in other words stressing the fact that they, A and B, have as it were enabled C to have second-generation patrilineal descendants. Secondly, the patterning of which grandparents

get lexicalised kinship verbs is significant: one's primary claims to clan land are through one's father (who would normally have inherited his clan land affiliation from his father, i.e. one's FF), with secondary affiliations to one's mother's land (which she got from her father, i.e. from one's MF); there is also a system of tracing descent for various mainly ceremonial purposes directly down the matriline, i.e. through one's MM. These are the three grandparents with lexicalised verbal kin terms; the fourth, FM, which lacks a verbal form, is less important in tracing entitlements through descent.<sup>19</sup>

This use of verbal terms to pick out close members of the overall category of classificatory kin is reminiscent of what is found in a number of Gunwinyguan languages immediately to the south, such as Kunwinjku/Mayali and Dalabon. Although these lack a comprehensive system of kinship verbs comparable to Ilgar/Iwaidja, there are a number of verbal forms which pick out actual blood kin, or close focal members of kinship categories in terms of kin-defining events like 'bearing a child' (mother) or 'seeing a child's conception spirit' (father). These are discussed in section 3.5.

The basic semantic correlation, then, is as follows:

nominal terms	verbal terms
distant members of kin category	close members of kin category

This contrasts strikingly with what has been said about kinship verbs in North American languages, as we shall see below: in Huichol, for example, the decision to express a kinship relation as a verb rather than a noun may signal a non-standard act of classification (e.g. viewing a woman as a potential wife). In section 5.4 I relate this to the different semantics of the kin verb constructions in these languages.

### 3.1.6 Achieving reference through relative clause use

Most uses of Ilgar and Iwaidja kinship verbs are as clausal arguments of some other verb, e.g. 'she is looking for her husband'. Typical examples are (19) and (20a-b).

(20) a. *yip-i-yalma-n*

3SG.ABS.FEM-3SG.ERG.MASC-search.for-NON.PAST

*anad*

3SG.MASC

*ip-i-maga-n*

3SG.ABS.FEM-3SG.ERG.MASC-be.husband.to-NON.PAST

'He is looking for his wife.'

b. *yi-ŋa-yalma-n*

3SG.ABS.MASC-3SG.ERG.FEM-search.for-NON.PAST

*jaga*     *yij-i-maga-n*  
 DEM     3SG.ABS.FEM-3SG.ERG.MASC-be.husband.to-NON.PAST

'She is looking for her husband.'

The best rendition of such expressions into English is as a relative clause, whose pivot may be either the subject or the object: cf. (20a) 'he is looking for her, his one that he is husband *to her*' and (19), 'mine such that I am husband *to her*, she is digging up a yam' vs. (20b) 'she is looking for him, that one such that *he* is husband to her'. Interpretation of the relative clause may be signalled in a number of ways: by a pronoun,<sup>20</sup> as in (20a), by a demonstrative like *jaga* 'that' in (20b), supplemented by using textual context, as in (19). The actant indexed by the possessive pronoun may be either the subject or the object: cf. in *ɲabi a-maɲyarwu-n* in (2), where 'my son' is literally "mine such that I was father to him", with *ɲabi ɲani-lagbami-n* in (17b), literally "mine such that he was grandfather to me".

The method of forming relative clauses from kinship verbs is parallel to that used with relative clauses of more canonical verbs, which may be prefixed by a demonstrative pronoun, as with *jaka ma-ni-laruruŋ* in (21), but need not be, as *ɲariŋ-aya-n yij-bani* in (22) illustrates.

- (21)     *maŋu*     *jaga*     *ma-ni-laruruŋ*  
           who     DEM     3.VEGETABLE.ABS-3.MASC.ERG-burn:NON.PAST  
  
           *jagaga*     *ɲabi*     *wunag*     *jaga*     *maɭalguj?*  
           DEM:PL     1SG     country     DEM     islands

'Who's that who's burning off my country and islands there?'

- (22)     *ɲariŋ-aya-n*                                     *yij-bani*  
           1PL/3SG.FEM-see-NON.PAST             3SG.FEM.ABS-sit:NON.PAST  
  
           *maŋu*     *jaka*     *wuruwajba?*  
           who     DEM     woman

'Who's that woman who we can see sitting there?'

Within the small corpus obtained so far, it appears that no single signalling mechanism (such as the choice between possessive pronoun and demonstrative, or the alignment of possessive pronoun with subject or object position) is consistently used to remove the ambiguity of a relative-clause interpretations like 'the one such that he is husband to her'. Indeed, there are examples where two kinship verbs are simply placed next to one another, with the first given a possessive interpretation, but no use of pronouns or demonstratives to overtly signal which argument is a pi-

vot. An example is (23), most literally glossed as “(the one such that) he is husband to her, (that one’s one such that) he is older sibling to her”.

- (23) *ijp-i-maga-n*  
 3SG.FEM.ABS-3SG.MASC.ERG-be.husband.to-NON.PAST  
*ijp-i-wu.iagbu-n*  
 3SG.FEM.ABS-3SG.MASC.ERG-be.older.sibling.to-NON.PAST  
 ‘his wife’s elder brother’<sup>21</sup>

It appears, then, that Ilgar and Iwaidja employ a loose strategy of using kinship verbs as relative clauses, either without further marking, as in (23), or preceded by a demonstrative or pronoun which can be interpreted as co-referential with either subject or object. This corresponds closely to the general method of building up sentences in polysynthetic languages. It has been described by Sasse (1991: 83) as follows: “sentences are characterized by concatenation of predications”, these predications being made by “roots denoting states of affairs, with pronominal affixes acting as referential indices”. The fact that the pivot can be either subject or object is connected with the fact that the propositus can either be subject (20a) or object (20b), and conversely the referent can either be subject (20b) or object (20a). This goes against the restriction, proposed by Amith—Smith-Stark (1994a: 37, 1994b: 515), that in kinship verbs the object should be the referent and the subject the propositus (relatum), though they note that the Iroquoian languages also violate this proposed restriction.

Most examples given so far have involved kinship verbs being used to designate arguments via interpretation as relative clauses, rather than functioning directly as predicates, and this reflects the proportion of the two types in my data. In fact it is probably more common to use the nominal kin terms when kin terms are asserted directly as a main predicate, as in:

- (24) *jaga nuyi gamu, ŋabi gamu jaga*  
 DEM 2SG mother 1SG mother DEM  
 ‘That one’s your mother, my mother is this one.’

However, kinship verbs are also sometimes used directly as predicates, as in (25). This is particularly common when the relationship is being related in past or future time, as in (28) and (29) below.

- (25) *jaga nuyi aŋa-majiri*  
 DEM 2SG 3.FEM/3.ANG<sup>22</sup>-MM:NON.PAST  
 ‘That (woman)’s your “granny” (MM).’

Cross-linguistically there is a common preference for using verbs in predication, and nouns in reference. This preference does not hold for kinship terms in Ilgar and Iwaidja: at least within the current, limited corpus, kinship verbs are used more often for reference than predication, and nouns are preferred in predication to verbs if one considers only present utterances. Presumably this is because the possibility of indexing two arguments, which is necessary for calculating the reference of kinship expressions, is found on verbs but not nouns.

### 3.1.7 Availability of TAM categories with kinship verbs

We have already seen that kinship verbs in Ilgar/Iwaidja can vary their suffixal inflection for tense: uses of the past, motivated by the fact that the referent is dead so that the kinship relation is no longer active, were illustrated in (2) and (17b), and present uses (encoded by the combination of the non-past suffix with the absence of a future prefix) in the remaining examples given so far. The first published reference to show the use of past tense with kinship verbs was in Pym—Larrimore's discussion of Iwaidja (1979: 58–59); they gave (26) as an example of the past use of the verb *ma-gan*, which they glossed 'to husband'. Several Iwaidja speakers have confirmed this with me, stating that the two interpretations 'his ex-wife' and 'his late wife' are possible.

- (26) *ɹi-maga-nduŋ*  
 3.MASC/3-be.husband.to-PAST  
 'his ex-wife, his late wife'

This ambiguity is limited to relationships capable of being dissolved (spouse being the pre-eminent example). With non-affinal kinship terms in the past tense only the 'late' interpretation is possible:

- (27) *ŋabi ɹa-buɹagbu-n*  
 1SG 1/3-be.older.sibling.to-PAST<sup>23</sup>  
 'my late younger brother/sister'

Use of the future tense is also possible; this is shown by combining the future prefix *bana-* with the non-past suffix.

- (28) *ŋabi a-bana-maɹyarwu-n*  
 1SG 1/3-FUT-be.father.to-NON.PAST  
 'my future son (e.g. if wife is expecting a son)' or 'I will be his father'

- (29) *bana-wuɟagbu-n*  
 3/3.FUT-be.older.sibling.to-NON.PAST  
 '(When he's born,) he'll be his younger brother.'

The possibility of using past, present and future forms of Ilgar and Iwaidja kinship verbs illustrates that they have basically the same TAM possibilities as regular verbs, within the boundaries of semantic plausibility (so far no kinship verb in the imperative is attested), though present and past tense uses predominate.

### 3.1.8 Kinship verbs in Ilgar and Iwaidja: summary

It is worth summarising the main features of kinship verbs in Ilgar and Iwaidja before going on:

- (i) Semantically, they always designate kinship pure and simple (i.e. 'be a K to'), and except for the verb for the 'uncle-in-law/son-in-law' relationship the subject is always the senior kin.
- (ii) Most are transitive, but an intransitive verb with a reciprocal interpretation is used for the relationship between uncle-in-law and son-in-law.
- (iii) Syntactically, they are most often used as referring expressions following the pattern of relative clauses, with a number of optional methods of indicating their relative-clause status, and either subject or object able to function as pivot. This means that either subject or object may be referent of such a kinship expression.
- (iv) They possess all major morphological possibilities of canonical verbs; in particular, all TAM categories except the imperative are available.
- (v) Both verbs and nouns are available for representing kinship relations. There are nouns for all possible kinship relations. Verbs cover most of the semantic field, but there are gaps for FM(B) and its converse, and WM(B) and its converse. The possibility of using subject and object gender specification correlates with the one-to-many relationship between kinship verbs and kinship nouns.
- (vi) A number of factors determine the choice between nouns and verbs for expressing kinship relations, with nouns obligatory for address terms and for reporting how one calls kin, verbs preferred for close as opposed to distant kin relationships of the same type.
- (vii) Within the small corpus so far obtained, it appears that nouns are preferred for predication and verbs for reference, in contradiction to the usual correlations between word class and function.

### 3.2. Kinship verbs in Iroquoian

In some ways, kinship verbs are better described for the Iroquoian languages than for any other language family: starting from the brief comments in Sapir (1917), examinations of their verbal characteristics have been undertaken by Chafe (1963) and Kay (1975) for Seneca, Williams (1976) for Tuscarora, Sasse (1988, 1993) for Cayuga, and Mithun (1996) for Mohawk. Overall, their typology displays striking similarities to those of the Iwaidjan languages, paralleling the overall typological similarities between these two language families: both are heavily head-marking with a preference for stringing together clauses made up of pronominally-indexed predicates whose noun vs. verb status is far from clear, due to the sharing of argument-marking across the major word classes.

A characteristic Iroquoian use of a kinship verb is the following Cayuga example, taken from Sasse (1993: 204):<sup>24</sup>

- (30) a. *ne'*      *swe'keh*      *ne'*      *hak-hso:t-kehe'*  
 REF      long.ago      REF      3SG.MASC/1SG-bc.grandfather-PST
- James Beaver*      *ha-yasq-hne:'*      *ha-hsən-o:t-a'k*  
 [name]      3SG.MASC-PST      3SG.MASC-name-stand-PST
- ho-yete-'q-hne:'*      *hne:'*      *ha-ya'ta-ha'*  
 3SG.NEUT/3SG.MASC-know-INCH-STAT      it.is      3SG.MASC-paint-IMPF
- 'A long time ago, my grandfather, whose name was James Beaver, was famous for being a very able painter.'

As in Ilgar and Iwaidja, the kinship verb simply means 'be K to', and the past tense can be used when referring to deceased kin. More globally, the preference of the language for casting sentences as successive predications creates a number of options for translation, and Sasse suggests (30b) as an alternative to the free translation in (30a), a representation that better captures the rhetorical structure of the source language; note that this translation represents the indeterminacy about whether to treat *hak-hso:t-kehe'* as a predicate or a headless relative clause:

- (30) b. 'It was long ago; (he who) was my grandfather, he was called James Beaver; his name stood (= he was famous); he was an expert; he used to paint.'

Particularly important and characteristic in this example is the use of the particle *ne'*, which serves to referentialise basically predicative expressions, and to activate "the referential potential residing in the referential prefix" (Sasse 1993: 215; my trans-



lation). This particle has a complex range of functions; for example, words that correspond most closely to nouns in Indo-European languages normally remain unmarked, as in (31), but will more or less obligatorily take *ne* 'when used as a generic expression (32).

- (31) *o-ka'-ô* *onôhkwa'*  
 3SG.NEUT/3SG.NEUT-taste-STAT milk  
 'The milk tastes good.' (Sasse 1993: 215)
- (32) *o-ka'-ôh* *ne'* *onôhkwa'*  
 3SG.NEUT/3SG.NEUT-taste-STAT REF milk  
 'Milk tastes good.' (Sasse 1993: 215)

The equivalent particle in other Iroquoian languages (e.g. Mohawk *ne*) is sometimes simply translated 'the', and commonly accompanies the use of morphological verbs as relative-clause-like referring expressions, as in the following Mohawk examples. Note that the pivot may be either the subject, as in (33), or the object, as in (34):

- (33) *ia'thohsô:kweke'* *ne raia'táhere'*  
*ia'-t-ho-hso'kw-ek-'* *ne ra-ia't-a-her-e'*  
 TRANSLOC-DU-3SG.MASC/3SG.MASC-head-hit-PERF the he-body-EP-be.set-STAT  
 'He bopped the man who was laid out [in the casket] on the head.' (literally: "he head-bopped him, the (one such that) he was laid out")  
 (Mithun—Corbett 1997: 17)
- (34) *wa-shakoti-yéna-'* *ótya'ke ne wa-shakoti-'sháni-'*  
 FACT-3PL/3PL-hold-PERF some the FACT-3PL/3PL-defeat-PERF  
 'They held some of the ones that they defeated (in battle).' (Williams 1976: 127)

The use of *ne* 'with the kin term in (30a), then, is comparable to the use of *raga* in Ilgar, as a common (but not obligatory) means of indicating that a morphologically verbal term is to be interpreted as a referring expression.

As in Ilgar and Iwaidja, and again in parallel with the general possibility of taking either the subject or the object as the pivot of relative clauses, the referent of Iroquoian kinship verbs can be either the subject or the object, with the propositus being the other argument. Thus in Seneca (Chafe 1963: 20), the stem *-ʔkeʔ-* 'to be an older sibling of, to have as a younger sibling' can refer to either the older or the younger member, by taking the referent respectively as subject or object of the verb. Likewise in Oneida (Amith—Smith-Stark 1994b: 526, citing material supplied by

Floyd Lounsbury), the root *-enhūs-*, which they gloss CHILD-IN-LAW but for which a better gloss is 'be father in law to', can produce expressions which can mean either '[subject's] son-in-law' or [object's] father-in-law':

- (35) *hi-y-enhūs-a?*  
 1SG/3SG.MASC-EP-be.father.in.law.to-NOMINAL.SUFFIX  
 '(he is) my son-in-law' (i.e. he to whom I am father-in-law)
- (36) *lak-w-enhūs-a?*  
 3SG.MASC/1SG-EP-be.father.in.law.to-NOMINAL.SUFFIX  
 '(he is) my father-in-law' (i.e. he who is father-in-law to me)

These terms resemble the Ilgar and Iwaidja terms discussed in section 3.1, in which a single root can refer to a number of different kin types according to whether subject or object is the referent. However, for most types of kinship relation in Iroquoian languages there is an interesting lexical bifurcation into suppletive pairs of roots, illustrated by the following Seneca terms (taken from Chafe 1963, Lounsbury 1964 and Kay 1975, with root translations as per Kay):

- (37) a. *hak-so:t*  
 3SG.MASC/1SG-be.grandparent.to  
 'my grandfather' (i.e. the one such that he is grandparent to me)
- b. *he-ya:te?*  
 1SG/3SG.MASC-be.grandparent.to  
 'my grandson' (i.e. the one such that I am grandparent to him)
- (38) a. *ha-hji?*  
 3SG.MASC/1SG-be.older.sibling.to  
 'my elder brother' (i.e. the one such that he is older sibling to me)
- b. *he-ʔkē:?*  
 1SG/3SG.MASC-be.older.sibling.to  
 'my younger brother' (i.e. the one such that I am older sibling to him)

As these terms illustrate, the first (a) set is used when the subject is referent, while the second (b) set is used when the object is referent; I shall therefore refer to them as "subject-referent" and "object-referent" terms. Since all these terms always take the senior relative as subject, an equivalent formulation is that the first set is used when the senior relative is referent, and the second set when the junior relative is referent. In Seneca such double lexical sets are found for the relationships 'be grandparent to', 'be uncle to', 'be aunt to' and 'be older sibling to'; the two subject-referent terms

*haʔnih* ‘be father to’ and *noʔyēh* ‘be mother to’ share the same object-referent term (*(h)a(:)wak* ‘be parent to’, since (as in English, but not Ilgar) the same term for ‘my son’ or ‘my daughter’ is used regardless of whether the father or mother is speaking.

As in Ilgar and Iwaidja, further distinctions of kin type are made by employing pronominal gender distinctions for subject and/or object: cf. Cayuga *hakhné:nhqs* ‘my father-in-law’ and *okhné:nhqs* ‘my mother-in-law’, which differ in the prefix *hakh-* ‘he/me’ vs. *okh-* ‘she/me’ (Sasse 1998). In Seneca, to take a second example, replacing the third person masculine pronouns in (37) and (38) gives terms for ‘grandmother’, ‘granddaughter’ (39), and ‘older sister’ and ‘younger sister’ (40). This is exploited to a lesser degree than in Ilgar and Iwaidja, however: in the Iroquoian languages one cannot say [she-him-be.father.to] for ‘his paternal aunt’ or [he-him-be.mother.to] for ‘his maternal uncle’, and these are expressed by separate lexical items.

- (39) a. *ʔak-so:t*  
3SG.FEM/1SG-be.grandparent.to  
‘my grandmother’ (i.e. the one such that she is grandparent to me)
- b. *khe-ya:teʔ*  
1SG/3SG.FEM-be.grandparent.to  
‘my granddaughter’ (i.e. the one such that I am grandparent to her)
- (40) a. *ʔa-hjiʔ*  
3SG.FEM/1SG-be.older.sibling.to  
‘my elder sister’ (i.e. the one such that she is older sibling to me)
- b. *khe-ʔkē:ʔ*  
1SG/3SG.FEM-be.older.sibling.to  
‘my younger sister’ (i.e. the one such that I am older sister to her)

There is a final type of kinship verb lexeme in Iroquoian, which takes a single actant prefix with a collective/reciprocal reading, and (in some languages, such as Mohawk), a semi-reflexive or reciprocal prefix.<sup>25</sup> Kin types represented by intransitive verbs of these types are invariably symmetrical, in the sense of referring to kin “of culturally equivalent ages” (Mithun 1996: 637), such as ‘cousin’ (in Oneida and Mohawk), ‘sibling’ (in Mohawk and Cayuga), ‘brother-in-law’ (in Mohawk). Mohawk examples illustrating the use of the reciprocal and semi-reflexive prefixes are:

- (41) *akw-atate-ʔkʌ-ʔokʌ-ʔa*  
1PL.EXCL.AGT-REC-be.sibling-PL-DIM  
‘my brothers and sisters’ (literally: “we are siblings to each other”)

- (42) *uky-at-yo-ha*  
 IDU.EXCL.PAT-SEMI.REFL-be.brother.in.law-DIM  
 'my brother-in-law (male ego)' (literally: "we two are brothers-in-law to each other")

Unlike in Ilgar and Iwaidja, kin terms in at least some Iroquoian languages can be used for address as well as for reference. In Cayuga, for instance, the terms *khnó:ha* 'my mother' and *ha'nih* 'my father' can be used in both reference and address (Sasse 1998). It is worth noting, however, that both these terms are irregular, simply employing the third person subject prefix without a first person object prefix. This is a consequence of a more fundamental difference between Iwaidjan and Iroquoian languages: whereas the former have a complete set of nominal lexemes, and an almost-complete set of verbal ones, the latter has just a single set of lexemes, that are basically verbal but exhibit varying degrees of nouniness as one moves through the lexical set.

In fact, apart from some remarks in Kay's and Sasse's articles, the question of the categorial status of kinship verbs in the Iroquoian languages is not argued through in detail in any of the sources I have consulted, though accounts frequently make assertions about their verbal status like "[n]early all the kinship terms consist of a verb stem denoting a particular relationship, preceded by a pronominal prefix that specifies the member of members of the relationship referred to" (Chafe 1963: 20) or "kinship ... is generally expressed by means of stative verbs that relate participants" (Mithun 1996: 634).

Now it is clear that most Iroquoian kinship verbs share with canonical verbs the possibilities of taking the transitive pronominal prefix set, and argument-changing prefixes such as the reciprocal and the semi-reflexive; in Cayuga at least (Sasse, personal communication) they may take TAM marking (see (30a)) and in fact speakers accept the full set of TAM contrasts in appropriate contexts: cf. *hakhné:nhq:s* '(he is) my father-in-law', *hakhné:nhq:skéhq:* 'he used to be my father-in-law' (in case of either divorce or death), *ehakhné:nhq:skéhq:k* '(I wish) he would be my father-in-law'.<sup>26</sup>

Despite this basically verbal morphology, many individual kin roots have some noun-like morphological features in some Iroquoian languages.

For Seneca, Kay (1975: 205) discusses a number of cases where what are basically verbal kin roots take nominal possessive prefixes: *hak* 'be aunt to', is basically a verb root but takes a nominal possessive prefix for the combination 'my aunt', and *ha?nih* 'my father', again basically a verbal root, irregularly takes a nominal possessive prefix (actually meaning 'his' in this case) while other combinations take the regular verbal prefixes. Various irregularities with the 'mother' root "suggest, but by no means establish, a history of increasing 'lexicalization' of this form from pro-

ductive verb root to productive noun root to frozen nominal expression" (Kay 1975: 205).

In Tuscarora (Williams 1976: 222) and Mohawk (Mithun 1996: 635) many kin terms take diminutive or augmentative suffixes normally found with nominal roots. In Tuscarora the augmentative suffix derives 'great grandparent' from 'grandparent' terms (cf. *akhryáhsó:t* 'my grandfather', *akhryáhsó:t?o:ʔy* 'my great grandfather'), while the diminutive is used with same-sex siblings of one's parents (cf. *akhri?v* 'my father', *akhri?vháh* 'my father's brother'). In Williams' formulation (1976: 232–233) these two suffixes can be combined with any "functional nominal".

There are also unanswered questions about how far the syntax of kinship verbs parallels that of relative clauses formed from verbs on the one hand, and how far it approaches the more noun-like syntax of conventionalised deverbal nominals on the other. These problems are closely connected with the difficult issue of the extent and boundaries of the noun-verb distinction in these languages, and the debate as to whether they should be analysed as making a clear morphological noun-verb distinction, but with generous possibilities for using morphological verbs "as lexical and syntactic nominals" (Mithun—Corbett 1997: 25), or exhibit different and cross-cutting clusterings at the three levels of "lexical", "syntactic" and "ontological" category (Sasse 1993). Quite apart from the fact that this debate is far from resolved at the general level of analysis (see also Mithun, this volume), we lack the requisite detailed data for the kinship verbs of any of these languages to solve this problem comprehensively. Overall, however, we can sum up the situation for the Iroquoian languages as follows:

- (i) Kinship relations are normally expressed by words of the form 'be K to', which share many properties with canonical transitive verbs in these languages, including the use of transitive prefixes, semi-reflexive and reciprocal prefixes, and (at least in Cayuga) some TAM categories, such as past marking. There is no parallel set of nominal kin lexemes. However, some lexemes exhibit such noun-like features as nominal possessive prefixes, diminutives and augmentatives.
- (ii) Like other verbs used as relative clauses, the referent may in general be either subject or object, but this interacts with specific lexical restrictions of particular verb roots, which are of four types:
  - those allowing either subject or object to be the referent, e.g. 'be father in law to',
  - those requiring that the referent be the subject,
  - those requiring that the referent be the object
  - those, restricted to kin of equivalent generation, which function as intransitive verbs with a collective or reciprocal reading.

### 3.3. Kinship verbs in Yuman

The Yuman system of kinship verbs presents quite a different pattern to those in the Iwaidjan and Iroquoian families. The system for Yuma is well-described in Halpern's classic 1942 account, and further discussed in Langdon (1978), who adds material on further Yuman languages; the present summary draws on these two sources as well as the relevant instalments of Halpern's 1946/1947 grammar. The two most salient differences from the languages already discussed are the multiple pathways of category shift between verbal and nominal terms, and in the meaning of the basic terms, well described for Yuma (Quechan) by Halpern (1942: 429):

[V]erb themes used as kinship terms generally have the meaning 'to call some one ...' or 'to have some one for a ...' The point may be expressed somewhat differently by saying that for the speaker of Yuma 'to father' means 'to treat as one treats one's father,' while for the speaker of English 'to father' means 'to treat as one's father treats one'.

Notwithstanding the statement in Amith—Smith-Stark (1994b: 511) that "[l]anguages of the Yuman family illustrate those that utilize solely the transitive verbal pattern", there is actually a mixture of basically verbal and basically nominal kinship roots, though the verbal ones are in the majority. Multiple processes of conversion then allow verbs to be used as nouns for reference, and nouns to be used as verbs for predication, as the case may be.

Thus the verbal kin term *ašúc* 'to call someone younger brother' can feed the verb > verb derivation signalled by infixation or prefixation of *-u(-)*, which adds the meaning 'be one who does' or 'to have been doing', giving *u:šúcv* 'to have a younger brother, i.e. to be one who calls someone younger brother, or, to have been calling someone younger brother'. Conversely, only nouns feed a noun > verb derivation process which add an attributive suffix *-y* (sometimes with changes in the accented vowel of the noun theme) to give a word meaning 'have for a ...',<sup>27</sup> as with the kinship nouns *n'akó* 'father (male speaker)' > *n'akúy* 'call someone father (male speaker)', and *al'á:* 'cross-cousin (female speaker)' > *al'áy* 'call someone cross-cousin'. A second noun > verb derivation process involves the circumfixation of *n'y-* *-v* to give a transitive verb meaning 'to be possessed of, to have as a', e.g. *xu:már* 'child' > *n'axu:márv* 'to have for a child, to be the father of'. These noun > verb derivations allow the status of basically nominal kin roots to be demonstrated clearly.

Verbal kin terms have a number of inflectional options not available to nouns: they take prefixes for subject and object, as well as yielding distributive object and collective plural subject forms through a variety of processes that will be represented



- b'. *ma-vaci*: 2/3- 'whom you call daughter, i.e. your daughter'  
 b''. *?a-vaci*: 1/3- 'whom I call daughter, i.e. my daughter'

The formation of such headless relatives is also possible with verbs inflected for the distributive and collective. Thus in (43) the collective plural object form *ašúcc* can have the interpretation 'their younger brothers' as well as 'they call him younger brother'.

In contrast to the Iwaidjan and Iroquoian languages, with their requirement that the subject be the senior kinsperson, in Yuma either junior or senior may be the subject. One sample pair from the many listed in Halpern (1942) is *napáw* 'call someone father's father', *a?áw* 'call someone son's child'.

In summary, the Yuman system<sup>28</sup> is quite different from the Iwaidjan and Iroquoian systems considered above, in several respects:

- (i) Kinship verbs mean 'call K, have as a K' rather than just 'be K to'.
- (ii) Except for those kinship relations for which a basic noun exists, the simple meaning 'be K to' or 'X's K' can only be expressed by nominalisation of a verb, i.e. 'X's K' is effectively 'the one who X calls/has as a K'.
- (iii) Conversion in both directions plays a major role in the system, and although many types of conversion are not overtly signalled, it is possible to identify whether roots are basically nominal or verbal through induction from those lexemes which signal conversion overtly.
- (iv) There is no restriction that the senior kin be subject of the kinship verb.

### 3.4 Uto-Aztecan

In the Uto-Aztecan languages kin terms are basically nouns. However, in a number of these languages—including Yaqui, Huichol, Hopi, Central Guerrero Nahuatl and Cahuilla—these basically nominal terms can be used in a frame with varying degrees of verbal characteristics.<sup>29</sup> The ensuing construction typically has meanings like 'call K', 'consider as a K' or 'have (as) a K'. An example from Yaqui of how kinship nouns like 'daughter', in parallel with other nouns like 'house', can be incorporated into TAM suffixes yielding the meaning 'have a K', was given in (7). Now consider a further example of the contrast, from Huichol (data taken from Amith—Smith-Stark 1994b: 516–518). In (45) the noun *niwé* 'daughter' is used as a regular noun: it is first prefixed by the possessive prefix *ne-* 'my', and then further prefixed with predicate-nominal morphology in the form of an assertative prefix and a subject prefix:



- (45) *pe-pi-ne-niwé*  
 2SG.SUBJ-ASSERT-1SG.POSS-daughter  
 'You are my daughter.'

In (46), by contrast, it is used in a verbal frame, taking the subject prefix *ne-* 'I' and the object prefix *matsi-* 'you'. Use in a verbal frame generally signals "metaphoric extension of the connotative aspects of a natural or legally sanctioned relation" (Amith—Smith-Stark 1994b: 516). Thus while (45) would only be employed with a real daughter, (46) would be equally appropriate with either a real or an adopted daughter, or with a child being treated as a daughter.

- (46) *ne-matsi-niwé*  
 1SG.SUBJ-2SG.OBJ-have.as.daughter  
 'I have you as a daughter.'

The verbal nature of the second construction type is particularly clear in Huichol, since it can take inflection for tense/aspect directly (47), whereas the nominal construction needs a verbalising suffix *-ti* before tense can be added (48).

- (47) *ne-matsi-kema-ni*  
 1SG.SUBJ-2SG.OBJ-have.as.brother.in.law-FUT  
 'You're going to be my brother-in-law.' (= I will have you as a brother-in-law)
- (48) *pe-pi-ne-yéu-ti-kai*  
 2SG.SUBJ-ASSERT-1SG.POSS-father-VERBALISER-IMPERF  
 'You were my father.'

What lends extra interest to the Uto-Aztec systems is the fact that, in some of these languages the relationship between speech act participants impinges on the use of kin terms in the basic nominal frame, to the point where for certain combinations of propositus and referent the regular nominal frame is ungrammatical and a more verb-like frame must be used. This is commonest where at least one argument is a speech act participant, i.e. speaker or hearer. A rough first approximation would be to say that in languages like Central Guerrero Nahuatl and Cahuilla, while one can straightforwardly say [she my-child] for 'she is my child', to say 'I am your child' one must use a construction like 'you "child" me'. As a result the kin root, when used verbally, has an alignment to the subject that is the converse of when it is used nominally. Put another way, to express the same kinship relation (e.g. 'be child

of'), one must use the nominal construction for some combinations of referent and propositus, and the verb-like construction for others.

### 3.4.1 Central Guerrero Nahuatl

To introduce this problem, consider the following examples from Central Guerrero Nahuatl,<sup>30</sup> taken from Amith—Smith-Stark (1994a: 351), in which two different construction types are triggered by the person combination of propositus and referent: when the referent is first or second person and the relatum is third person (and not indefinite), then a more verb-like construction is used. For the moment I retain their practice of keeping the kinship root in capitals, so as to hold certain semantic questions temporarily in abeyance.

- (49)      *néwa*       $\emptyset$ -*no-kóne*:-w  
              1SG          3SG.SUBJ-1SG.POSS-CHILD-POSSD  
              'She is my child.'

- (50)      *ti-ne:č-kóne*:-w  
              2SG.SUBJ-1SG.OBJ-CHILD-POSSD  
              'I am your child.'

Both examples are used to assert the relationship of "child" between two people. (49) is a typical nominal predicate construction, in which the noun *kóne* bears the "possessed noun" suffix -w and the possessive prefix *no-* 'my' for the propositus; this whole complex then bears the subject prefix (here  $\emptyset$ -, indicating a third person singular referent) that is used equally with intransitive verbs and nominal predicates. (50) is a more verb-like construction, distinguished by the fact that now the referent is encoded by the object prefix *ne:č-* 'me', and the subject prefix encodes the propositus.

The rearrangement of the prefix linking in a way that parallels that found with a transitive verb creates problems for the semantic interpretation of the root. As the first example shows, the meaning of the root *kóne* is basically 'child'. But if we wish to link the propositus ('you') to the subject position of the root in (50), the translation is not 'you are child to me', but 'I am child to you' or 'you call me/have me as child'. This parallels the situation described for Yaqui and Huichol, in which nouns used in a verbal frame have the meaning 'have as (a) N'. Another pair of examples, in which both possessed-noun and verb-like constructions are permitted for the same combination of propositus and referent, will make this clearer

(51–52); such alternatives are permitted where referent and propositus are both speech act participants.

- (51) *ni-mo-na:n*  
 1SG.SUBJ-2SG.POSSR-MOTHER (*na:n* here means ‘mother’)  
 ‘I am your mother.’
- (52) *ti-ne:č-na:n*  
 2SG.SUBJ-1SG.OBJ-MOTHER (*na:n* here means ‘have.as.mother’)  
 ‘I am your mother.’

However, things are not quite as straightforward, since it is much less clear in Central Guerrero Nahuatl than in Huichol or Yaqui that the second construction is really verbal, or that its prefixes retain the interpretation as subject and object that they have when combined with a regular verb.

Firstly, free pronouns preceding the predicating expression, which are normally construed with their subject as in (53), are construed with the object of the verb-like construction (54):

- (53) *tewa ti-ne:č-łasławili:-s*  
 2SG 2SG.SUBJ-1SG.OBJ-pay-FUT  
 ‘You will pay me.’
- (54) *newa ti-ne:č-na:n*  
 1SG 2SG.SUBJ-1SG.OBJ-MOTHER  
 ‘I am your mother.’

Secondly, the subject and object prefixes are the only morphological characteristic of verbs in the “verb-like” construction: the most salient morphemes found with core verbs, such as tense/aspect markers, plural suffixes, directionals and reflexives, are all impossible. Such a predicate cannot be placed in the future tense by the usual verbal method of adding a future suffix (55), but requires a future copula in the way a noun does (56–57):

- (55) *ti-ne:č-kekelo:-s*  
 2SG.SUBJ-1SG.OBJ-tickle-FUT  
 ‘You will tickle me.’
- (56) *ni-łak:ka-ł* *yes*  
 1SG.SUBJ-man-ABS FUT  
 ‘I will be a man.’

- (57)      *ti-ne:č-na:n*                          yes  
               2SG.SUBJ-1SG.OBJ-mother             FUT  
               ‘I will be your mother.’

Thirdly, the possessed suffix *-w*, as in (50), is normally found only on nouns and never on verbs, though the significance of this fact is weakened by the fact that denominal delocutive verbs, as in the Gunwinyguan languages (section 3.5), frequently retain nominal markers of address-term status despite conversion to verbs. It is also noteworthy that, unlike with regular nouns, this suffix does not change to *-wan* when the referent is plural.

Fourthly, there is a morphological-shape difference between nouns and verbs: singular present-tense verbs are always vowel-final, while the corresponding verb-like kin terms are always consonant final.

Amith—Smith-Stark (1994a) argue that, on balance, the verb-like kin expressions in Central Guerrero Nahuatl lie somewhere between fully nominal and fully verbal categories: like transitive verbs they employ subject-object prefixes, while like nouns they must use a copula to show tense/aspect, do not take most verbal morphological categories, may take the possessed noun suffix *-wa*, and have consonant-final stem shapes in the plural. But unlike regular nouns, there is no conversion of *-wa* to *-wan* with plural referents. They further argue that, diachronically, this half-way status has resulted from a gradual assimilation of this construction type, presumed once to have been more verbal as it still is in such languages as Huichol and Yaqui, to a more nominal type through “semantic convergence with the predicate nominal construction” (Amith—Smith-Stark 1994a: 357).

Two final points should be made about the Central Guerrero Nahuatl situation.

Firstly, to the extent that the second construction type is not fully verbal, it becomes less clear that translations like 'call OBJ child' or 'have OBJ for one's child' are appropriate. If these constructions are not verbs, then perhaps the subject and object prefixes should not be interpreted as subjects and objects, which was the main motive for proposing this type of translation. Instead, one could simply propose (as is implicit in Amith—Smith-Stark's treatment, as discussed above) that they mean 'K', but with a construction-specific linking of the subject and object affix slots to *propositus* and *referent* respectively.

Secondly, Amith—Smith-Stark (1994a: 352) point out that the anomalous presence of subject and object prefixes cannot simply be a lexical feature of these kin stems, since it will apply as well to ad hoc relational uses of other nouns where one argument is a speech act participant, such as 'you are my dog' or 'you are my hand'.

3.4.2 *Cahuilla*

Cahuilla, spoken in southeastern California and described in detail by Seiler (1977, 1980, 1982a, 1982b, 1983, 1985), is a further Uto-Aztecan language with a split between two types of kinship construction, largely determined by the person combination of *propositus* and *referent*.

Typically noun-like is the “inherent” construction, as in (58), involving the prefixation of a subject-prefix to a possessive-prefixed nominal root, much as with the Nahuatl examples but differing in the fact that the outer prefix is restricted to the subjects of non-verbal predicates. (P1 prefixes are used for the subjects of verbs and possessors of nouns, while P2 prefixes are used for the subjects of nominal predicates.)

- (58)      *ʔet-ne-nési*  
             2SG(P2)-1SG(P1)-niece  
             ‘Thou art my niece.’

The analysis of the second construction, which Seiler (1980: 13–17) calls “establishing”, is more problematic. It employs the object (OBJ) and nominal predicate (P2) prefixes, as well as a suffix *-k(a)(t)* which Seiler glosses “oriented relation”.<sup>31</sup>

- (59)      *ne-y-nési-k*  
             1SG(OBJ)-3SG(P2)-niece-ORIENTED-RELATION  
             ‘I am her niece.’ (Seiler 1977: 280 gives the alternate gloss ‘She is related to me, the niece.’)

As Seiler has pointed out in a number of places (e.g. Seiler 1980), the suffix *-k(a)(t)* is formally identical<sup>32</sup> to a deverbal suffix deriving referring predicates meaning roughly ‘one who is/was/will be going to’. The parallel extends to the selection of pronominal prefix elements: instead of the [OBJ-P1] sequence found in a regular verb, deverbative constructions (e.g. (60)) use the same combination ([OBJ-P2]) found with the establishing expressions:

- (60)      *pe-y-távi-k*  
             3SG.OBJ-3SG(P2)-place-DEVERBALISER  
             ‘He (is) one who is going to place it.’ (Seiler 1977: 101)

The structural parallels, then, would suggest that the “establishing” construction is actually a deverbal meaning ‘the one (P2) who has (OBJ) as K’ or ‘the one (P2) who calls (OBJ) K’; this would be similar to the Yuman deverbal construction dis-

cussed in section 3.3 above, except that the pivot is the subject rather than the object of the posited kinship verb. Unfortunately for this analysis, there do not appear to be any examples of Cahuilla kin terms being used outside this construction with the meaning 'call K' or 'have as a K', and Seiler himself provides a different semantic analysis, giving 'she is related to me, the niece' rather than 'she is the one who calls me niece' as the literal translation of 'I am her niece'. The reader is referred to Seiler's (1980: 8–15) subtle analysis in terms of "establishing" rather than "assumed" relations of subject and object to the verb stem. Nonetheless, the presence of some parallels with deverbal constructions is clear.

As in Cahuilla, the choice between the two constructions is largely conditioned by the person value of propositus and referent: the clearly nominal inherent construction is overwhelmingly preferred when the possessor is first person and the referent third person (as with 'she is my niece' in (61)), while the more verb-like establishing construction is preferred in the converse situation, as with 'I am her niece' in (59) above.

- (61)      *Ø-ne-nési*  
              3SG(P2)-1SG(P1)-niece  
              'She is my niece.'

As the difference in person values decreases, there is more choice: where both are third person, either construction is equally available, and where one is first and the other second, both constructions are possible, but with the inherent construction preferred for the combination 'you are my K' (58), and the establishing construction for 'I am your K'. The greater the difference in person value between propositus and referent, the more latitude there is for other semantic and pragmatic factors to come into play, such as the use of the establishing construction when the referent is deceased, so as to avoid using the kinship root that would most directly relate the deceased person to the propositus.

### 3.5 Gunwinyguan languages

We close this set of case studies<sup>33</sup> with a brief look at another Australian family, the Gunwinyguan languages. These languages, spoken immediately south of the Iwaidjan family in Arnhem Land, Northern Australia, are highly polysynthetic, with obligatory prefixation of the verb for subject and object, noun incorporation, and a host of adverbial and argument-changing affixes to the verb.

The basic kin terms in the Gunwinyguan languages are clearly nominal. In Dala-labon, for example, there is a special set of possessor suffixes that can be added to

nouns, but not to verbs, and these can be combined with the basic kin terms as well: *rolu-ngan* 'my dog', *rolu-ngu* 'your dog', *rolu-no* 'his/her dog'; *nah-ngan* 'my mother', *nah-ngu* 'your mother', *nah-no* 'his/her mother'.

However, alongside the nominal kin terms there exist two types of kinship verb: a set of kinship verbs proper, which are formally unrelated to the nominal terms and tend to evoke close "actual" rather than "classificatory" kin, and a set of delocutive kin terms meaning 'call K'. Now we have already examined languages which allow either one type or the other: Iwaidjan and Iroquoian have true kinship verbs, and Yuman has 'call kin' verbs. We have also seen that in the languages with true kinship verbs, junior kin are generally unable to be subject of the verb, while in languages with 'call kin' verbs no such restriction applies. The Gunwinyguan languages allow us to compare the two types within one language and test whether this difference is simply coincidental, or follows from other features of the languages in question.

Consider first the verbal terms which mean 'be K to', taking Kunwinjku/Mayali (two dialects of the same language) as our example (see Evans forthcoming for a full grammar), shown in Figure 3. Note that all the Kunwinjku/Mayali terms have clear etymologies relating to "kinship defining events", whereas so far practically no such etymologies have been discovered for the Ilgar/Iwaidja terms.<sup>34</sup> The main Kunwinjku/Mayali terms are given in Figure 3; for illustrative purposes, I have varied the pronominal prefixes, which can range over any subject/object combination if the verb is transitive, and any subject combination if it is intransitive or reciprocal. To show the structure of these words more clearly, full interlinear glosses for four of these are given in (62) and (63).

- (62) a. *ngan-yawme-y*  
 3/1-conceive-PP  
 1. '(the one that) she conceived me.'  
 2. 'my mother'
- b. *kabi-doybu-n*  
 3/3.HIGHER.OBJ-betrothe.daughter.to-NON.PAST  
 1. '(the one that) he gives his daughter to him'  
 2. 'his father-in-law'
- (63) a. *ngani-h<sup>36</sup>-na-rr-en*  
 1DU-REL-look-RR-NON.PAST  
 1. '(the one that) we look at each other'  
 2. 'my lover, sweetheart'

b. *ngani-h-yo-Ø*

IDU-REL.-sleep-NON.PAST

1. '(the one that) we sleep (together)'

2. 'my wife/husband'

Verb-like expression	Literal meaning	Corresponding nominal term
<i>ngan-bornang</i> 'my father'	"he saw my spirit in a conception dream"	<i>ngabbard</i> 'father'
<i>ngan-yawmey</i> 'my mother'	"she conceived me"	<i>karrard</i> 'mother'
<i>bene-danginj</i> 'they two siblings'	"they two stood [were born]"	<i>yabok</i> 'sister', <i>dardda</i> 'younger brother' etc.
<i>nganih-yo</i> 'my wife/husband'	"we two sleep"	<i>kakkali</i> 'spouse'
<i>nganihnarren</i> 'my lover'	"we two look at each other"	<i>mararradj</i> 'lover'
<i>ngunimodjarrkdorrij</i> 'you two cross-cousins who are generationally skewed'	"you two struck each other's noses" <sup>35</sup>	[applies to a range of kin types, such as <i>kanjok</i> 'cross-cousin', who get renamed by other kin terms (here, <i>berluh</i> 'father's sister' under a Crow-style skewing rule)]
<i>kabidoybun</i> 'his father-in-law'	"he gives him his daughter"	<i>kangkinj</i> 'father-in-law'

Figure 3. Kinship verbs in Kunwinjku/Mayali

Compared to the corresponding nominal terms, the kinship verbs pick out close or actual members of a kinship category. Thus one can distinguish, from within the class of classificatory fathers known by the nominal term *ngabbard*, one's actual father, known by the term *ngan-bornang*, whose etymology is roughly 'he saw my conception spirit' (see Berndt 1951). Likewise one can distinguish, within the class of classificatory mothers known by the nominal term *karrard*, one's actual mother, who can be designated by the term *ngan-yawmey*, literally 'she conceived me'. Among the group of women one can call by the nominal term *kanjok* 'wife or someone of the wife category', one can distinguish one's actual wife as (*ngal*-)*ngani-h-yo* 'she who we sleep (together)'. It is certainly not the case that these terms are only used for actual kin—for example, I have heard the verb *yawmey* in an abstract discussion of the relation between two subsections related as successive generations in a matriline—but this is the overwhelmingly commonest use.



All of these terms are constructed as normal verbs, with subject/object prefixes (e.g. *ngan-* ‘(s)he→me’) and inflection for tense, though the parent terms are lexicalised to the point that only the past perfective is ever used, and in the case of *ngan-bornang* the verbal root is hardly used outside this construction. However, the pronominal prefixes can be varied productively, as illustrated by the different combinations employed in Figure 3. Unlike with the Ilgar/Iwaidja terms discussed in section 3.1, the TAM suffixes are basically fixed—whether as past perfective or non-past depends on the term—though a few terms permit variation of the TAM value (64).

- (64) *minj* Ø-doybu-yinj, *kaluk* *kabi-rroybun*  
 NEG 3/3.PAST-(man.)bestow.daughter-IRR later 3/3.H.O.-bestow-NON.PAST  
 ‘He isn’t his father-in-law yet; he’ll become his father-in-law later.’

Some of these terms combine with noun class prefixes (e.g. *ngal-nganihyo*, with the feminine prefix *ngal-*), which is an option not available with full verbs. Overall, then, these terms are best treated as semi-conventionalised deverbal nouns, though with the pronominal prefix slots free to vary.

The Kunwinjku/Mayali “kin-defining event” verbs cover a smaller proportion of the set of kin types than in the Iwaidjan languages to their north. There are no terms for grandparents/grandchildren, or for older or younger siblings. However, as in the Iwaidjan and Iroquoian languages, they always take the senior kinsperson as their subject if the verb is transitive, and where the two kin are equivalent in generation an intransitive or reciprocal will be used.

A few verbs of this type have a function not found in the Iwaidjan languages. Kunwinjku/Mayali has a special set of “triangular” kin terms, defined by the fact that there are two proposituses for the referent (normally, speaker and hearer). The nominal term *ngal-karrng*, for example, means ‘the one who is your mother and my daughter, you being my daughter’s child’. There are about one hundred of these terms,<sup>37</sup> and a small number of them are morphologically verbal (65).<sup>38</sup>

- (65) a. *yi-manjme-ng*  
 2/3-?-PP  
 ‘the one who is your wife, and my niece, given that I am *your* wife’s mother’s brother’ (the stem *manjme* is hard to translate, but contains the root *manj* ‘taste’ and verbaliser *-me*)
- b. *nga-wirme-ng*  
 1/3-?-PP  
 ‘the one who is my MMB and your brother-in-law, me calling you FM or MF’

b'. *yi-wirme-ng*

2/3-?-PP

'the one who is my brother-in-law and your MMB, me calling you FM or MF'

c. *ngundi-koydo-y*

1PL/2-?-PP

'the one who is your MM(B)/DC and my opposite-sex sibling, you being my MM/DC'

The second type of kinship verb found in the Gunwinyguan languages has the semantics 'call <OBJ> K', and is based on the nominal root. In Kunwinjku/Mayali, such verbs have the form KIN(-*h*)*me* (66a–b). It is also possible to express this meaning by juxtaposing a nominal kin term with the verb *yime* 'say, do', as in (67).<sup>39</sup>

(66) a. *gabi-ngalgurrng-hme*

3/3-WM-CALL.KIN:NON.PAST

'He calls her mother-in-law.'

b. *arr-gundoi-hme*

1PL/3-WMB-CALL.KIN:NON.PAST

*NaBangardi,**NaGodjok*

[name]

[name]

'We call NaBangardi and NaGodjok men wife's mother's brother.'

(67) *karrard nga-yime*

mother

I-call:NON.PAST

'I call (her) mother.'

Now most address terms in the language end in *-h*: cf. *berlu* 'aunt' (reference form), *berluh* 'aunt' (address form). Given that adding *-me* is the regular way of deriving verbs from nouns, it might be thought that these verbs are derived by verbalising the address form. But there are three arguments against this. Firstly, some nouns have address forms without the glottal stop (e.g. *karrard* 'mother' (reference form), *karrang* 'mother' (address form)), but add the glottal stop in the verb anyway: *karranghme* 'to call s.o. mother'. Secondly, there is also a verb formative *-hme*, used for deriving some transitive verbs, e.g. *kele* 'afraid', *kelehme* 'frighten', and the 'call K' meaning may simply be another sense of this construction. And thirdly, many of these verbs describe situations where an address term would not normally be used, owing to speech taboos between certain classes of relative, e.g. between son-in-law and mother-in-law. This reveals something about the exact semantics of these forms: they are not strict delocutives (in the sense of reporting an actual act of addressing

someone), but rather report on how 'calling someone K' is used to classify the relationship.

In the closely related language Dalabon<sup>40</sup> the corresponding 'call K' verbs are formed by adding the first person possessive prefix to a kin term and incorporating it into the verb stem *dung*:

- (68) *ngah-djongok-ngan-du-ng*  
 1/3-FZ-my-CALL-PRES  
 'I call her *djongok*. [FZ]'

The fact that *-ngan* is always used, regardless of whether the subject is the speaker, demonstrates that it is a form of embedded speech, if not necessarily embedded address.

- (69) *mamamh-ngan kah-mimi-ngan-du-ng*  
 MF-my 3/1-mimi-my-CALL-PRES  
 'My *mamamh* calls me *mimi*. [DC]'

- (70) *ngah-kom-ngan-du-ng?* *yeah dah-kom-ngan-du-ng.*  
 1/3-WB-my-CALL-PRES 2/3-WB-my-CALL-PRES  
 Do I call him "(my) brother-in-law"? Yes, you call him "(my) brother-in-law".

In these languages, such 'call kin' verbs are basically productive, and can be used both upwards and downwards in terms of seniority. In other words, there are terms like *karranghme* 'call mother' as well as *korlonjhme* 'call child', to use Kunwinjku examples. In this they contrast with the kin-defining event terms, which always take the senior kinsperson as their subject if they are transitive. By furnishing data on the differential behaviour of 'true kinship verbs' and 'call kin verbs' in the same language, the Gunwinyguan languages thus provide a rare example of how the lexical semantics of kin type interacts with the general semantics of the kin verb to produce differential linkings to argument structure in the same language.

#### 4. How verby are kinship verbs?

The meanings of kinship verbs show few of the characteristics which cross-linguistic studies of lexicalisation lead us to expect in core members of the transitive verb

class. For example, they denote states rather than events, and are low in such discourse transitivity measures as the degree to which a change in the object is produced. Apart from this, of course, we know that in most languages of the world kinship terms are lexicalised as nouns. We would therefore expect kinship verbs to be less than prototypical members of the transitive verb class in the languages that have them, and in the preceding section we have mentioned, in passing, a number of ways in which they fall short of complete transitive verbiness. This section draws these observations together in a way that allows us to formulate implicational statements where possible.

Figure 4 summarises the properties of kinship verbs we have looked at. "Meaning type" is not given for Central Guerrero Nahuatl and Cahuilla because of the problems, discussed in section 3.4, of deciding how to translate the kinship root in this construction.

A number of generalisations emerge from Figure 4.

Firstly, kinship verbs with the meaning 'call K', as in Huichol, Yuma and the Gunwinyguan 'call set', have the clearest verbal characteristics, presumably because 'calling someone K' is at least potentially localisable in time in a way the kinship relation itself is not: cf. English *he called Joe his father until he found out the true story of where he came from* vs. *\*he was Joe's son until he found out the true story of where he came from*. Note, though, that we have very little information about the exact set of circumstances in which the call verbs can be felicitously used in any of these languages.

Secondly, those languages in which the choice between noun-like and verb-like constructions are determined by person combination, namely Central Guerrero Nahuatl and Cahuilla, have the fewest verb-like characteristics, to the point where it is pushing the boundaries of the "verb" category to say they have kinship verbs. Presumably this is because there is strong analogic pressure from the agnate nominal construction, which results in the restriction of verbal and the extension of nominal characteristics across the whole kinship set. Comparison with other Uto-Aztecan languages suggests these terms originate as conversions from nouns meaning 'X' to verbs meaning 'have as an X' (still found productively in Hopi, Cora and Yaqui, for example), which then become lexicalised as the usual way of expressing kinship relations between particular person combinations, in the process losing verb-like characteristics such as the possibility of varying tense/aspect, and gaining noun-like characteristics such as possessed noun markers.

Thirdly, in each of the three language families with roots simply meaning 'be a K to', there is variation across languages, and across individual lexical roots, in the degree to which TAM morphology can be employed on the one hand, and aspects of nominal morphology encroach on the other. In Ilgar, for example, I have yet to find either major restrictions on the use of verbal morphology with kinship verbs, or

Language; meaning type	Verbal characteristics	Nominal characteristics
Yuma 'call/have as a K'	Full transitive verbal characteristics: subject/object prefixes, collective and distributive forms characteristic of verbs only, can feed nominalizations like other verbs. Existence of full set of tensed forms not clear from available materials. Use as NP as headless relative.	Only in nominalised forms.
Ilgar/Iwaidja 'be a K to'	Nearly full transitive verbal characteristics: subject/object prefixes; tense affixes can be varied; reciprocal-like intransitive construction available for one in-law dyad; no attested use of directional prefixes. Use as NP as headless relative, with optional marking by demonstrative or possessive pronoun.	In the closely related language Maung, intransitive kinship verbs may take the nominal plural suffix <i>-ud</i> . <sup>41</sup>
Iroquoian 'be a K to'	Nearly full transitive verbal characteristics: subject/object prefixes; use of reciprocal or semi-reflexive for same-generation kin relations, limited evidence for use of tense suffixes. Some kin relationships employ unexpected morphology (e.g. intransitive) with transitive root for some person combinations (e.g. [he-fathers] instead of [he-me-fathers] in Cayuga). Use as NP as headless relative, with optional marking by referentialising particle or definite article.	Nominal morphology (e.g. diminutive, augmentative) in some languages (e.g. Tuscarora). Nominal possessive prefixes for some roots in e.g. Seneca.
Gunwinyguan 'be a K to'	Productive use of argument marking morphology (subject/object prefixes, reciprocal). TAM categories fixed for most kinship expressions.	Prefixation of noun class markers possible with some kinship expressions.
Gunwinyguan 'call K'	Full set of transitive verbal characteristics: subject/object prefixes, TAM suffixes.	No nominal characteristics.
Huichol 'call K, have as a K'	Full set of transitive verbal characteristics: subject and object prefixes, TAM suffixes.	No nominal characteristics.
Central Guerrero Nahuatl	Verbal characteristics limited to use of verbal prefix set. No tense/aspect or verbal plural markers, directionals, or reflexives.	Presence of <i>-w(a)</i> 'possessed noun' marker, phonological shape.
Cahuilla	Verbal characteristics limited to use of prefix set found with nominalised transitive verbs, and a suffix formally identical with deverbaliser.	The morphological construction is also available with other possessed nouns, e.g. 'basket', 'arrow'.

Figure 4. Summary of verb-like and noun-like characteristics of "kinship verbs" across the languages discussed

intrusions of nominal morphology into the set of kin terms. Yet in the related language Maung, intransitive kinship verbs like 'be siblings' can take the nominal plural marker *-ud*. In the Iroquoian languages there is variation from one language to another in exactly where and how nominal morphology leaks into a basically verbal paradigm. In Mayali, noun class prefixes turn up sporadically on certain kinship verbs (e.g. 'spouse') but not on others (e.g. 'mother'). In Seneca, Cayuga and Tuscarora there are idiosyncratic restrictions on the use of the subject/object prefixes with the 'mother' and 'father' roots, and in Seneca these amount to use of nominal possessive rather than verbal subject morphology: Kay (1975: 205) suggests for Seneca that "these synchronic data suggest ... a history of increasing 'lexicalization' of this form [mother] from productive verb root to productive noun root to frozen nominal expression".

The verbal characteristics that appear first are invariably subject and object marking, which is found in every language with kinship verbs that I have examined.<sup>42</sup> The other common verbal categories which show up regularly on kinship verbs all pertain to argument characterisation: reciprocals and semi-reflexives with certain lexemes in Iwaidjan and Iroquoian, and distributive and collective plurals in Yuman. On the other hand, categories concerned with event characterisation, such as tense/aspect/mood, or direction, are absent or marginal. We can formulate the following implicational statement: the kinship subclass of transitive verbs only shares TAM distinctions with core transitive verbs if it also shares subject and object marking, and any reciprocal or distributive categories present in the language.

The grammaticalisation of inflectional categories on kinship verbs, then, exhibits a different implicational pattern to that found on core verbs, which are far more likely to grammaticalise tense/aspect than to have object agreement (Bybee 1985: 30–31). This follows directly from the pre-eminence of relationality as the salient ontological feature with kinship verbs, as opposed to dynamicity or telicity with core transitive verbs.

Despite the presence of clear patterns at this initial level of research, it must be stressed how little we know about the fine-grained morphosyntax of kin verbs as a class. For no language with kinship verbs do we have a comprehensive comparison of the kinship subclass with that of core transitive verbs on the one hand, and that of possessed or other relational nominals on the other. How do they interact with restrictive quantification, for instance, in statements like 'she is my only sister', and positive and negative existentials like 'I (don't) have a sister'?<sup>43</sup> Iwaidjan and Iroquoian languages have a preference for the use of articles or demonstratives with kinship verbs when forming referring expressions, on the pattern used more generally to form relative clauses, but are these articles used less frequently with kinship verbs, which are in some sense more naturally used for reference than other verbs are? Just how productive is the TAM system with kinship verbs? In languages that can use

kinship verbs as address terms, is this an option available to other verbs as well? At present we know nothing about any of these questions; as data emerges, it may well highlight further differences between “kinship verbs” and “core verbs”.

## 5. Verbal vs. nominal encoding

Many languages with kinship verbs exhibit splits of varying types, such that not all kin terms are realised by verbs. In this section we summarise the five factors determining this split, and ask how far they can be related to general semantic factors known to favour nominal vs. verbal coding, or whether they do this only indirectly, and should instead be derived from the specific semantics of the construction.

### 5.1. Address vs. reference

In Iwaidjan this is a key factor favouring the nominal term over the verbal term, and in the Gunwinyguan languages kinship verbs can never be used as address terms, though noun roots can serve as the basis for derived verbs meaning ‘call K’. In the Iroquoian language Cayuga the forms most commonly used as address terms, namely ‘father’ and ‘mother’, display prefixal irregularities unexpected in transitive verbs. For most of the languages in the survey I have simply been unable to find data on whether kinship verbs are used in address.<sup>44</sup>

The act of addressing someone lies outside the normal pressures of discourse management: since they have not yet been brought into the discourse, their role as hearer is not yet established and the usual assumptions about how to manage reference in a way appropriate to the hearer’s background knowledge are not yet relevant. Because the term of address lies outside a proposition (and it has often been asserted for this reason that the vocative is not a true case), the opposition between nouns and verbs simply fails to apply. It is likely, then, that the real factor favouring the use of nouns over verbs in address is their morphological simplicity: address terms should be the simplest possible terms morphologically, which in each of the languages under consideration are nouns.

## 5.2. Actual vs. classificatory kin

In the Gunwinyguan languages, such as Mayali, the commonest reason to use kin verbs rather than kin nouns is to emphasise actual rather than classificatory connections. Because these languages have a classificatory kinship system that extends to everyone in the known social universe, people known as “father”, for instance, include: (a) one’s actual father (genitor), (b) his brothers who are treated as fellow members of the “father” class by the same-sex sibling equivalence rule (see Scheffler 1978), (c) people with whom one has only a remote social connection, but who are classified as one’s father either by applying a long chain of equivalence rules through linking relatives or because they belong to the same sociocentric category as one’s actual father, typically because they have the same “skin” or “subsection” membership.<sup>45</sup>

Anyone in this broad category could be called by the nominal term *ngabbard* ‘father’, whereas the relationship can be specified as an actual biological<sup>46</sup> one by the use of the kinship verb *ngan-bornang* ‘he saw me in a conception dream’. Similar remarks obtain, mutatis mutandis, to the use of the nominal term *karrard* ‘mother’ vs. *ngan-yawmey* ‘she (who) conceived me’, *ngadburrung* ‘same-sex sibling’ and *ngani-danginj* ‘we two (who) stood, i.e. came into the world (together, in similar parental circumstances)’.

Note that many further Australian languages, not considered in our case studies in section 3, employ similar verbal-like locutions for distinguishing actual from classificatory kin. Kayardild, for example (Evans 1995: 555), uses deverbal nominalisations with incorporated possessive pronouns, such as *kanthathu* ‘father’ (actual or classificatory) vs. *ngijinmimatharrba* [1SG-beget-PAST.NOMINALISATION] ‘my begetter, my biological father’ and *kambind* ‘child (of male)’ (actual or classificatory) vs. *ngijinmimayarrba* [1SG-beget-PASSIVE-PAST.NOMINALISATION] ‘my begotten, my biological offspring (male speaker)’.

## 5.3. Kin type

In many languages certain kin types go against whichever pattern is prevalent in the language. In the Iwaidjan languages MF does not have a corresponding kin verb; in Mayali none of the grandparent terms have kinship verbs. On the other hand, in Yuma, with its basic pattern of having verbs meaning ‘call K’, the following kin are noun roots: father, mother, older sibling, child, daughter’s child, great great grandparent, older sister’s child, wife, son-in-law, husband of one’s female relative.

It is not clear what the motive for these lexical splits is. In a language like Mayali, where kinship verbs are used as alternatives to kin nouns primarily in discussing



actual genealogical connections as opposed to merely classificatory relationships, this would put a premium on the development of kinship verbs for the core kinship relations of father, mother, husband, wife and child, in terms of which all other relations can be expressed; this corresponds more or less to those kin types for which kin verbs exist. In the Iwaidjan languages, which have essentially taken a Mayali-like system and expanded it to a larger set of relatives, it appears that those grandparents most important for the inheritance of clan and ceremony rights have had kinship verbs developed, i.e. the two parallel grandparents, FF and MM, plus the remaining grandparent to whom one has the next best claim with respect to clan lands, namely the MF.

In the case of Yuma, it is interesting that most of the core relatives are encoded as nouns, even though these are the very relatives for whom kinship verbs develop first in the Gunwinyguan languages (though the Gunwinyguan languages also have alternative noun forms, of course). It may be that these are the terms most often used in address, a situation that favours the nominal forms in Iwaidjan, but we have no empirical data on this.

#### 5.4. Extra semantics

In the Uto-Aztecan languages (section 3.4) it is clear that the verb-like construction has additional semantic components with respect to the nominal construction, of the type 'have as a K', 'call K', or 'consider a K'. This is clearest in Huichol, where the lack of person-combination limitations means there is an unrestricted choice between the two constructions. Amith—Smith-Stark (1994a: 358–360, 1994b: 516–518), the only published source on the Huichol data, give a range of translations for the verbal constructions ranging from 'have as a K', 'look upon as a K', 'consider as a K' and 'take/regard as a K'. This can be exemplified with the following pairs:

- (71) a. *pe-pi-ne-ñiwá*  
 2SG.SUBJ-ASSERT-1SG.POSS-brother/friend  
 'You are my brother/friend.'
- b. *ne-matsi-ñiwá*  
 1SG.SUBJ-2SG.OBJ-have.as.brother/friend  
 'I look upon you as my brother/friend.'
- (72) a. *pe-pi-ne-kema*  
 2SG.SUBJ-ASSERT-1SG.POSS-brother-in-law  
 'You are my brother-in-law.'

b. *ne-matsi-kema*

1SG.SUBJ-2SG.OBJ-have.as.brother-in-law

'I consider you my brother-in-law.' (i.e. 'I like your sister.')

(73) a. *pe-pi-ne-ŋya*

2SG.SUBJ-ASSERT-1SG.POSS-wife

'You are my wife.'

b. *ne-p-i-ŋya*

1SG.SUBJ-ASSERT-3SG.OBJ-have.as.wife

'I consider her my wife.' (i.e. 'She's my lady.')

In each of the above cases the nominal construction is given first, followed by the verbal construction, and in each the nominal construction has a straightforward 'be X's K' meaning. The specific pragmatic reasons behind the choice of the verbal construction vary, but all follow from asserting that a particular relationship is like a kin relationship, or asserting the wish that a given kin relationship should hold.

Thus the verbal construction in (71b) emphasises the social expectations following from the brother relationship, (72b) would be used in a joking manner to express a romantic interest in the hearer's sister, and (73b) is used to imply that the referent is a potential sexual partner.

Finally, compare (45) and (46), given in section 3.4: the nominal construction 'is employed with a real daughter', whereas the verbal construction is 'employed both with a real or adopted daughter and with a child who is treated as such' (Amith—Smith-Stark 1994b: 516–517).

The extra semantics of the verbal construction makes it unsuitable for use with certain person combinations. Verbal use of the 'brother/friend' stem with a first person subject as in (71b), for example, is acceptable, and emphasises that the speaker "wishes to assume the social role of friend for self-interested motives" (Amith—Smith-Stark 1994b: 517). On the other hand, use with a second person subject, as in (74), is unacceptable to some speakers. Amith—Smith-Stark (1994b: 518) suggest this is because it "insinuates motives to the addressee"; another formulation would be that one cannot know the motives of others, something that restricts the use of second person subjects with private predicates in many languages.<sup>47</sup>

(74) *\*pe-netsi-ŋiwá*

2SG.SUBJ-1SG.OBJ-have.as.brother/friend

'You look upon me as my brother/friend.'

For somewhat different reasons (75) is unacceptable with a second person object: it is considered offensive because of its explicit sexual connotations.

- (75) \**ne-matsi-ñya*  
 1SG.SUBJ-2SG.OBJ-have.as.wife  
 'I consider you my wife.'

In Cahuilla, the choice between the straightforwardly nominal "inherent" and the more verb-like "establishing" constructions is not available for all person combinations, since certain combinations require one or the other. But for some combinations, most clearly where both *propositus* and *referent* are third person, a choice between the two is possible, and is motivated by whether the speaker wishes to background the *possessum* or the *possessor* (Seiler 1983: 24). This follows from general properties of the inherent vs. establishing contrast, and applies to other types of possession (e.g. body parts, implements) as well as to kinship relationships.

It seems clear that whether nominal or verbal encoding is preferred for a given language in a given communicative circumstance will depend on the specific semantics of the verbal construction. Consider the problem of how to deal with fictive or extended kinship relationships. In Huichol, where the basic pattern is to use nouns for actual kin, and the verbal construction means 'have as a K, consider as a K', it will be the verbal construction that is used in discussing cases of potential or extended kinship relations, as we saw above. In a language like Ilgar or Mayali, on the other hand, where nominal kin terms are used for the whole gamut from actual to classificatory kin, and the kinship verbs emphasise actual biological relationships, it will be the nouns which are used for extended or fictive kin. If a verbal construction is used in Ilgar or Mayali for extended-category kin, it will be the construction with the specific meaning 'call K'—the nominal kin term plus the verb 'call' in Ilgar, and the special 'call K' kin term in Mayali. This illustrates the point that, in such cases, it is the specific semantics of given verb or noun constructions (in particular 'be a K to' vs. 'call K'), rather than the general semantics of the noun vs. verb contrast, which is responsible for determining the choice.

## 5.5. Person value of the arguments

Specific restrictions on person combinations have been reported in a number of languages, such that the nominal construction must be used with one set of combinations, and the verbal construction with others.

In both Central Guerrero Nahuatl and in Cahuilla, when the *referent* is a speech act participant (first or second person), the more verb-like construction is preferred or required. Recall that in Central Guerrero Nahuatl (49–50) one uses the nominal construction for 'she [*referent*] is my [*propositus*] child', but the verb-like construction for 'I am your child' (i.e. one says 'you have me as child'). In Cahuilla one uses

the nominal construction for 'she is my niece' (76) but the verb-like construction for 'I am her niece' (59).

- (76)      *Ø-ne-nési*  
             3P2-1P1-niece  
             'She is my niece.' (Seiler 1980: 6)

When one looks at the full range of combinations, one sees some differences between these two languages. In Central Guerrero Nahuatl, the verb-like construction is triggered by having either speech act participant as referent, except where the propositus is third person indefinite (a morphological option not available in Cahuilla), in which case the nominal construction is used. In Cahuilla, the choice is sensitive to the relative position of referent and propositus on the Silverstein hierarchy, with the greatest distance (that between first and third person) producing the most definite preferences one way or the other. An illustration of the difference between these languages comes from the situation where the kin relation holds between first and second person: Central Guerrero Nahuatl will almost always use the verb-like construction regardless of which is referent and which propositus, whereas Cahuilla will use the nominal construction where the first person is propositus, and the verb-like construction where the second person is propositus. Nonetheless, despite these differences of detail, the two systems converge in preferring the more clearly nominal constructions when a first person propositus is related to a third person referent, and the more verb-like constructions in the converse situation.

It is striking here that certain irregularities in the Iroquoian systems show a rather similar patterning. Recall that in Seneca, the basically verbal roots for 'father' and 'mother' take noun-like possessive suffixes for a few combinations of propositus and referent (Kay 1975: 205), most importantly the combinations '(s)he be mother/father to her/you/me' for 'her/your/my mother'; such irregularities are never found in predications which take the first person as propositus.

Two types of explanation have been offered for such person-based splits.

Seiler (1983) has seen it as a reflection of the relative naturalness of taking the speaker (and, next, the hearer), as the point of departure for making relational statements, which manifests itself in a wide range of alternatives cross-linguistically. Similar remarks have been made by Silverstein (1987: 144): "the direct form is presented as the expected inalienably possessed lexically headed Noun Phrase; the inverse is presented with a highly derived secondary nominalization of a quasi-verbalized form of predication".

Amith—Smith-Stark (1994b: 530–531) give a number of arguments against this position, of which I give the two most important here. Firstly, they point out that there needs to be independent evidence for naturalness outside the phenomenon be-

ing considered, or naturalness explanations risk circularity.<sup>48</sup> Secondly, simple accounts in terms of relational naturalness fail to relate the nature of person-based splits to other semantic contrasts obtaining between nominal and verbal encoding when both alternatives are allowed.

As an alternative analysis, they note that the assertion of kin relationships focuses on the social norms that attend that social relationship, and that “explicit comments on relations characterized by reciprocal rights and duties ... are those most amenable to a discourse strategy that supersedes simple reference and instead seeks to affect the response and reaction of hearer or addressee, most specifically in regard to the fulfilment of the social aspects of the indicated relation” (Amith—Smith-Stark 1994b: 533). Because of the performative nature of such assertions, they are most appropriate where they affect one or the other speech act participants: “a phrase’s potential pragmatic properties are related to the participation or non-participation in the speech act of the arguments expressed in the predication” (Amith—Smith-Stark 1994b: 533). To then justify why it should be the verbal rather than nominal expressions which attract these performative interpretations, they invoke the differing semantics of the two constructions: verb-like expressions focus “on the interaction of subject and object, and thus it would not be surprising that such expressions ... be used for pragmatically motivated declarations on relations of reciprocal rights and duties, particularly when one of the referenced arguments (referent or relatum) is present in the speech situation” (Amith—Smith-Stark 1994b: 535). The final step in their argument would then be to say that some person combinations are more likely to favour a straightforward assertion of kin relation, while others will be pragmatically charged, and that according to which use is dominant for a particular combination either the nominal or the verbal expression will be lexicalised as the preferred or even the only way of encoding it.

Three key problems must be solved before this explanation can be accepted as proven. Firstly, we need detailed pragmatic studies of actual use, comparing the contextual interpretations of different person combinations to see whether they bear out the Amith—Smith-Stark account. Secondly, they themselves point out that when one examines the full range of person combinations things get more complex and not all the languages they consider match up for all combinations, so that the account must be extended to look at the less clear-cut combinations as well, and to distinguish core from marginal predictions. And thirdly, since the contrast in lexical meanings is what generates the implicatures, the account would make rather different predictions for a language like Mayali, where the semantic contrast between nouns and verbs is primarily one of classificatory vs. actual kin rather than of asserting known facts vs. generating performative implicatures. The specific ways in which person combinations interact with the lexical semantics of the two contrasting sets thus requires elaboration.

Despite these problems, their account makes an important advance by allocating the speaker-hearer relationship a central role in determining nominal vs. verbal encoding. This is a clear example of how the different semantic content of kinship verbs, vis à vis core verbs, forces word class typology to take a broader perspective on the semantic factors determining assignment to parts of speech.

## 6. Further typological issues: Some directions

To conclude this article I will briefly look at three typological issues deserving further research: the question of whether the encoding of kin terms as verbs influences the structure of the kinship lexicon, the degree to which kinship verbs are restricted to languages with a particular typological profile, and some ways in which the typology of kinship verbs contributes to word class typology generally.

### 6.1. Kinship verbs and the structure of the lexicon: An issue for lexical typology

A largely neglected topic in typology has been the way in which grammar interacts with the structure of the lexicon. Behrens—Sasse (1997: 6) propose a new kind of linguistic typology, which they call Lexical Typology, one of whose goals is “a typological systematization of the interaction between lexicalization patterns and grammatical patterns”.

Given that encoding of kinship relations as transitive verbs provides a mechanism for specifying information about both the propositus and the referent in a way that encoding as nouns does not—cf. English *mother*, which need not specify the propositus, with Ilgar *ɲaŋawulaŋ* ‘she is my mother; she who is my mother’, which must—one might expect that languages with kinship verbs are in a good position to shift the specification of some aspects of the semantics from the lexical root into the agreement affixes, freeing the lexicon to formulate the root semantics in a more abstract way.<sup>49</sup>

We have already seen two ways in which this can take effect, in our discussion of the Iwaidjan and Iroquoian data.

Firstly, if the language has gender, the language can have a single root for male and female members of the same super-category. Kay (1975), for example, showed how the Seneca terms *hakso:t* ‘my grandfather’ and *?akso:t* ‘my grandmother’ are built up by combining the prefixes *hak-* ‘he→me’ or *?ak-* ‘she→me’ with the root

(h)so:t 'be grandparent to', and how and in our discussion of Ilgar we saw how the masculine vs. feminine subject forms could be combined with a number of roots unspecified for sex: with *wulaŋ* to distinguish 'mother' from 'mother's brother', with *maŋyarwun* to distinguish 'father' from 'father's sister', and with *wuɬakbun* to distinguish 'older brother' from 'older sister'.

Secondly, because every kinship relation has a converse, it is possible to dispense with kin terms taking the junior kin's perspective, by using a senior-based kinship root, but varying the propositus from subject to object. For example, one does not need a kinship verb for 'son (of male)', because instead of saying '(the one such that) he is son to me' one can say '(the one such that) I am father to him'; similar remarks apply to the relations of nephew/niece, grandchild, or younger sibling.

In the Iroquoian languages the effect of this on the number of lexical roots required is partially undone by the existence of pairs of roots, chosen according to whether the subject or the object is propositus; this was discussed in section 3.2. But in the Iwaidjan languages, where no such pairs exist, the economising effects of these two lexicon-reduction strategies can be seen in full measure: the nominal roots *gamu* 'mother', *yaja* 'mother's brother' and *gaŋuŋ* '(woman's) child, man's sister's child' are all represented by the verbal root *wulaŋ*; the nominal roots *bupi* 'father', *magamaga* 'father's sister' and *ŋawin* '(man's) child' are represented by the verbal root *maŋyarwun*, and the nominal roots *ŋunbuɬ* 'younger sibling' and *wuɬgun* 'older sibling' are represented by the verbal root *wuɬakbun*.

We can distil the above into what we may call the "verbal kin root economy hypothesis": that where kinship relations are expressed by verbal roots, the kinship vocabulary will tend to be reduced, relative to vocabularies of comparable kinship systems expressed by nouns, through the collapsing of gender distinctions (whether in propositus or referent) and of pairs of roots expressing converses.

A full examination of this hypothesis is beyond the scope of this paper. I shall, however, briefly outline two empirical difficulties calling for a refinement in its formulation.

Firstly, we must restrict it to kinship verbs proper, since there is clear evidence it does not apply to the Yuman languages (section 3.3), in which the verb roots mean 'call K' rather than 'be a K to'. Thus Yuma has a full set of lexicalised 'call K' converses such as *napáw* 'call someone father's father' and *aʔáw* 'call someone son's child'. The reason for this may be syntactic. We saw that in Yuma only objects can be the referent (via an object-relativisation strategy), so that if there was only one verb for the dyad (say 'call father's father') one could get the meaning 'my FF' as 'the one whom I call FF', but the meaning 'my SS', which would need to relativise on the subject ('the one who calls me FF') could not be expressed.

Secondly, it is clear that the hypothesis is at best describing a tendency rather than an absolute requirement, since nouns in some languages extend to a wider set

of self-converses than in familiar Indo-European languages. This can be seen by looking at the grandparent/grandchild noun terms in Ilgar, which are self-converses able to take on grandchild as well as grandparent meanings, e.g. *wawu* 'FF; SC'. Self-converse terms for grandparent/grandchild relations are in fact common in Australian languages,<sup>50</sup> most of which lack kinship verbs, so that one does not need to appeal to the existence of kinship verbs to account for the phenomenon in the +2 and -2 generations.

Where it has more appeal, however, is in the +1 and -1 generations, where the existence of self-converses is far rarer; gender neutralisation between father and father's sister, or between mother and mother's brother, is likewise extremely rare in languages with just nominal kin systems.<sup>51</sup>

Nonetheless, there are languages in which the kin terms are nominal, but which do not lexicalise most descending-generation kin. Serzisko (1983) discusses such a system in Somali, in which descending-generation kin are referred to by relative clauses constructed as follows:

- (77)      *inan*      *aan*      *adeer*      *u*      *ahay*  
          boy      1SG      FB      BEN      COP:1SG  
          'my nephew' (literally: "a boy, to whom I am uncle")
- (78)      *caruur-tii*      *ay*      *ayaayad-da*      *u*      *ahayad*  
          children-ART      3SG.FEM      FM/MM-ART      BEN      COP:3SG  
          'her grandchildren' (literally: "the children, to whom she is grand-mother")

In address, however, such relative clause formation is not appropriate, and instead one simply uses the ascending-generation term, with whichever interpretation is appropriate. *adeer*, for example, can be used either by a nephew to address his uncle, or by an uncle to address his nephew (Serzisko 1983: 131).

The Somali example shows that having kinship verbs is not a necessary condition for the extension of self-converse roots throughout the kin vocabulary: it is possible to encode kin relations by nouns and still have only descending terms.<sup>52</sup>

However, within the languages we have been able to survey so far, an alternative formulation survives: if a language has kinship verbs of the pure type (i.e. 'be K to', rather than 'call K'), it will restrict itself to roots designating senior kin, with the exception of same-generation and in-law terms. This is the case in all the languages that we have surveyed with pure kinship verbs, in the Iroquoian, Iwaidjan and Gunwinyguan families, and it is striking that within Iroquoian, languages have developed pairs of kinship roots which differ in whether the subject or the object is pro-



positus, but are still best translated with the meaning 'be a (senior) K' rather than as a pair of senior and junior terms.

Why should such a restriction be found when kinship relations are expressed by verbs, but not nouns?

A first, functionalist explanation has already been offered: the fact that obligatory encoding of both arguments of the kinship predicate, combined with the possibility of taking either subject or object as the pivot in the languages with the phenomenon, makes it possible to express either pole of the relationship with the same verb.

A second explanation, focusing more on semantics, could be that the verbs, as opposed to the nouns, place a greater emphasis on kin-constituting acts (e.g. begetting, conceiving, bequeathing clan lands, and negotiating for a spouse), and that, for a given kin relationship, it is the senior rather than the junior kin who carry out the acts defining the relationship. With 'call K' verbs, on the other hand, which merely require that the child be capable of employing an appropriate kin term, as opposed to the sorts of acts mentioned above, there is less of an asymmetry in the abilities of senior and junior kin to carry out the actions denoted by the kinship verb, so the existence of verbs taking junior kin as their subject would be explained.

To sustain this claim, of course, one would have to revise an assumption that has taken for granted in this article: that kinship expressions, when encoded as pure kin verbs, mean the same as their nominal counterparts in other languages. Needless to say, testing against a much larger sample is needed before we can be sure we have a fact demanding explanation. But if this claim does survive as a generalisation against a larger sample of languages, it will provide an interesting case study for the tenet of lexical typology that grammar and lexicon have important impacts on each other's structure.

## 6.2. Are kinship verbs only found in head-marking languages?

All languages for which I have been able to obtain clear evidence of pure kinship verbs have been head-marking, with obligatory marking of subject and object pronominal categories on the verb. Some, such as the Iroquoian and Gunwinyguan languages, are richly polysynthetic, with noun incorporation and a rich set of verbal affixes. Others, such as the Iwaidjan languages, have few verbal categories beyond subject, object and TAM: the only further verbal category in Ilgar and Iwaidja is direction. However, being head-marking is clearly not a sufficient condition for the development of kinship verbs, since many other language families with equally developed concentrations of morphology on the verb lack them: examples are the Athapaskan, Palaeosiberian, and Lower Sepik languages, as well as such head-marking Australian languages as Tiwi, or the languages of the Daly River or Kim-

berley regions. Head-marking typology therefore appears to be a necessary but not a sufficient condition for the development of kinship verbs.

Languages with verbs meaning 'have (as) a K' or 'call K' span a wider typological range. Although this set includes such head-marking languages as Central Guerrerero Nahuatl, Huichol, Cahuilla and Yuma (as well as Gunwinyguan, making a second showing), languages with the characteristic Uto-Aztecan 'have (as) a N' verbal construction range may be restricted to showing agreement with objects, as in Cora (Amith—Smith-Stark 1994a: 360) or to no agreement at all, as in Yaqui (Jelinek—Escalante 1988; see examples (7a–c)) or Hopi (Amith—Smith-Stark 1994a: 361–362). The differing typological profiles of languages with true kinship verbs and those with 'call K' or 'have a K' verbs again show the importance of keeping these types separate. Note, though, that if we restrict ourselves to languages where the 'call K'/'have a K' construction is particular to kinship relations, rather than being part of a broader pattern of encoding the having relationship over all types of entity, the typological profile again contracts to head-marking languages, since Cora, Yaqui and Hopi (but also Cahuilla) are now excluded.

For each type of kinship verb—'be a K to' and 'call K'—the distribution forms a clear areal bloc: two separate areas, one in northwestern Arnhem Land and one in northeastern North America for 'be a K to' verbs, and the southwestern United States and northwestern Mexico for 'have as a K, call K' verbs. Within each of these areas, kinship verbs then develop within a subset of the languages clearing the typological threshold of having double agreement on the verb.

Although in one sense it is obvious that head-marking typology, and in particular double agreement, provide a natural means for encoding information about the two arguments of kin terms, it remains a puzzle why kinship verbs should be so restricted typologically. After all, the encoding of two place predicates like 'love' or 'know' by verbs is found in languages of all typological profiles, even though they are far from typical of the dynamic events that invite lexicalisation as verbs.

### 6.3 Kinship verbs and word class typology: Final remarks

I hope to have shown that kinship verbs are fundamentally important for studies of word class typology generally, and in particular for the noun-verb distinction.

Because of their particular semantic characteristics, in particular the fact that they are non-dynamic relational expressions linking two human participants, they highlight a different ontological contrast to those normally cited as determining lexicalisation as noun or verb. This can result in a skewing of the likelihood of associating particular grammaticalised categories with the verb, e.g. the higher likelihood of

having inflection for object than for tense or aspect on kinship verbs, which is the opposite of that found by Bybee (1985) for regular verbs.

And because they detach two ontological dimensions which normally correlate—they are relational, but not dynamic—they often result in a special class which shows an idiosyncratic mix of nominal and verbal characteristics, as we saw for Central Guerrero Nahuatl. They may also detach functions from morphosyntactic categories in unusual ways: in Ilgar, for example, predications about kinship relations are more typically carried out by morphological nouns rather than morphological verbs, with the morphological verbs used more often for reference. Another important broadening of our approaches to word class typology that kinship verbs demand is an upgrading of our attention to conversation rather than narrative as a source of functional motivations for word classes, through consideration of the special factors shaping lexicalisation of address terms and of the interpersonal pragmatics of asserting types of human relationship. Finally, new data about the lexicalisation of kin terms, and in particular the preferential linking of subject role to senior kin, will demand a broadening of our theories of how particular thematic roles link to argument structure.

At present the biggest obstacle to understanding how kinship verbs work is lack of comprehensive descriptions. I have put forward a number of provisional hypotheses about kinship verbs, but at this stage of our knowledge the inductive base is too narrow to have much confidence that they are not artefacts of our small sample. It seems likely that many more of the world's languages have kinship verbs, and I hope that this article will encourage descriptive linguists working on a broader range of languages to go forth and falsify.

## Notes

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1. This account is simplified so as not to distract from the main issue at hand, that of kinship verbs. For detailed discussion of the noun-verb question the reader is referred to Broschart (1997), Plank (1997), Sasse (1993), Schachter (1985), Thompson (1988), and Wetzter (1996).
2. All material on Ilgar comes from fieldwork since 1994 with Charlie Wardaga, whom I thank for making fieldwork as enlightening as it has been entertaining.
3. Subject/object combinations are shown by placing the subject value first, then the object value, separated by a slash, e.g. 1SG/2SG 'first singular subject upon second singular object'. Standard anthropological abbreviations for kin terms are used—B(rother), C(hild), D(aughter), F(ather), H(usband), M(other), S(on), W(ife), Z (sister)—with concatenation in the order of English possessives, e.g. FF 'father's father'.
4. This is underlyingly *i-anad*, with masculine prefix *i-*, but vowel sandhi rules eliminate the first of two vowels.
5. External sandhi optionally eliminates the first of two consecutive vowels; in this transcription such vowels are shown shadowed.
6. This is the minimal case. Many Australian languages have so-called "triangular" or "trirelational" terms which are effectively three-place predicates simultaneously expressing the relationship of the referent to two people, usually speaker and hearer, as in Mayali *al-doingu* 'the one who is your daughter and my mother, given that you are my mother's mother'. The role of verbal kin terms in such trirelational systems will be briefly discussed in section 3.5.
7. Here Jakobson uses the abbreviations D for 'dative' and I for 'instrumental'.
8. Throughout this paper I will use K as a variable ranging over possible kin relations.
9. In fact they distinguish this phenomenon of "incorporation" from conversion, which would be restricted to individual words. This is motivated by cases where the TAM suffix has scope over a whole NP, e.g. *'inepo hiaki-m-po ho'a-k-am-ta huuve-k* [I Yaqui-PL-PP live-PERF-NOM-C wife-PERF] 'I have a wife from Yaqui-land', which would not be explained by simple lexical conversion. I am not convinced that their notion of incorporation is sufficiently well-defined to solve this explanatory problem, which in any case arises in other languages with morphologically-signalled conversion taking multi-word NPs in its scope, e.g. Indonesian *saya ber-dua anak* [I have-two child] 'I have two children'.
10. A survey of such verbs, however, would be of interest for lexical typology: would one find, for example, that the English pattern, in which 'father' is the dominant kin-generative verb and 'mother' the sole kin-behavioural one, is repeated cross-linguistically?
11. Amith and Smith-Stark (1994a, 1994b) use the equivalent term *relatum*.
12. Amith and Smith-Stark (1994a: 347) assume that in transitive verbals the subject will always express the relatum (propositus), and the object the referent. While this

may be true of the Uto-Aztecan languages, it is too restrictive a formulation, as we shall see below: even in the Iroquoian data cited by Sapir (e.g. HE GRANDFATHERS ME for 'my grandfather') it is the subject which expresses the referent.

13. My material on Iwaidja comes from published material by Pym—Larrimore (1979) and from information supplied by a number of Iwaidja speakers; I particularly thank Joy Williams, Mary Yarmirr, Khaki Murralla and Goldie Blyth for their clear and helpful discussion of Iwaidja.
14. A number of what appear to be kinship verbs appear in Handelsmann's (1998) draft dictionary of Amurdak, given the part-of-speech label "verbal noun" but without detailed discussion of their categoriality.
15. For Maung, Capell—Hinch (1970: 61–62) mention the relationship terms for 'brother' and 'father'. Their discussion fails to make clear an important difference between these. The 'brother' terms, which use intransitive prefixes, must always be plural, probably because, as in Mayali (section 3.4), the original etymology is something like 'we stood (i.e. were born) together', and they appear to be deverbal nominals because they can pluralise with the nominal plural *-ud*, leaving the subject prefix intact: cf *ḡadiḡan* 'my brother', *ḡadiḡanud* 'my brothers'. The 'father' terms, on the other hand, use the transitive prefix set, and is clearly verbal because it pluralises by changing the subject prefix, without addition of *-ud*: cf *ḡanimalḡban* 'my father' (literally: "he is father to me"), *ḡandumalḡban* 'my fathers' (literally: "they are father to me"). The word list in the back of their grammar includes some kinship verbs, listed as roots and noted as being transitive verbs, such as *-maga* which they gloss 'to wife' but which makes more sense as 'to be husband of' on the basis of their examples, *-malḡba* 'go out, arrive, beget' which appears from their examples to be transitive with a cognate object in the first senses and truly transitive in the second (in Ilgar the corresponding verb can be used intransitively to mean 'go out', and transitively to mean 'take out'), and *yilagbamip* 'FF, FFB, FFZ' for which they give no part-of-speech category. It also includes some unanalysed words whose Ilgar/Iwaidja cognates suggest they are (transitive) kinship verbs: *animapiri* 'MMB', *animungudbipun* 'MF'; the prefix *ani-* does not occur within the normal transitive prefix paradigm (we would expect *ini-* for 'he→him', although in Ilgar it is found with third person masculine prefixes on *ang*-class verbs, which would correspond to verbs subcategorising for neuter objects in Maung (see Evans 1998).
16. The other is to use subsection terms, which are essentially a summary of kinship categories that works by dividing the population into eight groups.
17. This was mostly done using Kunwinjku as an elicitation language, because my informants were more fluent in that than in English, and because the categories are more similar structurally. According to the lexical item, I used a mixture of kinship nouns (e.g. *kakkali* 'wife') and kinship verbs (e.g. *ngal-nganihyo* 'my wife', literally: "she that we sleep together"). I do not believe that the choice of elicitation language had any effect on the results, however, since Peterson—Devitt (1997), who elicited kin terms in English from the same individuals as part of the research for a Native Title Claim, were given identical terms.

18. Direct terminological equation of mother and mother's brother is not common in Australian languages, but there is other evidence for their structural equivalence in the kinship system. That both belong to the same "superclass" (Scheffler 1978) is shown by such facts as (a) both call the mother's offspring by the same terms, (b) both are grouped together in grandparent terms, (c) both will usually be known by the same term by people who are spouse to one and sibling-in-law to the other, (d) both will be in the same subsection. In those cases where an etymology is clear, it shows the 'mother' meaning to be primary, e.g. Yolngu *ngab:ib:i* 'uncle', based on the root *b:ib:i* 'breast' (see Evans 1992 on this etymology); in most Australian sign languages the sign for '(maternal) uncle' involves pointing to or touching the breast area. Another example is Kunwinjku *nabadjan* 'uncle', the masculine prefixed form of *ngalbadjan* 'mother', itself the feminine prefixed form of *badjan* 'large, great'; use of the root 'big' for 'mother' is widespread in Australian languages.
19. Ronald Lami-Lami, a senior Maung man, told me there is a Maung term *anminajbap* meaning 'one's mother's mother country'. Unlike its close relatives Ilgar and Iwaidja, Maung has a neuter gender which can cross-reference, among other things, country. This looks like a grandparent verb with a neuter subject applied, for metonymically stating a descent relationship of country to people through matrilineal descent. However, more analysis on Maung is needed before this analysis can be confirmed.
20. The most obvious analysis of this is as a possessive pronoun, as suggested by my translations of (19) and (20a), but as mentioned above the same form is used for subject, object and possessive, so this interpretation is not the only one.
21. I do not know whether other interpretations are possible here, such as 'her husband's elder brother'. In principle eight interpretations would be possible if either argument can be the pivot of either verb, and either expression can be the possessive. It is difficult to discuss these questions directly with the last Ilgar speaker, who is in his seventies and does not have a full command of English, but I plan to investigate the interpretations of parallel constructions in Iwaidja with younger speakers whose English is fluent. The translation given here is the one which elicited the Ilgar expression.  
 There are also cases where both interpretations are compatible with what is intended. A nice example is the following Iwaidja sentence, given by Khaki Marala as a definition of the term *gumbala* 'FM(B), FZS': *gumbala nabi nandumayyarwup janad tiwulan*, literally *gumbala* is: "the one who fathered me, *his one such that he is mother's brother to him*". Now the italicised expression has two interpretations, depending on whether subject or object is taken as pivot: 'his uncle (mother's brother), i.e. he who is mother's brother to him' or 'his sister's son, i.e. he whom he is mother's brother to'. If the first interpretation is taken, the whole expression means FMB; if the second, FZS; both are possible meanings of *gumbala*.
22. ANG is a cognate object gender, descending from an original neuter object prefix. See Evans (1998).
23. Iwaidja morphophonemics is complicated by the presence of an underlying morpheme, conventionally called 'big K' (K), which triggers hardening in following

nasals and glides, as well as a number of other changes. In examples like (28), the segmentation is actually 1SG ergative *ŋa* plus 3SG absolutive K plus root *wuŋagbu*. For simplicity I ignore these complications in my glosses here; see Pym—Larrimore (1979) and Evans (1998) for details.

24. I have retained Sasse's exact glosses, except for translating them into English: in addition to those used through this paper note the following: INCH(oative), REF(erentialiser), STAT(ive), P(a)ST and IMP(er)F(ective).
25. Additional irregularities in argument mapping occur with occasional verb lexemes in some individual languages. In Tuscarora, the 'be parent to' term *a?nó?nv?* (the ? represents a glottal stop here) has normal realisation of arguments where the parent is first or second person, e.g. *kheya?nó?nv?* [1SG/3SG-be.parent.to] 'my child (son or daughter)', but when the parent is a third person just the object prefix is used, and denotes the parent, e.g. *ro?nó?nv?* [3SG.MASC.OBJ-be.parent.to]. And "grand-children are referred to by verbs containing only objective pronominal references to the grandparents" (Williams 1976: 224).
26. Sasse (personal communication) notes that there are two points of disagreement among speakers with respect to pragmatic factors:
  - (a) whether the past suffix is restricted to the case of death ('my late father'), can be extended to metaphorical cases ('he was so mean to me, he's not my son anymore') or is not appropriate in any circumstances (Frances Froman, a Cayuga-speaking teacher, asserts that "the relationship is never lost, not even in the case of death").
  - (b) whether it is appropriate to use the future with ascending-generation terms ('he will be my father').
27. This is the meaning it adds when applied to a kinship noun; when applied to other nouns it generally means 'be like ...', e.g. *ʔaxá* 'water' > *ʔaxáy* 'damp'.
28. Kinship verbs are more marginally present in Seri, a southern outlier of the Yuman family spoken in Baja California (Moser—Marlett 1989; Marlett personal communication). The only clear underived kinship verb is *cyacj* 'have as a sibling', from which various NPs can be derived by nominalisation e.g. 'my sibling' is *hoyácj* < %*hi-o-yacj*% [1POSS-OBJ.NOMINALISATION-have.as.sibling] ("%...%" indicates an underlying form), i.e. 'mine whom (I) have as sibling'. Other kinship verbs with meaning 'have as K' are derived from nominal kin roots by adding a verbalising prefix that also combines with other nouns to give verbs meaning 'have N' or 'use as N'; 'have as father', for example, is derived from the noun for 'father' by adding this prefix.
29. Note that a number of other lexical items, e.g. numerals, seem to have a verbal origin in Uto-Aztec.
30. Within Nahuatl this phenomenon appears to be confined to the Central Guerrero dialect, though Amith—Smith-Stark (1994a: 366) argue, from the presence of parallel constructions in many other Uto-Aztec languages which are not in contact with this dialect, that this is an archaism rather than an innovation.
31. A formally identical suffix is found on nominal expressions expressing directionality, such as *húnga-i-ka* [back-ACC-ORIENTED.RELATION] 'toward the back'.

32. Or nearly identical: "very closely related to, if not identical" are the words Seiler (1977: 92) uses, and it is not clear under what conditions if any the difference emerges.
33. It is clear that other language families of North America and Central America also have kinship verbs: Amith—Smith-Stark (1994b: 542) mention their existence in Caddoan (Wichita), Siouan (Lakhota) and Tanoan (Jemez), though all these cases are based on personal communications rather than published data. Scattered remarks in Bloomfield ([1946]) suggest that Algonquian languages also have the construction, though the treatment is too terse for the extent of the phenomenon to be discerned. Amith—Smith-Stark also discuss Chinook as a possible example, based on data from Silverstein (1976) (but the case is far from clear), and recall Sapir's reference to Wishram (section 1). Roberto Zavala (personal communication) reports that kinship verbs are also found in the Mixean language Olutec in Veracruz, Southern Mexico.
34. The exceptions are the Maung word for 'to be father of', based on 'take out, cause to come out', and the Ilgar term for lovers (e.g. *ɲariyapjiŋin* 'my lover', literally: "we look at each other"), which has the same semantic structure as in Kunwinjku/Mayali.
35. The semantic connection between striking noses and cross-cousin status is unclear, but an identical idiom is found in the related language Jawoyn (Merlan 1989).
36. Orthographic *h* represents the glottal stop in Kunwinjku/Mayali and Dalabon; as a verbal prefix it can signal subordination, here in the context of relativisation.
37. See Merlan (1989) for a full discussion of triangular terms in another Gunwinyguan language, Jawoyn.
38. No clear semantic motivation can be found for why these particular kinship combinations are verbal terms, while most others are nominal, except that for all the verbal terms the referent is in the same generation as either speaker or hearer. However, there are other terms which meet these conditions but are nominal, e.g. the reciprocal of *ngundikoydoy*, which is the nominal *ngalmulebe* 'the one who is my MM(B)/DC and your opposite-sex sibling, you being my MM/DC.'
39. In another Gunwinyguan language, Ngalakan, verbs meaning 'call kin' use divalent prefixes, kin noun root plus glottal stop, e.g. *ngun-mana?* 'he calls me mother', where *ngun-* is 3/1. "To express a meaning which identifies a person in terms of his relation to some other, one may resort to a construction which has some superficial properties of a transitive configuration" (Merlan 1983: 35)
40. For their instruction in Dalabon I would like to thank Alice Boehm, David Karlburna, and Peter Mandeberru.
41. It is possible that the use of *-ud* on verbs may turn out to be a general property of headless relative clauses. Our knowledge of Maung is too limited to tell at this stage.
42. Some Uto-Aztec languages with noun-to-verb conversions producing the meaning 'have (for an) OBJ', such as Cora and Hopi, do not have double agreement on the verb. However, although these constructions may take kin nouns as input, they can also be used with just about any other kind of noun, so I do not include them as



43. Hans-Jürgen Sasse (personal communication) reports that for most kinship relations in Cayuga, this is expressed by combining the relevant kinship verb as a relative clause (in the optative) under the verb 'to have', e.g. *sa:ye' kəh ne' a:tetsyatehnō:trəhk* 'do you have siblings', literally: "do you have something, which you two would be siblings". For a couple of kinship relations there are also special 'having' verbs, e.g. *-nihshe-* 'have a father', *no:hatshe* 'have a mother'.
44. David Rood (personal communication) has kindly supplied me with a commentary on kin terms in Wichita, many of which have verbal traits. For at least some of these there are clear address forms consisting of nominalised verbs, e.g. the vocative for 'father' is *nateʔ:ásiʔih*, from underlying *na-t-a-uy-ʔiʔassi:-iʔ-h* [PARTICIPLE-ISUBJ-2OBJ-POSSESSIVE-root-be-SUBORDINATION], i.e. literally "the one such that I have you, father". Non-vocative forms omit the object prefix *a-*.
45. "Skins", known more technically as "subsections", effect a classificatory division of the population into eight categories regulating marriage and allowing strangers to be assigned a place in the kinship system.
46. For speakers of most Australian languages it is the case that sexual intercourse is held to be a necessary but not sufficient condition for conception, which must normally be supplemented by a spiritual event in which the father "sees" the conceived child's spirit in some form, so that I am using "biological" here as shorthand for the whole complex of biological, spiritual and social factors that lead to recognition of paternity within these societies.
47. A good test for private predicates with restrictions on the person of the subject is to see whether the restriction disappears in questions, where the hearer assumes the role of subjective authority. It would be interesting to see whether the question form of (74) is acceptable.
48. Though Seiler (personal communication) sees his account as a description rather than an explanation.
49. Seiler (1980: 17) suggests a correlation between the existence of alternative "inherent" and "establishing" kinship constructions in Cahuilla, and the formal similarity between converse terms, such as *nékum* 'father's older brother' and *nekúmu* '(man's) younger brother's child', or *néga* 'father's father' and *neqála* '(man's) son's child'; as these examples show, the increment added to form the junior term varies from one term to another. His suggestion is in broad accord with my comments below, although it is also possible these are residues of verbalising formatives or of "dyad" suffixes (once meaning 'X and one who calls him K', e.g. 'man and one who calls him uncle, i.e. uncle and nephew'), which appear on kinship converses in some Australian languages.
50. And in some North American languages. See Rice (1989: 992) on self-reciprocal grandparent/grandchild terms in the Athapaskan language Slave, which, interestingly, contain frozen reciprocal morphology. This is also found in the Papuan language Haruai (Bernard Comrie, personal communication).
51. In Kayardild 'father' is *kanthathu* or *kajakaja*, and 'father's sister' is *marrkathu*. On rare occasions, however, people extend the term *kajakaja* to their father's sister as well.

52. It is interesting that the relationality of Somali kin nouns seems to be more pronounced than in many languages, in that they must be marked for a possessor: one can say, for example, *aabahood* 'her father' but not *\*aabaha* 'the father' (Serzisko 1982: 133).

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# Syntactic categories, cross-linguistic variation and universal grammar

David Gil

## 1. Escaping Eurocentricity\*

The concern with word classes, parts of speech, or, as they are referred to in this paper, syntactic categories, dates back to antiquity—for better and for worse. For better, since in linguistics, as in any other discipline, one sees further when standing on the shoulders of giants. But for worse, if it is the case that the giants themselves are standing in the wrong place.

Or, in the case at hand, in the wrong continent. My own interest in syntactic categories derives from ongoing attempts to obtain a better understanding of the major syntactic patterns of some languages whose syntactic structures appear to be very different from those of the classical languages of antiquity, and the well-known and well-studied languages of Europe. Increasingly, these efforts suggest that contemporary theories and frameworks do not provide the appropriate tools for a satisfactory description of such “exotic” languages. In general, available theories are of European origin, reflecting the peculiar properties of the particular European languages familiar to their progenitors. Often, their application to languages spoken in other parts of the world is an exercise in Eurocentricity, involving the unwarranted imposition of categories and structures that are simply irrelevant.

In the past, grammar books of English informed us that English nouns have six cases, which was what prompted Alice, in her adventures in Wonderland, to muse: “A mouse—of a mouse—to a mouse—a mouse—O mouse!”.<sup>1</sup> Then it was Latin grammar that was being imposed on English; now it is English grammar that is being imposed on the rest of the world’s languages, through theories based largely on English data, constructed for the most part by English-speaking linguists, and disseminated almost invariably in the world language of science English. As an illustration, consider the following garden-variety sentence in Tagalog:

- (1)        *Manok     ang     kumakain.*  
             chicken   TOP        PROGR-ACT.TOP-REAL-eat  
             ‘The chicken is eating.’



Since *manok* is the name of a thing, it is generally assumed to be a noun (or NP); similarly, since *kumakain* describes an activity and is inflected for voice and aspect, it is usually taken to be a verb (or VP). However, in the above sentence *manok* occurs in the sentence-initial position characteristic of predicates, while *kumakain* occurs in construction with the subject, pivot or topic marker *ang*. Accordingly, in their analysis of the above sentence, traditional descriptions of Tagalog characterise *manok* as a “verbalised or predicative nominal” and *ang-kumakain* as a “nominalised verb”. The problem, however, is that in Tagalog, just about any word (or phrase) can go anywhere; accordingly, if one’s theory comes with a built-in distinction between nouns (or NPs) and verbs (or VPs), then almost every word (or phrase) in the language is going to end up being both a noun (or NP) and a verb (or VP). Or at best, having undergone a process of zero-conversion from one to the other. Which bears an uncomfortable resemblance to the six cases of Alice and her mouse.

A more perspicuous description of Tagalog syntax might acknowledge the fact that there is, quite simply, no viable distinction between nouns (or NPs) and verbs (or VPs). Rather, there is just a single open-class syntactic category, which contains almost all the words and phrases in the language: some arguments in support of this claim can be found in Gil (1993a, 1993b, 1995).<sup>2</sup>

Thus, cross-linguistic variation with respect to syntactic categories poses a serious challenge to conventional approaches to syntactic theory, underscoring the need to escape from the straightjacket of traditional Eurocentricity. However, breaking away from pre-conceived notions entails a reorientation of one’s basic mode of investigation. Rather than asking “Is this form an X or a Y? (e.g. a noun or a verb, a NP or a VP, and so forth)”, the more appropriate question to ask is “What are the significant syntactic patterns in the language, and what are the categories that must be posited in order to enable the necessary generalisations to be stated?”. In doing so, the balance is tilted away from a deductive top-down mode of investigation and towards a more inductive bottom-up approach.

However, the bottom-up way of doing things confronts the researcher with a labelling dilemma. For example, no sooner does one arrive at the conclusion that Tagalog possesses a single open-class syntactic category than the question arises: “What to call it?”. My first answer, in a gesture of anti-Eurocentricity, was to give it a Tagalog name, *parirala*, which means ‘phrase’ (Gil 1993a). But such an answer is unsatisfactory for two reasons. First, because it is just an arbitrary label that does not provide any information about the nature of the category in question. And secondly, because it does not lend itself to the typological enterprise and the comparison of syntactic categories across languages. Hence, what is called for instead is a principled and more revealing choice of terminology.

The issue, though, is not just one of labelling. Terms only have meaning within theories. In order to establish an adequate terminology, it is necessary to acknowl-

edge that every description, however inductive and bottom-up its orientation, in effect constitutes a theory about the phenomena under investigation. In other words, just as there can be no theory without description, there can be no description without theory—see Gil (1998, forthcoming b) for further discussion. As for the would-be dichotomy between theory and “mere” description which plays such a central role in the rhetoric of Generative Grammar: this is just a red herring often used to denigrate proponents of theories other than those favoured by the generativists. Accordingly, the quest for an appropriate terminology leads directly to another, broader enterprise, namely the construction of an explicit and well-articulated theory of syntactic categories, based on an adequate range of data spanning the typological diversity exhibited by the languages of the world.

This paper attempts to propose such a theory. Section 2, of a methodological and philosophical bent, sketches some of the basic principles upon which the theory is based. Section 3, of a rather formal nature, presents the outlines of a theory of syntactic categories. And section 4, more typologically oriented, provides some preliminary suggestions as to how the proposed theory may account for observed patterns of variation in the syntactic patterns of different languages.

## 2. Basic principles

Theories rest on principles. In the course of developing a theory, numerous assumptions, premises and presuppositions are brought to bear, some consciously, others less so. When presenting a theory, confusion and misunderstanding can therefore be minimised by rendering these principles as explicit as possible—even if this involves a certain amount of belabouring the obvious.

Following, in (A1–4), are four principles which provide the foundation for the theory of syntactic categories presented herein.

### A *Basic principles:*

#### 1. *Occam's Razor*

A theory positing the existence of fewer entities is preferable to one positing the existence of more.

#### 2. *Semioticity*

Language is a system of correspondences between sounds and meanings.

#### 3. *Formality*

Sound-meaning correspondences are not direct, but rather are mediated by various intermediate forms.

#### 4. *Multiplicity of Levels*

The forms of language are structured hierarchically, with distinct principles governing different levels of structure.

Probably most linguists are in agreement with most or all of the above principles. Still, it is worth spelling them out explicitly, if only to show how accepted premises can occasionally lead to unexpected results.

*Occam's Razor* says that simpler is better: a description making recourse to fewer entities is better than one that makes recourse to more. Everybody agrees with it—though it sometimes does not seem that way, when faced, for example, with a Government-and-Binding syntactic tree structure spread out over two pages of a linguistic journal.

*Semioticity* also states the obvious, namely that language uses sounds to express meanings in systematic, rule-governed ways. Again, almost everybody is in basic agreement—notwithstanding some linguistic traditions, such as later American Structuralism, as in Harris (1951), and its immediate successor early Generative Grammar, as represented by Chomsky (1957), which attempted to construct theories that would avoid recourse to meaning.

*Formality* underlies a crucial difference between human language and most other semiotic systems, such as, for example, traffic lights; it is also what makes the study of language so interesting and challenging. Basically, it says that the relationship between sounds and meanings is not direct, in the way that it is for, say, traffic lights, where *red* means 'stop' and *green* means 'go'. Rather, the relationship is mediated by various intervening entities: the linguistic forms—features, suffixes, adjectives, causatives, topics, and so forth—which constitute the basic building blocks of linguistic analysis. This principle is accepted by most or all linguists, though it is downplayed within those schools whose interests lie less in grammatical structures and more in meanings, for example the Columbia school of linguistics, as represented in Contini-Morava—Goldberg (1995).

*Multiplicity of Levels* characterises the way in which smaller linguistic forms group together to form larger ones. Segments combine to form morphemes, morphemes come together to create words, words combine to produce sentences, and sentences come one after another to result in discourses. Crucially, however, the rules and principles governing the groupings differ in numerous fundamental ways from level to level. It is these differences which underlie the division of the field into distinct disciplines associated with each level: phonology, morphology, syntax, and discourse analysis, a division which is generally accepted, notwithstanding various cross-domain parallels and analogies that have been observed—see Gil (1986, 1987) for prosody, Yip et al. (1987) for tiers, and Levin (1985), Shen (1985), and Anderson—Ewen (1987) for heads and X-bar structure.

Obvious though they may be, the above four principles point towards more specific and perhaps less generally accepted conclusions with regard to the nature of syntactic categories. The principles of Formality and of Multiplicity of Levels entail the Autonomy of Syntax, and its distinctiveness vis à vis semantics and morphology respectively:<sup>3</sup>

#### B *The Autonomy of Syntax*

1. The ways in which words group together to form sentences differ fundamentally from the ways in which words and sentences are associated with their meanings.
2. The ways in which words group together to form sentences differ fundamentally from the ways in which morphemes group together to form words.

Formality entails that syntax, as one of the intermediate levels, is distinct from semantics—as specified in (A3). Evidence for this claim is overwhelming; suffice it to mention various arguments showing that the truth value of a sentence is undecidable within First Order Predicate Calculus, for example Hintikka (1979a, 1979b), Gil (1982b). Or, for those for whom mathematics speaks less strongly than inductive cross-linguistic generalisations, consider the virtually infinite number of potential semantic categories which have no effect on the syntax of any known language. For example, whereas clause structure is often affected by the animacy of one of the participants, no case is known of it being affected by whether one of the participants happens to be purple, or plastic, or perforated. Thus, syntax is fundamentally different from semantics: it is invariably much, much more frugal. The need to separate syntax from semantics is accepted by most schools of linguistics. However, in some approaches, the existence of an autonomous level of syntax is downplayed, as for example in the “West Coast” Functional school, as represented by Givón (1979) and others; or even expressly denied, as for example in Generative Semantics, as represented by Bach—Harms (1968)—cf. McCawley’s (1977) title “The nonexistence of syntactic categories”. In accordance with such approaches, syntactic structures may be viewed as being isomorphic to a restricted subset of all conceivable semantic structures. However, as argued below, there is ample reason to believe that there exist syntactic structures and categories that are completely devoid of any semantic motivation.

Multiplicity of Levels entails that syntax is distinct from morphology—as spelt out in (A2). Again, this is clear mathematically, given that syntax is recursive, whereas morphology, at least in languages that are not of the polysynthetic type, is non-recursive (with the exception of generally marginal constructions such as *anti-missile-missile*, *anti-anti-missile-missile-missile*, etc.). And it is also clear cross-linguistically, as vividly illustrated by the following example. Imagine a language in which a basic clause consists of subject plus predicate, but with the following

proviso: the subject must be exactly three words long, and the predicate is strung out before the subject, after it, but most importantly within it, between the first and second word, and between the second and third word. For example, using English words, and marking the subject in boldface: *Sat **the** on **fat** the **cat** mat*. Clearly impossible syntax; but now what about a language in which a basic word consists of root plus inflection, where the root must be exactly three consonants long, and the inflection is strung out before the root, after it, and also within it, between the first and second consonant, and between the second and third consonant? This is an only somewhat idealised version of the standard word structure of Semitic languages such as Hebrew and Arabic. This and innumerable other examples support the generally accepted separation between syntax and morphology. Occasionally, models have been proposed which do away with this distinction, as for example Chomsky's (1965) "Aspects" framework, in which the terminal nodes of syntactic trees are filled by morphemes rather than words; however, even within Generative Grammar, the need to distinguish between morphological and syntactic structures soon reasserted itself, as argued for by Anderson (1982) and others.

Thus, in accordance with (A3), there is good reason to keep syntax apart from semantics on the one hand and from morphology on the other. These observations accordingly set the stage for the following Typology of Categories, characterising them with respect to the levels of structure in terms of which they are defined:

### C *A Typology of Categories*

1. *pure*
  - a. semantic
  - b. morphological
  - c. syntactic
2. *mixed*
  - a. semantic-morphological
  - b. semantic-syntactic
  - c. morphological-syntactic
  - d. semantic-morphological-syntactic

The Typology of Categories in (C) above distinguishes between pure categories, defined in terms of a single level of structure, semantic, morphological or syntactic, and mixed categories, defined in terms of more than one level of structure.<sup>4</sup> In Figure 1, each of the above types of categories is exemplified, with reference to a fixed set of eight English words:

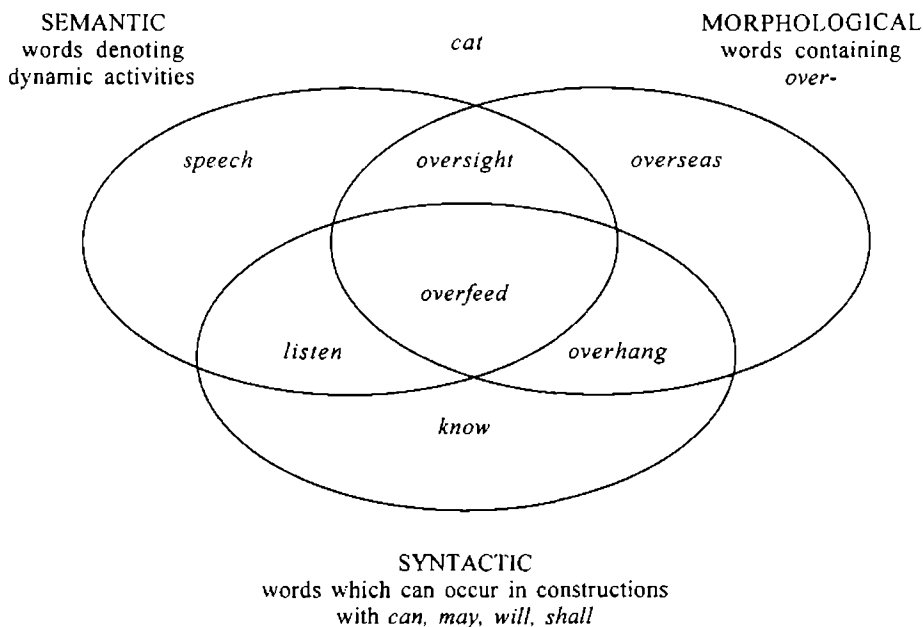


Figure 1. Semantic, morphological and syntactic categories

Pure categories are of three types: in Figure 1, pure categories are represented by the areas enclosed by each of the three ovals. A semantic category is one which is defined exclusively in terms of meaning properties. An example of a semantic category in English is the category of words denoting dynamic activities, which, of the eight words in question, contains *speech*, *oversight*, *listen* and *overfeed* but not *cat*, *overseas*, *overhang* and *know*. A morphological category is one which is defined solely with reference to morphological properties, pertaining to the ways in which morphemes relate to each other and group together to form words. An example of a morphological category in English is the category of words that contain the prefix *over-*, which includes *oversight*, *overseas*, *overfeed* and *overhang*, but not *cat*, *speech*, *listen* and *know*. Finally, a syntactic category is one which is defined entirely in terms of syntactic properties, governing to the ways in which words relate to each other and group together to form sentences: such properties include distributional privileges, and participation in syntactic relations such as binding, government, agreement, and the like. An example of a syntactic category in English is the category of words which may occur in construction with *can*, *may*, *will* and *shall*; this category contains *listen*, *overfeed*, *overhang* and *know*, but not *cat*, *speech*, *oversight* and *overseas*.

Mixed categories come in four types: in Figure 1 mixed categories are represented by four areas of intersection defined by the three ovals. A semantic-morphological

category is one which is defined with respect to semantic and morphological properties; for example, in English, the category of words which denote dynamic activities and contain the prefix *over-*, which includes *oversight* and *overfeed* but not *cat*, *speech*, *overseas*, *listen*, *overhang* and *know*. A semantic-syntactic category is one which is defined in terms of semantic and syntactic properties; for example, in English, the category of words which denote dynamic activities and may occur in construction with *can*, *may*, *will* and *shall*, which contains *listen* and *overfeed* but not *cat*, *speech*, *oversight*, *overseas*, *overfeed*, *overhang* and *know*. A morphological-syntactic category is one which is defined with reference to morphological and syntactic properties; for example, in English, the category of words which contain the prefix *over-* and may occur in construction with *can*, *may*, *will* and *shall*, which includes *overfeed* and *overhang* but not *cat*, *speech*, *oversight*, *overseas*, *listen* and *know*. Finally, a semantic-morphological-syntactic category is one which is defined in terms of semantic, morphological and syntactic properties; for example, in English, the category of words which denote dynamic activities, contain the prefix *over-*, and may occur in construction with *can*, *may*, *will* and *shall*, which contains *overfeed* but not *cat*, *speech*, *oversight*, *overseas*, *listen*, *overhang* and *know*.

In the above examples, the semantic, morphological and syntactic properties are independent, each and every combination thereof defining a category with different members. In other instances, however, properties associated with different levels may define categories with the exact same membership. Two particular cases are of relevance here.

In the first case, semantic and syntactic categories may be coextensive. For example, in German, the semantic category of expressions denoting natural numbers is coextensive with the syntactic category of expressions which may occur in construction with the distributive marker *je*, containing *eins*, *zwei*, *drei*, and so forth (see Link 1983, 1986a, 1986b for discussion of this construction). How then should this category be described, semantically or syntactically? Occam's Razor, in conjunction with the principle of Semioticity, provides the answer:

#### D *Semantics before Syntax*

A theory positing the existence of semantic categories is preferable to one positing the existence of syntactic categories.

Since language is a system of sound-meaning correspondences, meanings are an inherent part of language. Hence, positing semantic categories does not add to the ontological complexity of the description. In contrast, positing linguistic forms, such as syntactic categories, increases the overall complexity of the description—it comes at an extra cost. Thus, when a semantic category turns out to be coextensive with a syntactic one, as in the above German example, the category should be characterised

as semantic, not syntactic. In general, when constructing grammatical descriptions, a semantic analysis should always be attempted as the default; a syntactic analysis ought only to be adopted as a last recourse, when semantics fails.<sup>5</sup>

In the second case, morphological and syntactic categories may be coextensive. For example, in Hebrew, the morphological category of infinitive is coextensive with the syntactic category of words which may head a phrase occurring in construction with a set of words including *šasui* 'may' and *šalul* 'may'. Again the question arises how to describe such a category; and again Occam's Razor points to a solution:

#### E *Morphology before Syntax*

A theory positing the existence of morphological categories is preferable to one positing the existence of syntactic categories.

Unlike the preceding case, here both morphological and syntactic categories involve linguistic forms that are intermediate between sounds and meanings. In general, however, morphological categories are much more transparent than syntactic categories: they are independently motivated by readily observable morphological structures and paradigms. For example, the Hebrew infinitive constitutes an easily recognisable inflectional paradigm, consisting of the prefix *l-* plus a special non-finite form occurring in five out of the seven characteristic verb patterns (or "binyanim"). This paradigm is represented in Figure 2:<sup>6</sup>

<i>verb pattern</i>	<i>pa'al</i>	<i>nif'al</i>	<i>pi'el</i>	<i>hif'il</i>	<i>hitpa'el</i>
<i>infinitive</i>	liCCoC	lehiCaCeC	leCaCeC	lehaCCiC	lehitCaCeC

Figure 2. The Hebrew infinitival inflectional paradigm

Thus, the morphological category of infinitive is needed anyway, to account for the above paradigm. Considerations of parsimony suggest that there is no reason to duplicate it with a coextensive syntactic category in order to account for the distribution of words in the infinitival construction.<sup>7</sup>

So what, then, are syntactic categories like? Emerging from the preceding discussion are the two basic properties specified below:

#### F *Syntactic Categories: Basic Properties*

1. Syntactic categories are defined exclusively in terms of syntactic properties.
2. Syntactic categories consist of words and of larger constituents.

In accordance with (F), syntactic categories are defined solely in terms of syntactic properties, such as distributional privileges and participation in syntactic relations such as binding, government and agreement: semantics is irrelevant, as is morphol-



ogy. And as specified in (F2), syntactic categories contain words, and also multi-word phrases, but they do not contain units smaller than the word—that is the realm not of syntax but of morphology.

It is not difficult to see how a large number of the syntactic categories posited within current theories of syntax fail to meet the above criteria. To cite just a few examples from one recent version of Generative Grammar, that represented by Stowell (1981), Chomsky (1986a), Abney (1987) and others: Categories such as Determiner and Quantifier, together with their phrasal projections DP and QP, are ruled out by (F1), since, as their names suggest, they are defined semantically. Similarly, categories such as Inflection and IP are ruled out by (F1), since syntactic categories cannot be defined morphologically. Moreover, to the extent that such categories contain elements that are smaller than single words, they are also ruled out by (F2). (Indeed, the very term “Inflection Phrase” is an oxymoron, suggesting an entity that is simultaneously smaller than a word and also larger.) Finally, categories such as Number and Tense and their projections NumP and TP are doubly bad, since these are defined in terms of semantic features and are manifest morphologically, thereby violating both (F1) and possibly also (F2).<sup>8</sup>

Alongside the two basic properties in (F1–2) above, syntactic categories also exhibit the following additional properties:

*F Syntactic Categories: Additional Properties*

3. Syntactic category membership is defined in terms of prototypes.
4. Syntactic categories exhibit different degrees of productivity.

In the preceding discussion it was assumed, for ease of exposition, that syntactic categories are unstructured sets—cf. the Venn Diagram in Figure 1 above. However, this is an idealisation: in actual fact, syntactic categories, like most other categories of a cognitive nature, are endowed with prototypical structure. In other words, whereas some elements are characteristic, clear cut, or prototypical members of a given category, other elements may be borderline, idiosyncratic, or less prototypical members of the same category. The prototypical nature of syntactic categories has been argued for by several scholars, including Ross (1973), Dixon (1977), Comrie (1981), Hopper—Thompson (1984), Croft (1991) and Taylor (1995). Finally, not all syntactic categories are of equal size. Open syntactic categories are productive, and contain a large, sometimes infinite number of members, whereas closed syntactic categories are non-productive, generally consisting of a small number of members.

This, then, in brief, is what syntactic categories are like. But what actually *are* the syntactic categories that different languages may have? This is the question that is addressed in the next section.

### 3. A theory of syntactic categories

The theory proposed herein is a more elaborated version of the framework first outlined in Gil (1993b, 1995).

The theory falls within the tradition of Categorical Grammar. In Categorical Grammar, one begins with a set of Initial (or Primitive) Categories, and a set of Category-Formation Operators. These Category-Formation Operators apply to simpler categories to derive more complex categories, and so on, recursively. Each category name spells out the history of that category's derivation, and how it is obtained by application of the Category-Formation Operators to the Initial Categories. In addition, each category name also provides a characterisation of the distributional privileges of members of that category.

The theory presented in this paper posits one Initial Category and two Category-Formation Operators; these are spelt out in (G) below. After that, in (H), the ways in which categories group together to form syntactic structures are indicated:<sup>9</sup>

#### G *Category Formation (Paradigmatic)*

1. Initial Category:  $S^0$
2. Category-Formation Operators:
  - a. Slash:  
For any two categories  $X$  and  $Y$ ,  $X/Y$  is a category, called 'X slash Y'.
  - b. Kernel:  
For any category  $X^n$ ,  $X^{n+1}$  is a category, called 'the Kernel Category of  $X^n$ '.

#### H *Category Combination (Syntagmatic)*

1. Identity Combination:  $X \leftrightarrow [X, X, X \dots]$
2. Slash Combination:  $X \leftrightarrow [Y, X/Y, X/Y \dots]$

As specified in (G1), the theory makes use of a single Initial Category,  $S^0$ . The letter "S" may be construed as a rough mnemonic for "Sentence", while the superscript "0" reflects the basic nature of the category in question. Indeed, the category  $S^0$  may be thought of as corresponding approximately to the traditional category of sentence.

The theory accordingly assigns privileged status to the sentence, characterising it as the most basic or fundamental syntactic category. In this respect it follows in the footsteps of a long tradition, encompassing, among others, American Structuralism and Generative Grammar. Thus, for example, Boas (1911: 23) writes: "Since all speech is intended to serve for the communication of ideas, the natural unit of expression is the sentence; that is to say, a group of articulate sounds which convey a complete idea." Echoing this insight, phrase structure grammars such as that of

Chomsky Gil (1965) typically begin with a formula such as " $S \rightarrow \dots$ ". However, in this regard, the present theory differs from previous versions of Categorical Grammar, which generally posit more than one Initial Category. Thus, Ajdukiewicz (1935) posits two Initial Categories, corresponding to  $S$  and  $NP$ ; Montague (1970a, 1970b) and many others opt for three, corresponding to  $S$ ,  $NP$  and  $N$ ; while some, for example Morrill (1994), even postulate four, corresponding to  $S$ ,  $NP$ ,  $N$  and  $PP$ .<sup>10</sup>

We are now in a position to examine the first of the two Category Combination rules, namely Identity Combination, as specified in (H1). What this rule says is that an expression of category  $X$  may consist of any number of daughter expressions also of category  $X$ , in what amounts to a conjunction, apposition or juxtaposition of co-ordinate elements. For example, an  $S^0$  may consist of two, three, four, or any number of daughter  $S^0$ 's, in a construction of the form  $S^0 \leftrightarrow [S^0, S^0, S^0 \dots]$ .

In order to enrich the inventory of syntactic categories, recourse is required to the two Category-Formation Operators, as specified in (G2). The first of these, in (G2a), is the familiar binary Slash Operator, which is at the heart of all previous theories of Categorical Grammar. What it says, quite simply, is that if  $X$  and  $Y$  are both syntactic categories, then so is  $X/Y$ . For example, from  $S^0$  we can form the category  $S^0/S^0$ ; from these two categories we can form the categories  $S^0/(S^0/S^0)$ ,  $(S^0/S^0)/S^0$ , and  $(S^0/S^0)/(S^0/S^0)$ ; and so forth.

In its appearance, the Slash Operator is reminiscent of the division sign in elementary algebra—and for good reason. To see why, let us turn our attention to the second Category Combination rule, namely Slash Combination, in (H2). What this says is that an expression of category  $X$  may consist of an expression of category  $Y$  in construction with one or more expressions of category  $X/Y$ . For simplicity, assume for the moment that the number of  $X/Y$  expressions is just one. Then what Slash Combination is saying is that a  $Y$  expression in construction with an  $X/Y$  expression results in an expression of category  $X$ :  $X \leftrightarrow [Y, X/Y]$ . Which looks just like the elementary algebraic equation  $X = Y \cdot X/Y$ . To take a real example now, an expression of category  $S^0$  may consist of an expression of category  $S$  in construction with, say, three expressions of category  $S^0/S^0$ :  $S^0 \leftrightarrow [S^0, S^0/S^0, S^0/S^0, S^0/S^0]$ .

As noted above, the Slash Operator is common to most or all versions of Categorical Grammar. However, whereas most versions, such as Montague (1970a, 1970b) and Keenan—Faltz (1985), allow only for binary branchings, the present version permits multiple branchings, thereby reflecting a body of evidence that has accumulated to the effect that at least some constructions, in some languages, are endowed with flat rather than hierarchic syntactic structure—see, for example, Hale (1982, 1983), Gil (1983), Austin—Bresnan (1996). Also, whereas some versions, such as Bar-Hillel (1953) and Lambek (1958), build linear order into the theory, typically by introducing distinct slash symbols, the present framework follows Ajdukiewicz (1935), Keenan—Faltz (1985) and others in positing syntactic struc-

tures and syntactic rules that are unspecified for linear order. This is motivated by the observation—see, for example, Šaumjan (1965), Sanders (1975) and Keenan (1978)—that a large proportion of the generalisations governing the syntactic structures of languages and the ways in which these structures are interpreted do not require recourse to linear order.

The second Category-Formation Operator, in (G2b), is the unary Kernel Operator. The effect of this operator is, quite simply, to add 1 to the value of the superscript of the category to which it applies. For example, it applies to  $S^0$  to yield  $S^1$ , to  $S^1$  to yield  $S^2$ , and so forth. In addition, it can apply to categories resulting from the application of the Slash Operator, in which case the category produced by the Slash Operator is understood to bear the default superscript “0”. For example, the Slash Operator may produce the category  $S^0/S^0$ , actually  $(S^0/S^0)^0$ ; the Kernel Operator then may apply to  $(S^0/S^0)^0$  to yield the category  $(S^0/S^0)^1$ .

The Kernel Operator is an innovation within the tradition of Categorical Grammar, but elsewhere it is almost familiar. Almost, but not quite: in fact, it is an upside-down version of the bar operator of X-bar theory, as proposed by Chomsky (1970), Jackendoff (1977) and others. Within X-bar theory, words are associated with lexical categories, which are taken to be basic, and are accordingly assigned the superscript “0”. These categories, or X-zeroes then project upwards, resulting in phrasal categories with ascending indices, X-bar, X-double-bar, etc.—until an arbitrary limit, usually taken to equal two, is reached, at which point the resulting category is renamed as an XP (and also referred to as the “maximal projection” of X). X-bar theory thus characterises the word, rather than the sentence, as the most fundamental linguistic unit. However, as is suggested below, there are good reasons to believe that it is the sentence that is the more basic of the two. Or, more generally, that for any X, it is XP that is more basic than X. Accordingly, the Kernel Operator turns the tables, starting at the top, with what corresponds, very roughly, to the XPs, assigning these the superscript “0”, and then working its way down, as far as may be necessary.<sup>11</sup>

In addition to the Initial Category and the two Category-Formation Operators, it is necessary to introduce one more primitive into the theory, namely headedness. Given an expression X consisting of daughter expressions  $X_1 \dots X_n$ , the head of X is that expression  $X_i$  which is characteristically associated with a range of properties which include the following: (a) obligatoriness: the head cannot be omitted; (b) hyponymy: the construction as a whole is a hyponym of its head; (c) percolation of features: the construction as a whole acquires grammatical features from its head; (d) agreement: the head controls agreement of the other elements in the construction; and (e) government: the head determines the morphological form of other words in the construction. The notion of head is well supported within linguistic theory; see for example Tesnière (1959), Zwicky (1985) and Hudson (1990). In particular, the notion of head plays a central role within X-bar theory, where, for any X, X is taken

to be the head of the  $X$ -bar and  $XP$  containing it. Nevertheless, the notion of head is logically independent of the mechanisms of  $X$ -bar theory, and is of greater generality. Thus, for example, the notion of head has been argued to be relevant in a variety of cognitive domains where the notions of  $X$ -bar structure are not applicable, such as the theory of tonal music proposed by Lerdahl—Jackendoff (1983).

In the present theory, headedness correlates with the rules of Category Combination in the following ways:

# I *Headedness (Syntagmatic)*

## 1. Identity Combination:

In a construction of the form  $X \leftrightarrow [X, X, X \dots]$ , one of the daughter  $X$ 's may be head.

## 2. Slash Combination:

In a construction of the form  $X \leftrightarrow [Y, X/Y, X/Y \dots]$ ,  $Y$  is head.

Rule (I1) says that in a construction of the kind formed by Identity Combination, one of the daughter expressions may be head, but this is not a necessity: the construction may remain headless. Such freedom, however, is not the case for constructions formed by Slash Combination: here rule (I2) specifies that in a construction of the form  $[Y, X/Y, X/Y \dots]$ , it is invariably  $Y$  that is the head.

Among the syntactic categories generated by the Category Formation rules in (G), two particular kinds stand out as worthy of mention:

# J *Syntactic Categories: Two kinds*

## 1. *Modifier Categories*

A Modifier Category is a category of the form  $X/X$ , for some category  $X$ .

## 2. *Argument Categories*

An Argument Category is a category of the form  $X/Y$ , for some categories  $X$  and  $Y$ , where  $Y$  is the Kernel Category of  $X$ .

Modifier Categories are referred to as such because, in accordance with the rule of Slash Combination in (H2), one or more  $X/X$  expressions combine with an  $X$  expression to yield another superordinate  $X$  expression:  $X \leftrightarrow [X, X/X, X/X, X/X \dots]$ . In such cases, the  $X/X$  expression(s) may be characterised as the modifier(s) of its/their sister  $X$  expression, which, in accordance with (I2), is the head of the construction. Some examples of Modifier Categories are  $S^0/S^0$ ,  $S^1/S^1$ ,  $(S^0/S^0)/(S^0/S^0)$ ,  $(S^0/S^1)/(S^0/S^1)$ , and so forth. Argument Categories are given this name because, also in accordance with the rule of Slash Combination in (H2), one or more  $X/Y$  expressions combine with an  $X$  expression to yield a superordinate  $Y$  expression:  $Y \leftrightarrow [X, X/Y, X/Y, X/Y \dots]$ . In such instances, the  $X/Y$  expression(s) may be characterised as the argument(s) of its/their sister  $X$  expression, which, again in accor-

dance with (12), is the head of the construction. Some examples of Argument Categories are  $S^0/S^1$ ,  $S^1/S^2$ ,  $(S^0/S^0)/(S^0/S^0)^1$ ,  $(S^0/S^1)/(S^0/S^1)^1$  and so forth.<sup>12</sup>

The rules of Category Formation in (G) generate an infinite number of syntactic categories from the Initial Category  $S^0$ . This set may be visualised in terms of a tree structure. Since the actual tree is boundless, it is unrepresentable; however, a very small subset of it is shown in Figure 3:

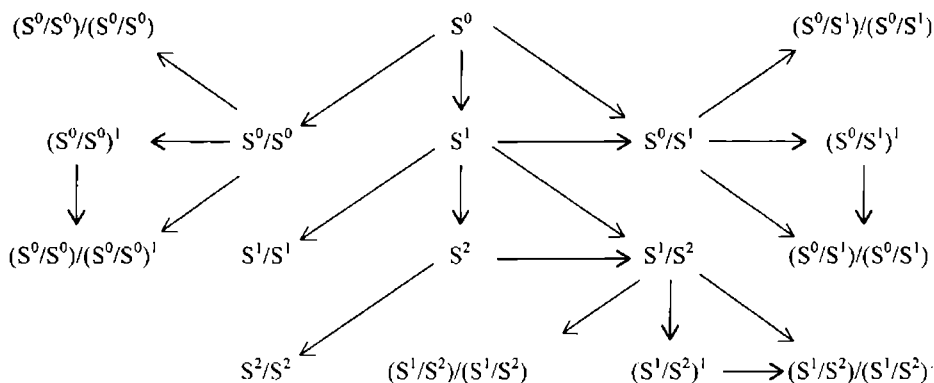


Figure 3. The Syntactic Category Tree (Partial)

In Figure 3, the root node of the tree, at top centre, is the Initial Category  $S^0$ . Arrows lead from nodes representing syntactic categories to other nodes representing other syntactic categories that are derived from them by application of a Category-Formation Operator.

With its arrows leading from category to category, the above tree diagram points towards the following definitions:

#### K Parent and Ancestor Syntactic Categories

1. For any syntactic category X, the parents of X are the categories from which X is formed by a single application of a Category-Formation Operator.
  - a. If X is the Kernel Category of Y, for some Y, then Y is the parent of X.
  - b. If X is of form Y/Z, for some Y and Z, then Y and Z are the parents of X.
2. For any syntactic category X, the ancestors of X are the categories from which X is formed by one or more applications of Category-Formation Operators.

In terms of the Syntactic Category Tree in Figure 3, the parents of a category X are the nodes immediately dominating it, while the ancestors of X are the nodes simply

dominating it. For example, in accordance with (K1a),  $S^0$  is the single parent of  $S^1$ ;  $S^1$  is the single parent of  $S^2$ ;  $S^0/S^1$  is the single parent of  $(S^0/S^1)^1$ ; and so forth. Similarly, in accordance with (K1b),  $S^0$  and  $S^1$  are the two parents of  $S^0/S^1$ ;  $S^1$  and  $S^2$  are the two parents of  $S^1/S^2$ ;  $S^0/S^1$  and  $(S^0/S^1)^1$  are the two parents of  $(S^0/S^1)/(S^0/S^1)^1$ ; and so on.

Since the set of syntactic categories generated by the Category Formation rules in (G) is infinite, only a very small proportion of these categories will be of relevance to linguistic theory. In particular, the actual syntactic category inventory of any given language will be finite, and in fact very small. Accordingly, constraints on syntactic category inventories need to be imposed.

The most important constraint on syntactic category inventories across languages makes reference to the definition of Ancestor Category in (K) above; this constraint is given in (L) below:

*L The Ancestral Constraint on Syntactic Category Inventories*

For any language L:

If X is a syntactic category in L, then all X's ancestors are syntactic categories in L, of equal or greater productivity.

The Ancestral Constraint says that each individual language constructs its inventory of syntactic categories in accordance with (G), beginning with the Initial Category  $S^0$ , and then forming additional syntactic categories by means of the Slash and Kernel Operators. That is to say, a language selects its inventory by starting at the top of the Syntactic Category Tree and working its way down to a certain point, and then stopping. Or, to be more precise, tapering off. This is because once the inventory of open categories is established, the Category Formation rules may continue to apply, to produce closed categories of lesser and lesser degrees of productivity.

Some examples of syntactic inventories permitted by the Ancestral Constraint are given in (M) below:

*M Some Category Inventories permitted by the Ancestral Constraint*

1.  $\{S^0\}$
2.  $\{S^0, S^0/S^0\}$
3.  $\{S^0, S^1\}$
4.  $\{S^0, S^1, S^0/S^1\}$
5.  $\{S^0, S^0/S^0, S^1\}$
6.  $\{S^0, S^0/S^0, S^1, S^0/S^1\}$

However, many other inventories are excluded by the Ancestral Constraint. For example,  $\{S^0, S^0/S^1\}$  is not a possible inventory, since it does not include  $S^1$ , which is an ancestor to  $S^0/S^1$ . Similarly,  $\{S^0/S^0\}$ ,  $\{S^1, S^0/S^1\}$ , and  $\{S^0/S^0, S^1, S^0/S^1\}$  are not possible inventories, since they do not include  $S^0$ , which is an ancestor to each

of the categories in each of these inventories. In fact, since  $S^0$  is the Initial Category, it is an ancestor to all syntactic categories, which leads to the following corollary of the Ancestral Constraint:

N *Corollary of the Ancestral Constraint*

The Initial Category  $S^0$  is contained in the syntactic category inventory of every language.

However,  $S^0$  is the only syntactic category that is universal in this sense.<sup>13</sup>

The Ancestral Constraint establishes a correlation between the complexity of a syntactic category and its cross-linguistic distribution. The complexity of a syntactic category can be measured by the length of its derivational history, as reflected in the number of symbols in its name, and the height of the numerical indices. Equivalently, the complexity of a syntactic category can be gauged by its distance from the root node  $S^0$  in the Syntactic Category Tree. Thus, the Ancestral Constraint makes an intuitively appealing statement about the relationship between complexity and cross-linguistic distribution, namely: simpler categories will be more widespread, while more complex categories will occur less frequently in the languages of the world.<sup>14</sup>

However, the Ancestral Constraint alone is insufficiently restrictive; further constraints are required to restrict the class of possible syntactic category inventories. Imagine a language with the inventory in (M3), namely  $\{S^0, S^1\}$ . In such a language, no construction could contain expressions belonging to both of these categories: given the rules of Category Combination in (H), there is no way that expressions from these two classes could come together in a single construction. This clearly does not make sense. A similar problem arises with the inventory in (M5),  $\{S^0, S^0/S^0, S^1\}$ , as well as many other inventories permitted by the Ancestral Constraint. Hence the following additional constraint:

O *The Syntagmatic Constraint on Syntactic Category Inventories*

For any language L:

If X and Y are syntactic categories in L, then L must have constructions containing expressions belonging to both X and Y.

The Syntagmatic Constraint thus rules out syntactic category inventories that are disjoint, that is to say, contain categories which can never enter into any kind of construction together.<sup>15</sup>

An additional constraint on syntactic category inventories makes reference to the two kinds of categories defined in (J), and to the distinction between open and closed categories:



P *The Open-Category Constraint on Syntactic Category Inventories*

For any language L:

If  $X/Y$  is an open category in L, then  $X/Y$  is either a Modifier Category (i.e.  $Y$  equals  $X$ ) or an Argument Category (i.e.  $Y$  is the Kernel Category of  $X$ ).

The Open-Category Constraint says that Modifier Categories and Argument Categories are the two most important types of categories, in the sense that they alone can be open categories in any given language. All other categories can only be closed categories. So far, all of the examples of categories that have been discussed, or portrayed in Figure 3, have been either Modifier or Argument Categories. Some examples of categories belonging to neither of these two types are  $S^1/S^0$ ,  $S^0/(S^0/S^0)$ ,  $(S^0/S^0)/S^0$ , and many others; such categories, if present in a language, can only be closed.

Together, the Ancestral, Syntagmatic, and Open-Category Constraints define a set of permissible syntactic category inventories which different languages may choose from. The four simplest inventories permitted by these three constraints are listed in (Q) below:

Q *The four simplest Syntactic Category Inventories*

1.  $\{S^0\}$
2.  $\{S^0, S^0/S^0\}$
3.  $\{S^0, S^1, S^0/S^1\}$
4.  $\{S^0, S^0/S^0, S^1, S^0/S^1\}$

And these same four inventories are plotted onto the Syntactic Category Tree, by means of ovals, in Figure 4:

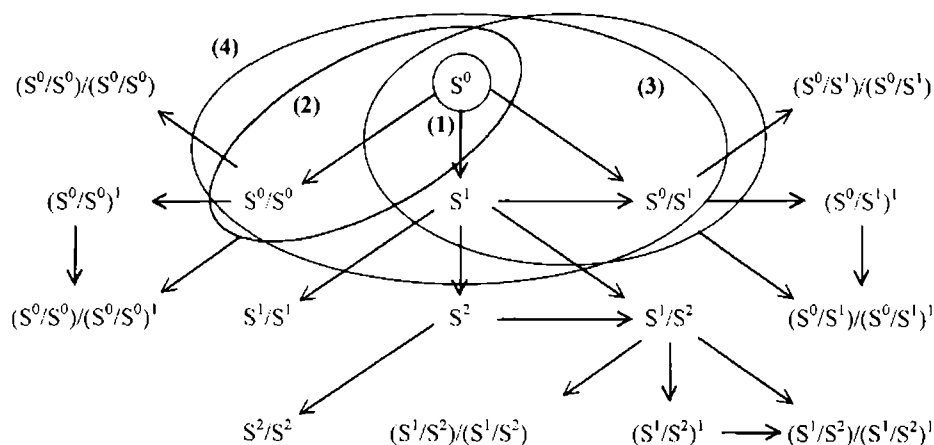


Figure 4. The Four Simplest Syntactic Category Inventories

## 4. Syntactic categories and linguistic typology

At this point, it would be appropriate to look at some real languages. Unfortunately, this is easier said than done. Languages do not wear their syntactic category inventories on their sleeves. An hour or two with a grammar book, or a few sessions with a native speaker, will reward the investigator with a pretty good indication of a variety of things such as inflectional categories, kinship terms, and other similarly visible features. Not so, however, syntactic categories.

As suggested in section 1, the appropriate question to ask is “What are the significant syntactic patterns in the language, and what are the categories that must be posited in order to enable the necessary generalisations to be stated?”. Thus, in order to determine the syntactic category inventory of a language, it is necessary, essentially, to construct a comprehensive description of the major syntactic patterns of the language in question. Only after one has “done” the language pretty much exhaustively can one then take one’s labour in hand and say: Here is a comprehensive description of the major syntactic patterns of the language, and these are the categories—some semantic, some morphological, others perhaps syntactic—which must be posited in order to capture the necessary generalisations. Conversely, in the absence of such a comprehensive description, it is very difficult to come to any meaningful conclusions with regard to the syntactic category inventory of a given language

This leads to what might be dubbed the “typologist’s dilemma”. Whereas some features—such as inflectional categories and kinship terms—can, without too much difficulty, be compared with a reasonable degree of consistency and reliability across a sample of tens or even hundreds of languages, other features are simply much less amenable to such large-scale cross-linguistic comparisons.

Consider, for example, Greenberg’s (1963) classic study titled “Some universals of grammar with particular reference to the order of meaningful elements”. Greenberg’s results provided the empirical basis for a whole new enterprise within linguistics, devoted to refining the word-order correlations that he observed, and explaining them in terms of more general principles—see, for example, Hawkins (1983, 1994), Li (1975), Tomlin (1986), Dryer (1992), Siewierska (1998), and many others. Yet in spite of their proven worth, Greenberg’s generalisations rest on shaky foundations. Take two languages, French and Malay, both characterised by Greenberg as belonging to the same “basic order type”, his “type 9”, with SVO word order, prepositions, noun-genitive and noun-adjective order. The similarity of these two languages with respect to Greenberg’s typology can be illustrated by means of a pair of parallel sentences in the two languages, in which the equivalent content words line up neatly one under the other, in the same order:<sup>16</sup>

(2)

## French

<i>Alain</i>	<i>lis-ait</i>	<i>le</i>	<i>livre</i>	<i>vert</i>	<i>dans</i>	<i>la</i>	<i>maison</i>	<i>de</i>	<i>Bertrand</i>
Alain	read-IMP:3SG	ART.DEF:SG.M	book	green-SG.M	in	ART.DEF:SG.F	house	of	Bertrand
			/						
S	V		O N	A	Prep		N		G
			\						
Aeen	read		book	green	LOC		house		Bobok
<i>Aeen</i>	<i>baca</i>		<i>buku</i>	<i>hijau</i>	<i>kat</i>		<i>rumah</i>		<i>Bobok</i>

## Malay

'Allan was reading the green book in Bill's house.'

Now obviously, there is a myriad of superficial and easily observable differences between French and Malay which Greenberg's typology ignores; for example the presence, in French, of subject-verb agreement, noun-adjective agreement, definite articles, and an overt possessive particle, all of which are lacking in Malay. But this is of necessity so, since all typologies, by their very nature, choose to focus on some parameters while ignoring others. The problem, however, is with the more profound, albeit less readily visible differences between French and Malay, which call into question the very underpinnings of Greenberg's typology. Consider, for example, the fact that both French and Malay are characterised as having N-A and N-G order. Whereas for French this constitutes a substantive observation with regard to the "serialisation" or "harmonisation" of what are, quite obviously, two formally distinct construction types involving adjectival and genitival attribution respectively, for Malay this observation is, arguably, of no substantive import whatsoever, since a reasonable case can be made that, say, *buku hijau* 'green book' and *rumah Bobok* 'Bobok's house' in (2) above are but two instantiations of a single more general type of construction involving nominal attribution. In other words, Malay may not distinguish between the categories which Greenberg labels as "A" and as "G". Or, consider the fact that both French and Malay are characterised as having SVO order. Whereas for French this seems relatively uncontroversial, for Malay, questions have been raised regarding the viability of the grammatical relations of subject and object—see, for example Alsagoff (1992) and Gil (1994, 1999, forthcoming c). The basic problem is this: Greenberg's universals are essentially a catalogue of translations, into various languages, of sentences such as *Allan was reading the green book in Bill's house*, and a tabulation of the order of constituents exhibited within these translations. However, such a large-scale cross-linguistic study cannot do otherwise than to rely on semantic categories. By default, the "Al-lan" word will be labelled "S", the expression meaning 'was reading' will get the label "V", the phrase corresponding to 'red book' will be characterised as an "O",

and so forth. Greenberg could only have made use of the best grammatical descriptions that were available to him; however, most grammatical descriptions automatically assign words and phrases to syntactic categories on the basis of their meanings. (This point has already been made by several scholars, including Croft (1991) and Dryer (1992).) Thus, when the Malay sentence emerges with the order of meaningful elements as shown in (2) above, it is classified together with French as having SVO word order, prepositions, N-G and N-A order. This in spite of the fact that a more adequate—and less Eurocentric—description of the language might very well reveal it to have neither S, V or O, and neither N, G or A.

In an ideal world, the typologist would have at his or her disposal a library full of grammatical descriptions, each adhering to a standard of rigour in which each and every grammatical category that is invoked—word, noun, agent, subject, topic, whatever—is explicitly motivated within the language being described. However, until the state of the art of linguistic description attains those very high standards, there will remain certain linguistic features which, because of their abstract and non-obvious nature, the typologist will be unable to compare in an adequate fashion across a wide range of languages. And among such features are the syntactic categories which form the topic of this paper.

At the present time, it is thus simply not feasible to examine the syntactic category inventories of a large sample of languages, and on such basis to propose and support an empirically-grounded linguistic typology pertaining to syntactic category inventories. Instead, one has to make do with much less. Accordingly, in what follows, a number of hypothetical, albeit hopefully realistic abstract language types are proposed, to which actual languages may, in future work, be shown to conform.<sup>17</sup>

Each language type is defined in terms of three properties, listed from left to right. In the first column, the syntactic category inventory is specified, in a vertical list. In the second column, each syntactic category is characterised as either open or closed. And in the third column, some of the syntactic categories are related, via prototypical rules of association, to one or more semantic categories, indicated in small caps.<sup>18</sup>

The first three language types are presented in (R1-3):

- |   |                                   |      |          |
|---|-----------------------------------|------|----------|
| R | 1. <i>Type 1</i>                  |      |          |
|   | a. S <sup>0</sup>                 | open | —        |
|   | 2. <i>Type 2</i>                  |      |          |
|   | a. S <sup>0</sup>                 | open | ACTIVITY |
|   | b. S <sup>0</sup> /S <sup>0</sup> | open | THING    |

3. *Type 3*

a. $S^0$	open	—
b. $S^1$	open	ACTIVITY
c. $S^0/S^1$	open	THING

Types 1, 2 and 3 above instantiate the three syntactic category inventories indicated in (Q1–3) and represented with three of the four ovals in Figure 4. Type 1 possesses the smallest inventory, with just a single syntactic category, while Types 2 and 3 are associated with increasingly larger, albeit still rather small inventories.

In Type 1 languages, all words and phrases belong to  $S^0$ ; that is to say, all words and phrases exhibit the same syntactic behaviour. At present I am not familiar with any realistic candidates for Type 1 languages. However, as suggested below, Type 1 is closely approximated by Tagalog and Malay/Indonesian, which deviate from it only minimally, by the possession of an additional closed syntactic category.<sup>19</sup>

In Type 2 languages, there is a basic distinction between two open syntactic categories: one,  $S^0$ , which typically contains expressions denoting activities, the other,  $S^0/S^1$ , which generally consists of expressions referring to things. Type 2 is perhaps that which most closely reflects the properties of languages such as Warlpiri, Lakhota, and Mohawk, which have been characterised by Jelinek (1984), Van Valin (1985), Baker (1996) and others as “pronominal argument” languages.

In Type 3 languages, there is also a dichotomy between activity expressions and thing expressions; however, this dichotomy manifests itself in a rather different way. In Type 3 languages there are three distinct open categories. One,  $S^1$ , typically contains expressions denoting activities; the second,  $S^0/S^1$ , usually consists of expressions denoting things; while the third,  $S^0$ , generally comprises complex expressions formed from expressions of categories  $S^1$  and  $S^0/S^1$ . Type 3 perhaps comes closer than the preceding two types to capturing some of the essential properties of many European languages.

Languages of Types 1, 2 and 3 may be distinguished from each other with respect to a number of salient features. One is the ability of single words to stand alone, as a complete, non-elliptical sentence, in a wide range of contexts:

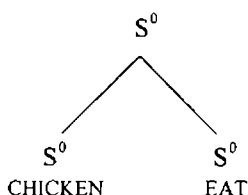
- S
1. Type 1 languages: all words can stand alone
  2. Type 2 languages: some words, typically denoting activities, can stand alone
  3. Type 3 languages: few or no words can stand alone

In languages of Type 1, all words, as  $S^0$ s, can stand alone as a complete, non-elliptical sentence. The ability of words denoting things, in particular, to stand alone, would appear to be rather uncommon cross-linguistically, though it has been observed for some languages, including Tagalog (Gil 1993b, 1995), Riau Indonesian (Gil 1994) and Singlish (Gil forthcoming a). In languages of Type 2, activity words typically are  $S^0$ s, while thing words generally are not; hence, in

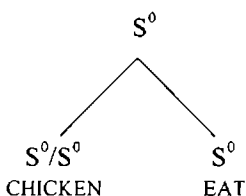
Type 2 languages, activity words can usually stand alone as a complete sentence while thing words generally cannot. This is in fact the typical situation in languages that have been characterised as “pro-drop”, such as Mandarin (Huang 1984) and Hebrew (Borer 1984). Finally, in languages of Type 3, neither activity words nor thing words are generally members of  $S^0$ ; hence, the class of words that can stand alone as a complete sentence is either small or non-existent. This is the typical situation for languages that have been characterised as not exhibiting “pro-drop”, for example English. Note that in accordance with the present analysis, “pro-drop” is actually a misnomer: rather than containing an empty syntactic position occupied by a phonologically null pronoun, the constructions in question simply have nothing.<sup>20</sup>

A second important feature distinguishing languages of Types 1, 2 and 3 is the structure of basic constructions combining a thing expression with an activity expression. (T) below shows how a simple sentence such as *The chicken is eating*—recall Tagalog sentence (1) at the beginning of the paper—might be rendered into languages of these three types:

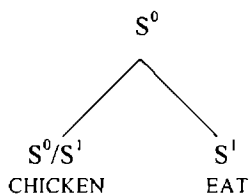
(T)1. *Type 1 languages*: Identity Combination



2. *Type 2 languages*: Slash Combination: modifier plus modified



3. *Type 3 languages*: Slash Combination: argument plus kernel



In Type 1 languages, all expressions are  $S^0$ 's; therefore, the only available construction type is that formed by Identity Combination. In Type 1 languages, then, there is no dedicated syntactic structure for expressions with meanings such as 'the chicken is eating', which would distinguish them from expressions with meanings such as 'the chicken which is eating', 'the chicken and the eating', and many others. All these different meanings are expressed via the single available construction type, that indicated in (T1) above.<sup>21</sup>

In Type 2 languages, expressions referring to things are prototypically associated with the Modifier Category  $S^0/S^0$ . Accordingly, in constructions such as (T2), the thing expression is a modifier of the activity expression, which, in accordance with (I2), is the head of the construction. In such languages, then, sentences such as 'the chicken is eating' are of similar structure to sentences such as 'here (it) is eating' and 'today (it) is eating', in which the head activity expression is modified by other adjunct expressions, denoting a place or time.

In Type 3 languages, expressions referring to things are prototypically associated with the Argument Category  $S^0/S^1$ , while expressions referring to activities are prototypically associated with the category  $S^1$ . Thus, in constructions such as (T3), the thing expression is an argument of the activity expression which, once again, is the head of the construction. In languages such as these, then, the structure of sentences such as 'the chicken is eating' bears a closer resemblance to that generally posited for such sentences within most traditional theories of syntax.

In conjunction, the three structures represented in (T) above provide a vivid reflection of the Autonomy of Syntax, and the independence of syntactic and semantic categories. Take the expression EAT. Whereas in Type 1 and 2 languages it is an  $S^0$ , in languages of Type 3 it belongs to a different category, namely  $S^1$ . This corresponds to the fact, noted previously in (S), that an activity word can stand alone as a complete sentence in languages of Types 1 and 2 but not 3. Now look at CHICKEN. This same word belongs to three different categories in each of the three language types: in Type 1 languages it is an  $S^0$ , in Type 2 languages an  $S^0/S^0$ , and in Type 3 languages an  $S^0/S^1$ . These three categories reflect its different syntactic behaviour, as a simple juxtaposed expression in Type 1 languages, a modifier in Type 2 languages, and an argument in Type 3 languages. Given the Autonomy of Syntax and the independence of syntactic and semantic categories, it is only natural that words with the same meanings will, in different languages, exhibit different syntactic behaviour, and hence be associated with different syntactic categories.

However, once the autonomy of syntactic categories is duly acknowledged, it is possible to focus on the ways in which syntactic categories are actually related to semantic categories, by means of prototypical rules of association. We begin with a definition:

U *Semantically associated Syntactic Categories*

A semantically associated syntactic category is a syntactic category which, in a certain language, is prototypically associated with a particular semantic category.

Although the term “semantically associated syntactic category” is unfamiliar and somewhat awkward, it sets the stage for some new definitions of two more traditional terms:

- V 1. A Verb-Phrase (or VP) is a syntactic category which, in a certain language, is prototypically associated with the semantic category of activity.  
2. A Noun-Phrase (or NP) is a syntactic category which, in a certain language, is prototypically associated with the semantic category of thing.

In accordance with the above definition, VPs and NPs are not syntactic categories *per se*; rather, they are semantically associated syntactic categories, that is to say, syntactic categories which happen to be prototypically associated with semantic categories in a certain language.<sup>22</sup>

Since Type 1 languages have only one syntactic category, they obviously do not have dedicated syntactic categories for activities and things; hence, such languages do not have VPs and NPs. In contrast, Type 2 and 3 languages do have distinct syntactic categories prototypically associated with activities and things; accordingly, they can be said to have VPs and NPs. However, the VPs and NPs are not the same in these two language types. Specifically, whereas VPs are  $S^0$ 's in Type 2 languages, they are  $S^1$ 's in Type 3 languages; similarly, whereas NPs are  $S^0/S^0$ 's in Type 2 languages they are  $S^0/S^1$ 's in Type 3 languages. As this shows, then, VPs and NPs are not always the same syntactic categories: this reflects the fact that in different languages, VPs and NPs may exhibit different syntactic behaviour.

The definition of semantically associated syntactic categories such as VP and NP is reminiscent of the way in which grammatical relations such as subject and object are defined in terms of clusterings of features, some syntactic (e.g. order, control of agreement, licensing of reflexives), others semantic or pragmatic (e.g. thematic roles, referentiality, topicality)—see, for example, Keenan (1976), Comrie (1981) and Croft (1991). More specifically, the way in which languages of Types 2 and 3 with distinct NPs and VPs differ from languages of Type 1 (and its variant Types  $1^+$  and  $1^{++}$ ) with no NP-VP distinction is analogous to the way in which languages with well-defined grammatical relations of subject and object differ from languages in which such grammatical relations have been argued not to be viable—see, for example, Schachter (1976), Gil (1984) and Kibrik (1997). Specifically, in both cases, features belonging to different syntactic and semantic levels cluster together and undergo grammaticalisation in some languages while remaining disassociated in others.<sup>23</sup>



To this point, we have considered only language types which consist entirely of open categories. Let us now examine two further types of languages containing combinations of open and closed categories:

- W 1. *Type 1<sup>-</sup>*
- |    |                                |        |   |
|----|--------------------------------|--------|---|
| a. | S <sup>0</sup>                 | open   | — |
| b. | S <sup>0</sup> /S <sup>0</sup> | closed | — |
2. *Type 1<sup>++</sup>*
- |    |                                |        |        |
|----|--------------------------------|--------|--------|
| a. | S <sup>0</sup>                 | open   | —      |
| b. | S <sup>1</sup>                 | closed | NUMBER |
| c. | S <sup>0</sup> /S <sup>1</sup> | closed | UNIT   |

As suggested informally by their names, Types 1<sup>+</sup> and 1<sup>++</sup> closely resemble Type 1. Like Type 1, they contain a single open syntactic category, S<sup>0</sup>. However, they differ from Type 1 in the presence of one or two additional closed syntactic categories. In fact, the closed syntactic categories in Types 1<sup>+</sup> and 1<sup>++</sup> are the same as the additional open syntactic categories in Types 2 and 3 respectively. Thus, abstracting away from the distinction between open and closed categories, Type 1<sup>+</sup> has the same inventory of syntactic categories as Type 2, and Type 1<sup>++</sup> the same inventory as Type 3.

In a number of previous publications, I have argued that Type 1<sup>+</sup> provides the most adequate characterisation of the syntactic patterns of two Austronesian languages, Tagalog (Gil 1993a, 1993b, 1995) and Malay/Indonesian (Gil 1994). And work in progress on various mainland Southeast Asian languages such as Thai and Vietnamese tentatively suggests that they may approximate Language Type 1<sup>++</sup>.

Let us now take a closer look at the Riau dialect of Indonesian.<sup>24</sup> As a Type 1<sup>+</sup> language, it has one open category, S<sup>0</sup>, and one closed syntactic category, S<sup>0</sup>/S<sup>0</sup>. Following, in (3) and (4) below, is a fragment of the lexicon of Riau Indonesian:

(3) *A partial lexicon of Riau Indonesian: S<sup>0</sup> words*

- |    |                  |    |                 |    |                   |
|----|------------------|----|-----------------|----|-------------------|
| a. | orang            | b. | buku            | c. | rumah             |
|    | person           |    | book            |    | house             |
| d. | hijau            | e. | besar           | f. | lapar             |
|    | green/blue       |    | big             |    | hungry            |
| g. | lari             | h. | baca            | i. | kasi              |
|    | run              |    | read            |    | give              |
| j. | Kairil           | k. | Pekanbaru       | l. | Lebaran           |
|    | [name of person] |    | [name of place] |    | [name of holiday] |
| m. | abang            | n. | aku             | o. | ini               |
|    | elder.brother    |    | 1SG             |    | DEM:PROX          |

p.	gini like-DEM:PROX	q.	sini LOC-DEM:PROX	r.	tadi PAST:PROX
s.	tiga three	t.	semua all	u.	lain other
v.	apa what	w.	mana where/which	x.	kapan when
y.	ada exist	z.	punya have	aa.	bisa can
bb.	sudah PERF	cc.	paling SUPERL	dd.	tak NEG
ee.	lagi also/more/again/ next/FUT/CONTR	ff.	sendiri only/alone/SUPERL/ REFL/CONTR	gg.	sama with/and/ same/NON.ABS

(4) *A partial lexicon of Riau Indonesian: S<sup>0</sup>/S<sup>0</sup> words*

a.	dari from	b.	untuk for	c.	supaya for
d.	ke to	e.	tentang about	f.	gara-gara because:ADVERS
g.	pada COMP	h.	kalau TOP	i.	dengan with/and/by
j.	tiap every	k.	tapi but	l.	atau or
m.	yang REL	n.	si PERS	o.	tukang AGENT
p.	la CONTR	q.	do NEG.POL	r.	kek UNCERT
s.	pula also/CONTR	t.	pun also/even	u.	diri REFL
v.	hari PHENOM	w.	kok CONTR	x.	e ADVERS

Almost all words in Riau Indonesian belong to S<sup>0</sup>; (3) presents just a very small sample thereof. As evident from the above, S<sup>0</sup> words in Riau Indonesian may denote things, as in (3a–c); properties, as in (3d–f); or activities, as in (3g–i). In addition, S<sup>0</sup> words may be names of people, places or times, as in (3j–l); deictic, as in (3m–r); quantificational, as in (3s–u); or interrogative, as in (3v–x). Finally, S<sup>0</sup> words may have a variety of meanings which, in most other languages, are typically

expressed by means of various grammatical markers; these include existence, as in (3y); possession, as in (3z); ability, as in (3aa); aspect, as in (3bb); superlativity, as in (3cc); negation, as in (3dd); and various macrofunctional words, as in (3ee), (3ff) and (3gg).

As  $S^0$ 's, almost all words in Riau Indonesian exhibit identical syntactic behaviour. In particular, there are no syntactic differences between words referring to activities and words referring to things. As  $S^0$ 's, almost all words can occur readily as a complete non-elliptical sentence in a wide range of contexts; moreover, any  $S^0$  word can combine with any other  $S^0$  words, in accordance with the rule of Identity Combination in (H1), to yield a multi-word  $S^0$  expression, and so on recursively. Thus, any string of  $S^0$  words, with any associated constituent structure, is syntactically well-formed—though it may turn out to be semantically anomalous.

Whereas a Type 1 language would stop here, Riau Indonesian goes one step further, introducing a closed Modifier Category of  $S^0/S^0$  expressions. While the list in (3) represents a tiny proportion of the  $S^0$  words in the language, the list in (4) actually includes a large proportion of the existing  $S^0/S^0$  words—work in progress suggests that the total number of  $S^0/S^0$  words in Riau Indonesian will not exceed a few dozen. As evident from the list in (4),  $S^0/S^0$  expressions are a very mixed bag semantically: if any generalisation can be made, it is that their meanings are all of an abstract nature. Interestingly, many  $S^0/S^0$  expressions in (4) correspond closely in their meanings to other  $S^0$  expressions in (3). For example, the wide range of functions of *dengan* in (4i) is subsumed within the even wider range of functions of *sama* in (3gg); the universal quantifier *tiap* in (4j) is the distributive counterpart of the non-distributive universal quantifier *semua* in (3t); the operator *pun* in (4t) overlaps in its range of meanings with the operator *lagi* in (3ee); and the reflexive *diri* in (4u) is a hyponym of the macrofunctional *sendiri* in (3ff). The only motivation for the  $S^0/S^0$  category is thus syntactic: as suggested by their category name, members of  $S^0/S^0$  cannot stand by themselves as complete sentences; rather, they must occur in construction with expressions belonging to the category of  $S^0$ .<sup>25</sup> In Riau Indonesian, then, the category  $S^0/S^0$  may be characterised as the category which contains the “grammatical markers” of the language.

Recall, now, that the Modifier Category  $S^0/S^0$  is one that is shared by languages of Types 1<sup>-</sup> and 2. However, whereas in Type 1<sup>+</sup> languages this category contains a small set of semantically heterogeneous grammatical markers, in Type 2 languages it is an open category, prototypically associated with things—in other words, an NP category. Thus, the contrast between the category  $S^0/S^0$  in Type 1<sup>+</sup> and Type 2 languages further underscores the independence of syntactic categories, underlying the syntactic behaviour of linguistic forms, from semantic categories, pertaining to their meanings.

Type  $1^{++}$  languages resemble their Type  $1^+$  counterparts in that almost all words and larger expressions belong to the single open syntactic category  $S^0$ , while just a small residue of expressions do not. However, in Type  $1^{++}$  languages, this residue in turn divides into two distinct closed syntactic categories,  $S^1$  or  $S^0/S^1$ . Expressions belonging to  $S^1$  can only occur in construction with expressions belonging to  $S^0/S^1$ , which function as their arguments; in such cases, the result is an expression belonging to the category  $S^0$ . In principle one could imagine a variety of different closed-class categories fitting the above bill. As defined in (W2) above,  $S^1$  contains a set of quantificational and/or determinative elements, which can only occur in construction with another set of elements, commonly referred to as numeral classifiers. Work in progress suggests that this language type may provide an adequate characterisation of various mainland Southeast Asian languages such as Thai and Vietnamese.

The language types considered so far have all been rather frugal in their inventories of syntactic categories. However, it is possible to imagine languages with much richer inventories. A full exploration of the possibilities lies beyond the scope of this study. One illustrative example may, however, be briefly considered:

*X A more elaborate language type*

1. $S^0$	open	—
2. $S^1$	open	ACTIVITY
3. $S^0/S^1$	open	THING
4. $(S^0/S^1)/(S^0/S^1)$	open	PROPERTY
5. $S^0/S^0$	open	TIME, PLACE, MANNER
6. $S^1/S^1$	open	TIME, PLACE, MANNER
7. $(S^0/S^0)/(S^0/S^1)$	closed	—
8. $(S^1/S^1)/(S^0/S^1)$	closed	—
9. $S^1/(S^0/S^1)$	closed	—

The above language type begins with the three categories of Type 3,  $S^0$ ,  $S^1$ , and  $S^0/S^1$ . Unlike Type 3, however, it has an additional syntactic category,  $(S^0/S^1)/(S^0/S^1)$ , prototypically associated with the semantic category of property. This points towards the definition of another semantically associated syntactic category, beyond the two defined previously, in (V):

**Y** An Adjective-Phrase (or AP) is a syntactic category which, in a certain language, is prototypically associated with the semantic category of property.

In languages of the above type, then,  $(S^0/S^1)/(S^0/S^1)$  is the syntactic category of AP. Such languages thus contrast with the previous types, in which there is no category of AP.<sup>26</sup>

The next two syntactic categories in the above language type,  $S^0/S^0$  and  $S^1/S^1$ , are prototypically associated with the semantic categories of time, place and manner, thereby suggesting the definition of a fourth semantically associated syntactic category:

- Z An Adverb-Phrase (or AdvP) is a syntactic category which, in a certain language, is prototypically associated with the semantic category of time, place or manner.

The two categories,  $S^0/S^0$  and  $S^1/S^1$ , differ with regard to the constructions into which they may enter: whereas  $S^0/S^0$  contains sentential AdvPs, which modify  $S^0$  expressions,  $S^1/S^1$  consists of VP AdvPs, which modify  $S^1$  expressions.<sup>27</sup>

The next two syntactic categories in (X) above,  $(S^0/S^0)/(S^0/S^1)$  and  $(S^1/S^1)/(S^0/S^1)$ , are closed categories, containing expressions whose function is to convert  $S^0/S^1$ s, which in this language type are NPs, to either  $S^0/S^0$ s or  $S^1/S^1$ s, which, as mentioned in the preceding paragraph, are AdvPs. These two categories contain a small class of expressions of the kind commonly referred to as “adpositions”.<sup>28</sup> Finally, the last syntactic category,  $S^1/(S^0/S^1)$ , is a closed category, containing expressions whose function is to convert  $S^0/S^1$ s, or NPs, to  $S^1$ s, or VPs. This category contains expressions which are usually referred to as “copulas”.

Many additional, even more elaborate language types can readily be defined, possessing a variety of different syntactic category inventories, associated in different ways with semantic categories. Such language types, then, would hopefully provide the basis for a more adequate account of the diverse syntactic patterns exhibited by the languages of the world.

## 5. Towards universality

In conclusion, let us now return to the Tagalog sentence in (1) with which this article commenced: *manok ang kumakain* ‘The chicken is eating’. As argued in the preceding section, words with similar meanings may belong to different syntactic categories in different languages. Thus, as suggested in the introduction to this paper, even though *manok* ‘chicken’ is the name of a thing, it is not an NP; similarly, even though *kumakain* ‘is eating’ denotes an activity, it is not a VP. Rather, as claimed in section 4, Tagalog is a Type 1<sup>+</sup> language, with but a single open syntactic category  $S^0$ , containing—inter alia—both items, *manok* and *kumakain*. Accordingly, the syntactic structure of sentence (1) involves the juxtaposition of two  $S^0$ s, in accordance with the rule of Identity Combination, as represented in (T1).

The theory of syntactic categories proposed in this paper thus provides the necessary tools for escaping Eurocentricity, and breaking out of the straitjacket of approaches within which "If it refers to a thing, well then it must be a noun". In doing so, it shows how languages may differ with respect to their inventories of syntactic categories to a much greater degree than is usually assumed, or than is generally allowed for within most current frameworks.

But can they differ without bound? Sapir (1921: 119) seemed to be edging towards an affirmative answer when he wrote that "no logical scheme of the parts of speech—their number, nature and necessary confines—is of the slightest interest to the linguist. Each language has its own scheme." A similar view would appear to be held by Croft (1991: 42), who argues that within a "structural" (i.e. syntactic, as opposed to semantic) approach "no adequate cross-linguistic definition of a syntactic category is possible since the grammatical manifestations of syntactic categories are so varied across languages."

However, the theory of syntactic categories put forward in this paper points to a different answer: languages cannot differ in unlimited ways with respect to their syntactic categories. Although highlighting cross-linguistic variation, the theory provides a unitary framework within which syntactic categories can be meaningfully compared across languages. To cite just one example, it is possible, within the present theory, to claim that a small set of semantically heterogeneous items in Riau Indonesian (Type 1\*) exhibit the same distributional privileges as an infinite set of expressions referring to things in, say, Warlpiri (Type 2); and, on this basis, to assign both sets of expressions, notwithstanding their different sizes and prototypical meanings, to the same syntactic category, namely  $S^0/S^0$ . Thus, the theory provides for a universal set of syntactic categories from which all languages must draw. Moreover, although different languages may draw from this set in different ways, possible inventories of syntactic categories are governed by universal constraints to which all languages, without exception, must adhere.

In order to arrive at a universal theory of syntactic categories, it is first necessary to construct comprehensive syntactic descriptions of a wide range of languages, each dealt with on its very own terms. Such descriptions will, for each language, provide motivation for a set of syntactic categories, facilitating the formulation of generalisations governing the observable syntactic patterns within that language. Once these descriptions are complete, the inventories of syntactic categories posited for each language can be put side by side and compared, in the quest for differences and commonalities. Thus, the escape from Eurocentricity becomes the first essential step towards the discovery of a truer universality.

## Notes

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1. Note that even Alice didn’t get it quite right, listing only five of the six forms—missing the ablative.
  2. Although the distinction between nouns (or NPs) and verbs (or VPs) is generally considered to be of a fundamental nature, claims have occasionally been made to the effect that this distinction is lacking in certain languages, most famously Nootka—see Swadesh (1939). However, such claims have been disputed, for example by Jacobsen (1979), and it would probably be true to say that most syntacti-

cians now take the noun-verb (or NP-VP) distinction to be universal, indeed a necessary design-feature of language.

3. Although the term "autonomy" has been co-opted by Generative Grammar, cf. Chomsky (1986b), the substance of the autonomy claims, as outlined in (A3), effectively cross-cuts any division of the field into "generative and non-generative" camps, with theories on either side of the would-be divide identifying with these claims to varying degrees.
4. The three-way division between semantics, morphology and syntax is of course an oversimplification, motivated by ease of exposition; in a more detailed account, each of these three levels might be decomposed into several others. In particular, the term "semantics", as used here, is understood very broadly, to include also aspects of meaning which are more properly subsumed under pragmatics.
5. Although it does not always seem that way in practice, this is in fact the orthodox generative position on the relationship between semantics and syntax. Thus, for example, Kiparsky (1968: 48) writes that "progress in linguistics should consist in reducing the abstract part of language, the part consisting of the various theoretical constructs which must be set up to mediate between the concrete levels of phonetics and meaning, the only aspects of language which can be directly observed." Indeed, the only way to really show that there exists an autonomous syntax in the classical generative sense is try to do away with as much of it as is possible, by providing alternative semantic explanations. What is left (if anything), after that is done, will then be the *real* autonomous syntax. Unfortunately, many practicing generative syntacticians misinterpret the autonomy hypothesis, taking it instead as a license to construct syntactic explanations of phenomena whose nature is clearly semantic rather than syntactic.
6. In Figure 2, the letters "C" represent the three consonants of the root morpheme: the inflectional paradigm consists of the prefixes, the affixes, and the intercolated vowels. Figure 2 abstracts away from various formal complications involving so-called "defective" roots, those whose consonants belong to particular classes triggering a variety of morphophonemic rules.
7. In addition to the above two cases, there are additional ways in which properties belonging to different levels may define coextensive sets. One additional case involves coextensive semantic and morphological categories. For example, in Tagalog, the semantic category of expressions denoting natural numbers is coextensive with the morphological category of expressions which may occur in construction with the distributive prefix *tig-*, containing *isa* 'one', *dalawa* 'two', *tatlo* 'three', and so forth (see Gil 1982a for discussion of this construction, a morphological counterpart of the periphrastic German *je* construction considered above). Another additional case involves coextensive semantic, morphological and syntactic properties. For example, in Japanese, the morphological class of expressions containing classifier suffixes (*-ko*, *-hon*, *-nin* etc.) such as *itiko* 'one-CL', *nihon* 'two-CL', *sannin* 'three-CL' and so forth is coextensive with the semantic class of expressions denoting natural numbers, which in turn is coextensive with the syntactic class of



expressions which may occur in postmodifying position, as, for example, in *hana itiko* 'flower one-CL', *pen nihon* 'pen two-CL', *otoko sannin* 'child three-CL'.

8. More interesting, however, are the basic categories Noun, Adjective and Verb and their phrasal projections NP, AP and VP. Most commonly, such categories are defined by a combination of semantic and syntactic properties. The status of such categories is considered in section 4 below.
9. In (H), and subsequently, square brackets denote unordered sets; that is to say, syntactic constituents whose internal parts are unspecified for linear order.
10. It is probably not a coincidence that a Polish-speaking logician opted for two Initial Categories while the English-speaking tradition posits a third. Specifically, the additional Initial Category in Montague's system, N, is in fact one for which there is considerably more *prima facie* support in English than in Polish. In English, count nouns cannot readily occur in argument position without a determiner; this fact is often argued to support a distinction between the syntactic categories N and NP. In contrast, in Polish, all nouns can occur by themselves, in argument position, as complete NPs, thereby eliminating the most obvious motivation for the distinction between Ns and NPs. Thus, Ajdukiewicz's logic follows his native language, while Montague's logic reflects his—even though both were proposing purely formal systems, and not attempting to describe actual languages, their own or others'.
11. A corollary of the above definitions is that within the present theory there is no distinction between lexical and non-lexical, or phrasal categories. Specifically, all categories can contain both words and longer, multi-word expressions.
12. Thus, in constructions such as  $Y \leftrightarrow [X, X/Y, X/Y, X/Y \dots]$ , the head of the Y expression is a member of the Kernel Category of Y. This underscores the affinity between the Kernel Category-Formation Operator and the mirror-image bar operator of X-bar theory.
13. The Ancestral Constraint thus provides the primary motivation for turning X-bar theory upside down, as is done with the Kernel Operator. Assume X and Y are categories such that X is the Kernel Category of Y. What the Ancestral Constraint says is that there can be languages with Y but not X, but not languages with X but not Y. Or, translated into X-bar theory: there can be languages with  $X^{n+1}$ 's but not  $X^n$ 's, but not languages with  $X^n$ 's but not  $X^{n+1}$ 's. And as a corollary: there can be languages with XPs but not Xs, but not languages with Xs but not XPs. Thus, beginning at the top, as the Kernel Operator does, rather than at the bottom, as per X-bar theory, reflects the cross-linguistic distributional facts, with more widespread syntactic categories associated with lower indices than less commonly occurring categories.
14. It may be speculated that the complexity of syntactic categories is a reflection also of ontogeny, simpler categories being acquired before more complex ones. Thus, for example, at the one-word stage, all words would belong to the category  $S^0$ , this being the only syntactic category in the child's inventory at this stage (see also Note 19 below). Somewhat more adventurously, one might also conjecture that the com-

plexity of syntactic categories mirrors phylogeny, and the evolution of human language from simpler systems spoken by ancient humans or hominids.

15. The Syntagmatic constraint also rules out many other inventories that are, independently, ruled out also by the Ancestral Constraint, such as  $\{S^0, S^0/S^1\}$  and  $\{S^0/S^0, S^1, S^0/S^1\}$ . However, other inventories, such as  $\{S^0/S^0\}$  and  $\{S^1, S^0/S^1\}$ , satisfy the Syntagmatic Constraint but are ruled out by the Ancestral Constraint, thereby showing that these two constraints are logically independent.
16. Using the same abbreviations as Greenberg, "S" stands for "subject", "V" for "verb", "O" for "object", "N" for "noun", "A" for "adjective", "G" for "genitive", and "Prep" for "preposition". The Malay example is in the colloquial dialect of Kuala Lumpur, the capital city of Malaysia.
17. The various language types discussed in this paper do not constitute a privileged set in any theoretical sense; they are merely chosen from a much larger set of possible language types, for expository purposes. The absence of any deep significance to the choice of language types discussed is reflected by their rather unrevealing names: "Type 1", "Type 2", and so forth.
18. To say that a syntactic category and a semantic category are related via a prototypical rule of association is not equivalent to positing a mixed, semantic-syntactic category. In the case at hand, each of the two categories, the syntactic one and the semantic one, may have different extensions, resulting from the interplay of different prototypical properties. Nevertheless, the syntactic and semantic categories may overlap to a considerable degree, and the intersection of the two categories may contain the most prototypical members of each category. Such, in fact, may be argued to be the case for the English syntactic and semantic categories in Figure 1. Although the syntactic category of words which can occur in construction with *can*, *may*, *will* and *shall* and the semantic category of words denoting dynamic activities are independent, the intersection of these two categories arguably contains the forms that are the most prototypical members of both categories—in which case it might be concluded that these two categories are related by a prototypical rule of association. Accordingly, whereas the intersection of these two categories is a mixed semantic-syntactic category, the syntactic category of words which can occur in construction with *can*, *may*, *will* and *shall* is a pure syntactic category, which just happens to correlate, imperfectly and via a rule of prototypical association, with the semantic category of words denoting dynamic activities. Similarly, the categories listed in the first column are indeed pure syntactic categories, which also correlate prototypically with the distinct semantic categories listed in the third column.
19. However, as foreshadowed in Note 14 above, Type 1 provides a plausible characterisation for the earliest, one-word stage of child language, in which all words, by default, are associated with the same syntactic properties. Conceivably, it might also characterise the second, or two-word stage, in which words are put together in structures that may be much simpler and less differentiated than those of the corresponding target adult language. Of course, a possible Type 1 adult language would

differ from, say, Type 1 child English, in numerous other respects, one obvious one being the recursive application of the rule of Identity Combination in (H1).

20. The correlation between languages of Types 1, 2 and 3 and the ability of words to stand alone, as represented in (S), is probably an oversimplification: in reality, many other factors may play a role in determining the ability of a word to stand alone as a complete, non-elliptical sentence in a particular context. In particular, it is conceivable that in languages of Types 2 and 3, there might exist *real* "pro-drop" constructions which are analysable in the usual way, as involving a null element occurring in an empty syntactic position. However, the existence of such zero entities would have to be well-motivated on language-internal grounds, for example as a product of paradigmatic pressure.
21. However, these meanings may be distinguished, at least in part, through different assignments of headedness. Recall that in accordance with (I1), in a structure formed by Identity Combination, such as that in (T1), either of the two daughter constituents may be head, or the construction may remain headless. Thus, in (T), whereas assigning headedness to EAT yields the desired interpretation 'the chicken is eating', assigning headedness to CHICKEN results in the interpretation 'the chicken which is eating', while a headless version ends up with the interpretation 'the chicken and the eating'. These alternative assignments of headedness may or may not be reflected in the actual forms of the respective sentences in different languages. In some languages they are, corresponding to different morphological markings on each of the two expressions; this is in fact the case in Tagalog, which belongs to a similar language type, Type 1<sup>-</sup>—see (W) below. But in other languages they are not, as a result of which most sentences exhibit a very wide range of possible interpretations; this is the case in another Type 1<sup>+</sup> language, Riau Indonesian.
22. The above definitions differ in two important ways from the superficially similar definitions of "noun", "adjective" and "verb" proposed in Croft (1991). First, although Croft also defines his categories in terms of prototypical associations of features at different levels, his two levels are semantic (objects, properties, activities) and pragmatic (reference, modification, predication)—syntactic properties seem to play no role in his approach. Secondly, whereas Croft's categories are basically lexical, the semantically associated syntactic categories defined in (V) are—like the pure syntactic categories defined in the preceding section—neutral with respect to the distinction between lexical and phrasal.
23. From a quite different perspective, Carstairs-McCarthy (1998) argues convincingly that there is no *a priori* reason why languages should associate semantic categories with syntactic ones. Characterising the S-NP distinction as a grammaticalisation of the distinction between making statements and referring to things, he suggests that a language without such a distinction could fulfil the necessary communicative functions equally efficiently. To this end, he defines a hypothetical "Uniformitarian" language without distinct syntactic categories. However, he goes on to claim that such languages do not exist, and proposes an evolutionary explanation

for their absence; whereas in actual fact Tagalog and Riau Indonesian appear to provide two real examples of his hypothesised "Uniformitarian" language.

24. Riau Indonesian is the dialect of Malay/Indonesian spoken in informal situations by the inhabitants of Riau province in east central Sumatra. It is one of a wide range of colloquial varieties of Malay/Indonesian which are not mutually intelligible and which also differ substantially from the standardised versions of Malay and Indonesian that many general linguists have a passing familiarity with. Work in progress suggests that the characterisation of Riau Indonesian as a Type 1<sup>+</sup> language holds true, *mutatis mutandis*, for most or all of the colloquial varieties of Malay/Indonesian, including Kuala Lumpur Malay, which is the specific dialect of example (2) above.
25. The  $S^0/S^0$  expressions in Riau Indonesian may be further classified with regard to their linear order in relationship to their heads. Whereas the forms in (4a–o) obligatorily precede their head  $S^0$ 's, those in (4p–u) invariably follow it. Only the forms in (4v–x) may occur either before or after their head  $S^0$ 's.
26. One may now go back to Types 2 and 3 and ask what syntactic category property words belong to in these languages. Within each type, there are two possibilities: either property words group with activity words, as  $S^0$ 's in Type 2 or  $S^1$ 's in Type 3, or else they group with thing words, as  $S^0/S^0$ 's in Type 2 or  $S^0/S^1$ 's in Type 3. Accordingly, in the former case property words are VPs, while in the latter case they are NPs. These two possibilities thus yield a well-known typology, usually referred to as governing whether "adjectives are verby or nouny"—see Wetzter (1992, 1996) and Stassen (1997) for discussion. Of course, in addition to these two basic possibilities there is a third intermediate possibility, in accordance with which some property words group with activity words while others group with thing words.
27. In many languages, these two categories,  $S^0/S^0$  and  $S^1/S^1$ , may turn out to be co-extensive. In general, there is no reason why intensionally distinct categories should not be extensionally equivalent. An abbreviatory notation may be introduced which will provide a unitary name for a set of coextensive categories—by collapsing the similar symbols and listing the distinct indices. Thus, for example, in instead of saying that in Type 4 languages, AdvPs are  $S^0/S^0$  and  $S^1/S^1$ , one may say, simply, that they are  $S^{01}/S^{01}$ .
28. As in the preceding case, these two categories,  $(S^0/S^0)/(S^0/S^1)$  and  $(S^1/S^1)/(S^0/S^1)$ , are coextensive, and can accordingly be abbreviated as  $(S^{01}/S^{01})/(S^0/S^1)$ .

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# **When can a language have adjectives?**

## **An implicational universal**

Jan Rijkhoff

### **1. Introduction\***

Data from a representative sample of the world's languages indicate that adjectives only occur in languages in which the numeral is in a direct construction with a noun (that is, the numeral does not occur with a sortal classifier), but not vice versa. In my sample Hmong Njua is the only counterexample, but I will show that Hmong Njua classifiers have assumed other functions and that the language has developed some kind of regular number marking (which is unusual for a classifier language). This suggests that Hmong Njua does not use the kind of noun that is commonly employed in a classifier language. Ultimately I will argue that the occurrence of adjectives as a major word class is not so much related to the absence of classifiers, but rather depends on a semantic property of the nouns in that language. A language can only have adjectives if the nouns in that language are lexically specified for the feature [+Shape], which means that the properties that are designated by these nouns are characterised as having a spatial boundary.

### **2. Parts-of-speech systems**

It is generally acknowledged that not every language has a distinct class of adjectives (cf. Dixon 1982; Pustet 1989; Bhat 1994; Wetzer 1996; Stassen 1997). This can be due to two reasons: either the language does not clearly distinguish between adjectives and members of other major word classes (verbs, nouns) or the language simply lacks a distinct class of adjectives, in which case other means are used to express adjectival notions (like a relative clause headed by a stative verb or an adnominal NP headed by an abstract noun). This is clearly shown in the typology of parts-of-speech systems proposed by Hengeveld (1992).

Flexible	1	V/N/A		
	2	V	N/A	
Specialised	3	V	N	A
	4	V	N	—
	5	V	—	—

Figure 1. Parts-of-speech systems (based on Hengeveld 1992: 69)

Hengeveld's classification actually has seven types, because it also includes (manner) adverbs. Since adverbs are irrelevant in the present context I have collapsed three of Hengeveld's types (V–N–A/ADV, V–N–A–ADV, V–N–A) into one (Type 3: V–N–A) in Figure 1. In defining the word classes Hengeveld took as the starting point the function of a content word ("predicate") in a linguistic expression (Hengeveld 1992: 58):

A *verbal* predicate is a predicate which, without further measures being taken, has a predicative use *only*.

A *nominal* predicate is a predicate which, without further measures being taken, can be used as the head of a term.

An *adjectival* predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head.

An *adverbial* predicate is a predicate which, without further measures being taken, can be used as a modifier of a non-nominal head.

In certain languages some or all of the functions mentioned above are clearly distributed over distinct, non-overlapping groups of predicates (specialised languages; Types 3, 4, and 5); in other languages some or all of these functions can be performed by the same group of predicates (flexible languages; Types 1 and 2).

Samoan is an example of a language with extremely flexible predicates, since "[a]lmost any part of speech can be used as any other part of speech" (Churchward 1951: 126). Consider also the following citation from Mosel—Hovdhaugen (1992: 77, 73, 74):

Many, perhaps the majority of, roots can be found in the function of verb phrase and noun phrase nuclei and are, accordingly, classified as nouns and as verbs. ... This does not mean that a noun can be used as a verb or a verb as a noun or that we have two homophonous words, one being a noun and the other being a verb. Rather, it means that in Samoan the categorization of full words is not given a priori in the lexicon. It is only their actual occurrence in a particular environment which gives them the status of a verb or a noun. ... What is given in

the lexicon, is not a particular word class assignment, but the potential to be used in certain syntactic environments as a noun or a verb.<sup>1</sup>

Although certain full words seem to be used more as verb or more as a NP nucleus for semantic reasons, there are no lexical or grammatical constraints on why a particular word cannot be used in the one or the other function.

Most Samoan equivalents of English adjectives, particularly the typical ones, are full words which function not only as attributes, but also as a noun or verb phrase nucleus, for example, *lelei* "(be) good", *leaga* "(be) bad"; and conversely, all full words which function as noun and verb phrase nucleus can also be used as attributive modifiers.<sup>2</sup>

Thus, it is basically the presence of non-lexical elements that indicates what particular function such predicates fulfil. If a flexible predicate serves as the head of the clause, it will typically combine with tense/aspect/mood (TAM) particles; if it serves as the head of the term it will appear with an article, a preposition, etc.

Whereas Samoan has a single class of lexemes whose members combine the prototypical functions of verb, noun and adjective (V/N/A), the Australian language Ngiyambaa is said to have two major word classes: verbs and so-called "nominals" (i.e. V-N/A; Donaldson 1980: 68). The class of nominals includes nouns as well as lexemes that would be translated as adjectives in English. Although there is a morphological difference in that only a subclass of lexemes of the N/A type permits reduplication, this is attributed to ontological rather than linguistic factors (Donaldson 1980: 70-71):

Semantically, nominals are divided into two groups; those which are not subject to productive reduplication and those which are. When rejecting a reduplicated version of a nominal which cannot be reduplicated, Eliza Kennedy [a native speaker informant—JR] would explain: "Either it is that, or it isn't." It was therefore nonsensical to reduplicate, which is equivalent to prefacing the form with 'more-or-less' or 'somewhat'. Thus \**miri-miri* was rejected, because one cannot have a 'more-or-less dog', while *gi:dja-gi:djan* 'more-or-less green, greenish' is an acceptable form.

Nominals which do not reduplicate are normally translated by English nouns, and those which do undergo reduplication are normally translated by adjectives. The possibility of productive reduplication could be advanced as a formal criterion for similarly dividing Ngiyambaa nominals into two sub-classes, noun and adjective. But in Ngiyambaa there are no known further differences, morphological or syntactic, as between non-reduplicating and reduplicating nominals.

Syntactically, for instance, any nominal which can be a constituent of part of a NP can also be the sole representative of a NP ... *gi:djan* may translate as either 'green' or '(a/the) green one'. To introduce the term 'noun' and 'adjective' as synonyms for 'non-reduplicating' and 'reduplicating' would serve no descriptive purpose elsewhere in the grammar.

Dutch, on the other hand, does have a distinct class of adjectives according to Hengeveld's definition. Consider the following examples:<sup>3</sup>

- (1)        *een*     *groot<sub>A</sub>*     *huis<sub>N</sub>*  
               a        big        house  
               'a big house'

Members of other word classes like nouns or verbs require special treatment ("further measures") before they can modify the head noun (in (2a) the noun takes the adjectivalising suffix *-achtig* 'like'; in (2b) the verb appears in a participial form):

- (2)    a.    *een*        *jongen[s]<sub>N</sub>-achtig*        *gezicht*  
               a        boy[s]-like<sup>4</sup>        face  
               'a boyish face'
- b.    *een*        *hollen<sub>V</sub>-de*        *man*  
               a        run-PRES.PARTIC        man  
               'a running man'

The Australian language Kayardild also belongs to the third type (V-N-A) according to the definition above: it has verbs, nouns, and a major class of about one hundred adjectives, that is, words that "can normally only appear when qualifying an overt [NP] head. Thus in normal contexts *jungarra daliya* [big came] is unacceptable, as is *dathina jungarra daliya* [that big came]; an entity nominal like *dangkaa* 'person' is necessary, as in (*dathina*) *jungarra dangkaa daliya* '(that) big man came'" (Evans 1995: 234; cf. also Evans 1995: 238).

The Papuan language Galela (spoken on the island of Halmahera) is a clear example of language without a distinct class of adjectives (V-N). If we take the Galela equivalent of the English adjective 'big' *lamo* and let it function as a modifier of the noun, we must also add a third person pronoun. This is because in Galela this property is expressed through a verbal predicate ('be.big') whose sole argument must be explicitly expressed in the form of a pronominal element. Thus the whole phrase is rather like a subordinate clause. Furthermore, if used attributively, the first syllable of the verbal predicate in question is reduplicated, yielding the participial form (Van Baarda 1908: 35-36).

- (3)      *awi dòhu i lalamo*  
          his    foot   it   be.big:PARTIC  
          'his big foot'

Some languages without adjectives use abstract nouns in possessive constructions to express adjectival notions such as colour, shape, size, weight, age, value, human propensity (cf. Dixon 1982). Consider, for instance, this example from Hausa (Schachter 1985: 15):

- (4)      *mutum    mai       alheri/arzaki/hankali*  
          person   having   kindness/prosperity/intelligence  
          'a kind/prosperous/intelligent person'

I am not aware of an uncontroversial example of a language with only a major class of verbs, but the Iroquoian language Cayuga comes close to a Type 5 language (V). According to Sasse (1988, 1993) all predicates are basically verbal (although some are more restricted than others regarding the verbal morphology), but Mithun (this volume) contends that many forms that Sasse analyses as predication (with a verbal nucleus) are in fact nouns—at least functionally.

The fifty languages in Figure 2, which constitute a representative sample of the world's languages (cf. Rijkhoff et al. 1993), are all classified according to

Type 1	V/N/A	Samoan
Type 2	V-N/A	Hurrian, Imbabura Quechua
Type 3	V-N-A	Abkhaz, Alamlak, Basque, Berbice, Bukiyip (Mountain Arapesh), Burushaski, Dutch, Guaraní, Hittite, <b>Hmong Njua</b> , Hungarian, Ika, Kayardild, Ket, Nama Hottentot, Nasioi, Ngalakan, Ngiti, Oromo, Sumerian, Wambon
Type 4	V-N	Babungo, Bambara, <b>Burmese</b> , Chukchi, Galela, <b>Gilyak</b> , Gude, Hixkaryana, Kisi, Koasati, <b>Korean</b> , Krongo, Lango, <b>Mandarin Chinese</b> , <b>Nung</b> , Nunggubuyu, Pipil, Sarcee, Tamil, Tsou, <b>Vietnamese</b> , West Greenlandic
Type 4/5	V(-N)	Cayuga
unknown	—	Etruscan, Meroitic, Nahali

Figure 2. Parts-of-speech systems in sample languages

Hengeveld's typology of parts-of-speech systems outlined above (languages in bold print employ sortal classifiers; more on this below).<sup>5</sup> Three languages could not be classified due to a general lack of information about their parts-of-speech systems:



the language isolates Nahali, Etruscan and Meroitic (the latter two are extinct). Since languages are always in a state of flux, there are probably no absolutely "pure" types.<sup>6</sup> This is perhaps best illustrated with languages of Type 4 (Cayuga is also a case in point, of course). Several languages in this group resist straightforward classification, because besides verbs and nouns, they also have a small number of adjectives. Consider, for example, the following remarks on Tamil adjectives (Asher 1982: 186–187):<sup>7</sup>

The question of whether it is appropriate to recognise a separate morphological category of adjective in Tamil has long been debated, on the grounds that all but a very small handful of adjectival modifiers of nouns are derived forms. The set of those that cannot by simple rules be derived from noun or verb roots comprises such high-frequency items as *nalla* 'good', *periya* 'big', *cinna* 'small', *putu* 'new', *pazaya* 'old', and a few basic colour terms ...

Most other adjectives are either derived from verb roots (for instance, *kette* 'bad', which in morphological terms is the past relative participle of *ketu* 'get spoiled') or formed by the addition of one of two adjectivalizing suffixes.

In the current sample Bambara appears to have the most sizeable minor word class "adjective" (that is, two dozen or so). To the extent that the number of adjectives could be established, languages of type 3 (V–N–A) all seem to have a distinct class of at least one hundred basic (underived) adjectives.

### 3. Sortal classifiers and adjectives

Languages can be divided into two types with respect to numeral-noun constructions: languages in which the numeral is in a direct construction with the noun it modifies and languages in which the numeral requires the occurrence of a so-called sortal classifier (more on classifiers in section 4.1 below). Compare, for instance, this example from Burmese (Okell 1969: 209) and its English translation:

- (5)        *hkwei hnă kàiñ*  
           dog    two    CL  
           'two dogs'

Whereas in English the numeral modifies the noun directly, in Burmese it requires the appearance of an extra constituent: a sortal classifier. The sample contains seven languages that employ sortal classifiers: Burmese (see above), Gilyak, Korean,

Mandarin Chinese, Hmong Njua, Nung, and Vietnamese (all in bold print in Figure 2 above).

- (6) a. Mandarin Chinese (Iljic 1994: 100)  
*wǔ bēn shū*  
 five CL book  
 'five books'
- b. Gilyak (Comrie 1981: 269)  
*qan mor*  
 dog two:CL [animal]  
 'two dogs'
- c. Korean (Lee 1989: 55)  
*mal du mali*  
 horse two CL  
 'two horses'
- d. Hmong Njua (Harriehausen 1990: 100)  
*ob tug naab*  
 two CL snake  
 'two snakes'
- e. Nung (Saul—Freiberger Wilson 1980: 23)  
*slóng tú lùhc*  
 two CL child  
 'two children'
- f. Vietnamese (Nguyễn Đình-Hoà 1987: 785)  
*ba quyển sách*  
 three CL book  
 'three books'

When we consider the distribution of classifier languages and non-classifier languages over the various parts-of-speech types introduced in section 2, it appears that, apart from Hmong Njua, all classifier languages belong to Type 4 (V–N) and that in almost every language with a distinct class of adjectives (Type 3) the numeral is in a direct construction with the noun (again, Hmong Njua is the only exception). I will argue below that this is no coincidence and that adjectives only occur in languages in which nouns have a certain lexical feature that is typically absent in nouns of a classifier language. I will then demonstrate that Hmong Njua does not constitute a true counterexample because its nouns also have this particular feature, despite the fact that it also employs classifiers. Due to insufficient information, I will ignore

Gilyak (or: Nivkh), which, incidentally, is a rather special case since it only uses classifiers with the first five numerals (Comrie 1981: 269).

### 3.1. The expression of adjectival notions in languages with sortal classifiers

In section 2 I claimed that—apart from Hmong Njua —no classifier language in the sample has a major class of adjectives. Here we will consider evidence to support this claim.

In Mandarin Chinese, as in many other Asian languages, adjectival notions are expressed by a verb; this also explains the absence of a copula in the Mandarin counterpart of sentences such as English 'X is (very) pretty'. In Mandarin the modifying verb is followed by the 'relativiser' (Gao 1994: 494) or 'nominaliser' *de* (Li—Thompson [1989]: 118; compare Gao 1994: 494):<sup>8</sup>

- (7) a. *Mǎlì hěn piàoliàng*  
       Mary very pretty  
       'Mary is very pretty'
- b. *yī-wèi hěn piàoliàng de gūniang*  
       one-CL very pretty DE girl  
       'a very pretty girl'

Consider also the following remarks by Li—Thompson ([1989]: 826–827), but recall that in terms of the definitions provided in section 2 above only the third criterion is most relevant:

Strictly speaking, there is no class of words in Chinese that we can call 'adjective'. That is, while there are certainly words which denote qualities or properties of entities, from a grammatical point of view it is difficult to distinguish 'adjectives' from 'verbs'. First, in Chinese, words denoting qualities and properties do not occur with a copula as they do in Indo-European languages. ... Second, quality and property words in Chinese are negated by the same particle *bù* as are verbs: ... Thirdly, when an 'adjective' modifies a noun, it occurs with the same nominalizing particle *de* as verb phrases do ... For these reasons, it is sensible to consider quality and property words in Chinese simply as a subclass of verbs, one which we might call 'adjectival verbs'.

There is also a construction without *de*, but this seems to form a more or less lexicalised compound (Li—Thompson [1989]: 119) (cf. also, for example, Huang 1989; Chappell—Thompson 1992; Sackmann 1996):

In general, adjectives that modify the noun without the particle *de* tend to be more closely knit with the noun. The consequence is that the adjective-plus-noun phrase tends to acquire the feature of being a *name* for a category of entities. The relative clause usage of adjectives, on the other hand, always has the function of further clarifying or delineating the reference of the head noun.

Compare:

- |     |    |                        |           |            |    |                |            |
|-----|----|------------------------|-----------|------------|----|----------------|------------|
| (8) | a. | <i>hōng</i>            | <i>de</i> | <i>huā</i> | b. | <i>hōng</i>    | <i>huā</i> |
|     |    | red                    | DE        | flower     |    | red            | flower     |
|     |    | 'a flower that is red' |           |            |    | 'a red flower' |            |

Perhaps the difference is best captured by comparing English 'black bird', i.e. 'a bird that is black' and 'blackbird', that is, the kind of bird that belongs to the species 'blackbird'. Similar differences in meaning between the free modifier-noun construction and the compound form are attested in other classifier languages in the sample. In Vietnamese, for instance, the difference is mainly indicated by different stress patterns (Löbel 1995: 9, 15, 34–37). Thus, depending on the pronunciation, *áo dài* [dress be.long] is translated as 'long dress' ('dress which is long') or as 'long-dress' ('kind of dress that is typical of Asian women').<sup>9</sup>

Apparently "adjectival" attributes in Burmese and Korean are all derived verbal forms. In the following example from Burmese *ă-pya* is the derived form of the verb *pya* 'be blue' (Okell 1969: 47, 50, 79).

- |     |              |  |
|-----|--------------|--|
| (9) | <i>eĩŋci</i> | <i>ă-pya</i> (or with the order reversed: <i>ă-pya eĩŋci</i> ) |
|     | shirt        | ă-be.blue  |
|     | 'blue shirt' |  |

In Korean, according to Martin—Lee (1969: 110, 202–203), adjectival notions are expressed by verbs in their "modifier form", which means that they appear with the suffix *-(u)n*. Compare:

- |      |    |   |            |
|------|----|---|------------|
| (10) | a. | <i>khun</i> [= <i>khe</i> + <i>un</i> ] | <i>cip</i> |
|      |    | bc.large [= be.large + UN]              | house      |
|      |    | 'large house, house which is large'     |            |

- b. *mek-un sâlam*  
 eat-UN person  
 'person who ate, person who has eaten'

In Vietnamese, too, verbal elements are used to express adjectival notions in that modifiers expressing these notions behave the same as descriptive or stative verbs (cf. Emeneau 1951: 85; Thompson 1965: 217; Nguyễn Đình-Hoà 1987: 785, 790; Nguyễn Đình-Hoà 1997: 119; Löbel 1995: 9); sometimes the modifying phrase is introduced by the conjunction *mà*).<sup>10</sup>

- (11) a. *con chó nhỏ này*  
 CL dog be.small this  
 'this small dog' (Thompson 1965: 124)
- b. *con dao (mà) anh cho tôi mượn*  
 CL knife (MA) you give me borrow  
 'the knife you lent me' (Nguyễn Đình-Hoà 1997: 174)

Nung adjectives do not seem to behave differently from attributive or predicative verbs either; hence Saul—Freiberger Wilson (1980: 32) treat them as "simple, re-duplicated or complex descriptive verbs":

- (12) a. *vahng lông*  
 boy be.big  
 'the big boy' (Saul—Freiberger Wilson 1980: 33)
- b. *slóng óhng déhc kihn hô tê*  
 two CL child eat beg those  
 'those two begging children' (Saul—Freiberger Wilson 1980: 69)
- c. *vahng khị tú bê tê*  
 boy ride CL goat that  
 'that boy (who was) riding the goat' (Saul—Freiberger Wilson 1980: 16)
- d. *ahn ho'n cáu lẹn khâu pay tê*  
 CL house I run into go that  
 'the house I was running into' (Saul—Freiberger Wilson 1980: 79)

Sometimes the relative marker *tị* or *tị-vạ* 'who/which' is used (Saul—Freiberger Wilson 1980: 78–82):

- (13) *kê (tị-vạ) tóhc cộn thihn tê ni*  
 man (who) lost CL stone that FOC  
 'the man who had lost the stone'

Hmong Njua is the only classifier language in the sample with a distinct, major class of adjectives. For example, there is a clear difference between modifying verbs and adjectives in that the former need to be part of a relative clause introduced by the relative pronoun *kws* whereas adjectives do not appear with such a conjunction; compare (Harriehausen 1990: 144; more will be said about the use of Hmong Njua classifiers below):

- (14) a. *ob phau ntawn loj nua*  
 two CL book big DEM  
 'these two big books'
- b. *tug miv tub kws ua si miv*  
 CL boy REL play small  
 'the playing boy (or: the boy who is playing) is small'
- c. *lub ruuj kws kuv yuav kim*  
 CL table REL 1SG buy expensive  
 'the table that I bought was expensive' (Harriehausen 1990: 141)

In sum, Hmong Njua is the only classifier language in the sample that has a distinct class of adjectives.

#### 4. Nouns: Seinsart and nominal aspect

In the previous sections we saw that a distinct, major class of adjectives only tends to occur in languages in which the numeral modifies the noun directly. The only counterexample in the sample was Hmong Njua, which has both adjectives and sortal classifiers. In other words, so far we have only found evidence for a statistical implication:

- A If a language has adjectives, then the numeral tends to modify the noun directly (that is, in most languages that have adjectives the numeral does not require the occurrence of a sortal classifier), but not vice versa.

Below I will argue that it is also possible to formulate an absolute implication and that it is not so much the presence of absence of numeral classifiers that determines whether a language can have adjectives, but rather a lexical feature of the noun. First, however, we need to discuss some cross-linguistic aspects of noun semantics

(I will mainly restrict myself to nouns that are used for discrete spatial entities in the physical world).

#### 4.1. Nouns, numerals, and number marking

This section provides an outline of major noun types (or: nominal subcategories) from a cross-linguistic perspective. I will argue that across languages nouns that are used in connection with discrete and non-discrete spatial entities in the real world (i.e. individual objects and masses) can be defined in terms of two lexical features, viz. Shape and Homogeneity, and that each of these noun types basically defines a different “Seinsart” (“mode of being”; the nominal counterpart of the verbal category “Aktionsart”, “mode of action”; Rijkhoff 1995 Note 20). Before we continue, however, it may be useful to emphasise that referents of NPs are not objects in the external world, but rather mental constructs that are created, stored and retrieved in the minds of the speech participants. Since discourse referents are to a considerable extent construed on the basis of linguistic material, there may be certain discrepancies between linguistic properties of discourse referents and ontological properties of their real-world counterparts (if they exist—since we can also talk about things that do not exist in the physical world). We will see below that this holds especially true with respect to the features Shape and Homogeneity.

It appears to be very useful to regard nouns from different languages with respect to number marking and the way they combine with attributive cardinal numerals. Compare the following examples from Dutch and Thai:<sup>11</sup>

(15) Dutch

- |    |                               |    |                                      |    |   |
|----|-------------------------------|----|--------------------------------------|----|---|
| a. | <i>boek</i><br>book<br>'book' | b. | <i>boek-en</i><br>book-PL<br>'books' | c. | <i>drie boek-en</i><br>three book-PL<br>'three books' |
|----|-------------------------------|----|--------------------------------------|----|---|

(16) Thai

- |    |   |    |   |
|----|---|----|---|
| a. | <i>rôm</i><br>umbrella<br>'umbrella(s)' | b. | <i>rôm</i> <i>săam</i> <i>khan</i><br>umbrella   three   CL [long, handled object]<br>'three umbrellas' |
|----|---|----|---|

Whereas in Dutch an unmarked noun (such as *boek* 'book') defines a singular, discrete object, the Thai noun can be used to refer to one or more objects. Furthermore, the meaning definition of a Thai noun does not seem to include the notion of spa-

tial boundedness or discreteness.<sup>12</sup> Since only discrete entities can be counted, it is generally assumed that this is the reason why in languages such as Thai the numeral must combine with a sortal classifier (here: *khan*), which functions as a kind of individualiser (Lyons 1977: 462). Consider these remarks by Hundius—Kölver (1983: 166, 181–182):<sup>13</sup>

[Thai nouns] purely denote concepts and, for this reason, are incompatible with direct quantification. ...

As is the typical case in isolating languages, Thai nouns do not in themselves contain any numerical or referential indications. ... they are purely *conceptual labels* which, in order to be appropriately related to objects of the non-linguistic world, always and in principle stand in need of interpretation which has to be inferred from both linguistic and non-linguistic context.

- (17)      *plaa*   *wâaj*   *jùu*      *naj*      *mêe náam*  
          fish   swim   remain   in      river  
          ‘fish swim in rivers’ [generic], ‘the fish/fishes swims/swim in a  
          river/rivers’, ‘a fish/fishes swim(s)/swam in the river/a river etc.’

Similar statements about the *indeterminateness* of nouns (and verbs) can be found in many grammars of languages that are spoken in Southeast Asia, suggesting this is an areal phenomenon (cf. Bisang 1999: 114):

In East and Southeast Asian languages, a noun expresses only a mere concept of an object which can be further specified—if necessary—by various operations. Thus, an expression like e.g. Chinese *xìn* can mean ‘letter, letters, a letter, the letter, etc.’ according to a given context. This high degree of indeterminateness of nouns is a very important characteristic of East and Southeast Asian languages (Bisang 1993, 1996) which is crucial to the existence of classifiers.

I will call nouns that occur with sortal (or: numeral) classifiers *sort nouns*.<sup>14</sup> Furthermore, since sort nouns do not seem to include in their meaning the notion of spatial discreteness I will assume that they are all characterised by the lexical feature [–Shape]. Sortal classifiers must be distinguished from mensural classifiers, which specify size, volume or weight and which typically occur with another nominal subcategory that is characterised by the feature [–Shape], viz. mass nouns (see, for example, Greenberg 1972 and Hundius—Kölver 1983 on the differences between sortal and mensural classifiers):



## (18) Dutch

- |  |  |
|--|--|
| a. <i>een fles wijn</i><br>a bottle wine<br>'a bottle of wine' | b. <i>een pond kaas</i><br>a pound cheese<br>'a pound of cheese' |
|--|--|

## (19) Thai (Hundius—Kölver 1983: 168, 170)

- |  |   |
|--|---|
| a. <i>dinniaw sāam kǝn</i><br>clay three lump<br>'three lumps of clay' | b. <i>nāamtāan sāam thūaj</i><br>sugar three cup<br>'three cups of sugar' |
|--|---|

Besides sortal and mensural classifiers there is another kind of classifier type, which is attested in, for instance, Yucatec Maya. Classifiers in this language seem to combine the functions of sortal and mensural classifiers (Lucy 1992: 74):<sup>15</sup>

Outside of the restriction on compatibility with other classifiers, little in the grammar of Yucatec appears to hinge on, or correlate with, this "sortal" ... versus "mensural" distinction, and it is difficult to know what status it should be given.

## (20) a/one-CL banana

- |                     |              |   |
|---------------------|--------------|---|
| a. <i>'un-ɛ'it</i>  | <i>há'as</i> | 'one/a 1-dimensional banana (i.e. the fruit)' |
| b. <i>'un-wáal</i>  | <i>há'as</i> | 'one/a 2-dimensional banana (i.e. the leaf)'  |
| c. <i>'un-p'eel</i> | <i>há'as</i> | 'one/a 3-dimensional banana (e.g. the fruit)' |
| d. <i>'un-kúul</i>  | <i>há'as</i> | 'one/a planted banana (i.e. the tree)'        |
| e. <i>'un-kúuch</i> | <i>há'as</i> | 'one/a load banana (i.e. the bunch)'          |
| f. <i>'un-p'it</i>  | <i>há'as</i> | 'a-little-bit/some banana'                    |

Lucy's remarks also suggest that in Yucatec Maya there is no clear distinction between sort nouns and mass nouns. I will call such nouns *general nouns* and the classifiers that are used with these nouns *general classifiers*. As could be expected, nouns in Yucatec Maya also carry the lexical feature [-Shape] since semantically the properties that are designated by these nouns are characterised as being not spatially bounded (Lucy 1992: 83, 43).

In sum, even though nouns such as Thai *rôm* and Yucatec *há'as* are used to refer to discrete spatial objects in the external world (such as an umbrella or a banana), the notion of spatial discreteness does not seem to be part of the meaning. So far we have identified three types of noun (nominal subcategories) that are characterised by the feature [-Shape]:

1. sort nouns, which require a sortal or numeral classifier when modified by a numeral;
2. mass nouns, which require a mensural classifier when modified by a numeral;
3. general nouns, which require a general classifier when modified by a numeral.

The feature that makes it possible to distinguish between these three nominal subcategories is *Homogeneity*. Before we continue it may be useful to emphasise once again that a referent is a mental construct, whose properties need not coincide with those of its ontological correlate in the external, extra-linguistic world, and that I am proposing a linguistic classification of nouns and not an ontological classification of spatial entities. Although Shape and Homogeneity are basically ontological features, I am here only interested to establish if (and how) these features are also part of the lexical semantics of nouns in a representative selection of the world's languages.

Mass nouns such as English 'water' and 'gold' define [+Homogeneous] entities because they are cumulative (or: agglomerative) and—up to a point—dissective (Goodman 1966). If we add some water to a liter of water we still have: water (cumulative/agglomerative); after we have drunk some of the water that is contained in a glass, the glass will still contain: water (dissective). Sort nouns like Thai *rôm* 'umbrella, umbrellas', on the other hand, define non-homogeneous entities: we cannot refer to an something as 'an umbrella' if it is something more or less than an (one) umbrella (as when, for example, essential parts are missing). We could say that a referent defined by a mass noun consists of portions, whereas an entity defined by a sort noun consists of parts or components. Adding portions gives you more of the same *mass entity*, but adding parts does not give you more *sort entities*.

Since the kind of classifier used in Yucatec Maya suggests that this language does not distinguish between sort nouns and mass nouns (see (3.4) above), I presume that general nouns are neutral with respect to the feature Homogeneity.

SPACE	–HOMOGENEITY	+HOMOGENEITY
–SHAPE	general noun	
	sort noun	mass noun

Figure 3. Nominal subcategories that require numerals to occur with a classifier

There are also three nominal subcategories which do not require the attributive numeral to first combine with some kind of classifier (hence they all carry the feature [+Shape]): (a) singular object nouns, (b) collective nouns, and (c) set nouns. It appears that they, too, can be further differentiated on the basis of the feature Homogeneity.

Singular object nouns are nouns that in their unmarked form denote a single object (for instance, Dutch *fiets* 'bike'), whereas a collective noun designates a property of a group of individuals (for example, Dutch *gezin* 'family'). Plural marking is obligatory for singular object and collective nouns, both with and without a modifying numeral:

(21) Dutch: N<sub>singular object</sub>

- |    |  |     |                                       |
|----|--|-----|---------------------------------------|
| a. | <i>fiets</i><br>bike<br>'bike'                     | a'. | <i>fiets-en</i><br>bike-PL<br>'bikes' |
| b. | <i>twee fiets-en</i><br>two bike-PL<br>'two bikes' | b'. | * <i>twee fiets</i><br>two bike       |

(22) Dutch: N<sub>collective</sub>

- |    |  |     |  |
|----|--|-----|--|
| a. | <i>gezin</i><br>family<br>'family'   | a'. | <i>gezin-en</i> [spelled: <i>gezinnen</i> ]<br>family-PL<br>'families' |
| b. | <i>twee gezin-en</i> [ <i>twee gezinnen</i> ]<br>two family-PL<br>'two families' | b'. | * <i>twee gezin</i><br>two family                                      |

Singular object nouns, like sort nouns, designate non-homogeneous (non-cumulative, non-dissective) properties. The referent of the noun phrase 'a bike' N<sub>singular object</sub> is a complete whole: adding parts to or taking away parts from the referent of 'a bike' does not give you more or less/fewer 'bike' or 'bike entities'.

A collective noun like *gezin* 'family', on the other hand, does define an agglomerative/dissective entity. When a family is expanded (as when, for instance, children are born into the family) you still have a (one) family, that is, adding members to a family gives you a bigger family but not more families (cf. the example with portions of water above). Similarly, when a family member dies, the others are still family. Thus, both mass nouns and collective nouns define homogeneous entities.

Now compare the Dutch noun *huis* 'house' and the Oromo noun *mina* 'house(s)' (see below on the so-called plural in Oromo; see also Note 10).

(23) Dutch: N<sub>singular object</sub>

- |    |                                 |     |   |
|----|---------------------------------|-----|---|
| a. | <i>huis</i><br>house<br>'house' | a'. | <i>huis-en</i> [spelled: <i>huizen</i> ]<br>huis-PL<br>'houses' |
|----|---------------------------------|-----|---|

b. *twee huizen*  
two house:PL  
'two houses'

b'. \**twee huis*  
two house

(24) Oromo: N<sub>set</sub>

a. *mina*  
house  
'house, houses'

a'. *mina-eeni* [= *minneeni*]  
house-PL  
'houses'

b. \**minneeni lamaani*  
house:PL two

b'. *mina lamaani*  
house two  
'two houses'

There is an important difference in that the unmarked Dutch noun in (23) denotes a single object, whereas the unmarked noun in Oromo (24) can be used to refer to one or more singular objects (Andrzejewski 1960: 71). Furthermore, in Oromo the unmarked form must be used with a numeral ( $n \geq 2$ ), whereas in Dutch the plural form is obligatory in such cases. In both languages, however, the numeral is in a direct construction with the noun. It also appears that the so-called plural marker in Oromo (which is optional without a numeral and obligatorily absent with a numeral) is better characterised as a collective marker:<sup>16</sup> "In general, nouns with plural suffixes refer to a counted or countable group of items, whereas the possible plural meaning of nouns unspecified for plural is more general and vague. If a noun is counted by means of a numeral, then there is no plural suffix" (Stroomer 1987: 76).

Elsewhere (Rijkhoff 1991, 1992, 1995) I have labelled nouns such as Oromo *mina* as *set nouns* (a set may contain any number of objects, including '1'), that is, transnumeral nouns which are used to refer to a set of discrete spatial objects and which can be in a direct construction with a numeral. Some Oromo nouns (notably ethnonyms) may also occur with a *singulative suffix*, so there are actually two ways to disambiguate the transnumeral character of set nouns in Oromo (Stroomer 1987: 83, 87; BOW = the three Oromo dialects Boraana, Orma and Waata):

BOW nouns denoting animate beings, in particular ethnonyms, can take the singulative suffixes *-ca* (masculine), and *-tii* (feminine); these suffixes are preceded by the epithetic vowel *i*; *i* is sometimes inserted between the noun root and the singulative suffix. In BOW ethnonyms these suffixes are productive. In BOW these [singulative—JR] suffixes basically have the meaning of indicating an individual out of a group ...<sup>17</sup>

(25) a. *nama* 'man/men'  
b. *nad'eeni* 'woman/women'

a'. *namica* 'a/the man'  
b'. *nad'ittii* 'a/the woman'

Now, if both in Dutch and in Oromo we are dealing with a number marker, why do these markers behave so differently? The answer I have proposed is that the Oromo affixes are not number markers at all but grammatical elements to indicate that the noun designates a property of a set which consists of one object (singleton set) or to signal that the set consists of multiple objects which together form a collective (collective set). This hypothesis is supported by the fact that in the grammars of languages with set nouns it is often explicitly stated that the so-called plural marker basically has a collective meaning.<sup>18</sup>

Since properly speaking the elements in question specify what kind of set we are dealing with (that is, they relate to inherent or qualitative properties of the referent), I have called them *singulative* and *collective aspect markers*, or, more generally, *nominal aspect markers* (see Rijkhoff 1995 on nominal and verbal aspect marking, *Seinsart* and *Aktionsart*, and other parallels between NPs and sentences).

If we accept that the so-called number marker on a set noun is actually a nominal aspect marker, we can explain certain differences between the (real) number marker on singular object nouns and collective nouns and the so-called number marker on set nouns:

- (i) that the collective aspect marker on a non-numerated set noun is in many languages optional (if used at all) is due to the fact that the property designated by a set noun may also apply to multiple objects without this marker,
- (ii) that the collective aspect marker is normally absent when the set noun is modified by a numeral can be explained if we accept that the numeral does not specify the number of sets (as it specifies the number of singular objects or collectives in the case of a singular object noun or a collective noun), but the number of members contained in the (single) set. In other words, when a set noun is modified by a numeral we do not get more sets; instead the numeral indicates the size or cardinality of the (single) set.

Furthermore, we can now explain why languages with set nouns often display number discord, as in this Oromo sentence (Stroemer 1987: 107):

- (26)      *gaala lamaa sookoo d'ak'-e*  
          camel   two   market   go-3SG:MASC:PAST  
          'two camels went to the market'

In spite of the fact that we clearly have a non-singular subject ('two camels'), the verb is inflected for the singular. In such cases agreement is not with the number of objects in the set, but with the set entity as such, which is always singular (Rijkhoff 1993). The same phenomenon is attested in many other languages with set nouns; the following example is from Lango (Noonan 1992: 168):

- (27)      *gúlú*      *àdèk*      *òtòò*  
          pot      three      3SG:die:PERF  
          'three pots broke'

Thus, set nouns are like general nouns in that they share one feature with two other nominal subcategories and are neutral with respect to the other feature. Recall that general nouns, which occur with general classifiers, are characterised by the feature [-Shape], just like sort nouns [-Shape/-Homogeneity] and mass nouns [-Shape/+Homogeneity], but they are neutral with respect to the feature Homogeneity. Set nouns, which are modified directly by a numeral, are characterised by the feature [+Shape], just like singular object nouns [+Shape/-Homogeneity] and collective nouns [+Shape/+Homogeneity], but since they can be used to refer to a singleton and a collective set they are also neutral with respect to the feature Homogeneity.<sup>19</sup>

#### 4.2. A new classification of nominal subcategories

Six nominal subcategories can now be defined on the basis of the features Shape and Homogeneity:

SPACE	-HOMOGENEITY	+HOMOGENEITY
-SHAPE	general noun	
	sort noun	mass noun
+SHAPE	set noun	
	singular object noun	collective noun

Figure 4. Cross-linguistic typology of major nominal subcategories

If the property designated by a noun is coded as having shape (+Shape), this means that the property (and by extension: the referent of the NP, a mental construct) is characterised as having a definite outline in the spatial dimension; consequently set nouns, singular object nouns and collective nouns can all be in a direct construction with a cardinal numeral. If the property designated by a noun is coded as being homogeneous (+Homogeneity), this means that the space for which this property holds (and by extension: the referent of the NP) is characterised as being agglomerative (or dissective).<sup>20</sup> In other words, the referent of a NP headed by a noun that is coded as being homogeneous consists of *portions* (of a mass) or *members* (of a collective). *General nouns* and *set nouns* are neutral with respect to the feature Homogeneity.

It is not clear why the feature *Shape* is relevant for all noun types, whereas the feature *Homogeneity* is part of the meaning definition of only four nominal subcategories. Nevertheless, this classification confirms Friedrich's (1970: 380) observation that "the category of shape appears to be a typological universal in grammar ... , and of not inconsiderable significance for a theory of semantics in grammar".

Recall that this is a linguistic rather than an ontological classification in that it is only based on morphosyntactic and semantic properties of nouns.<sup>21</sup> As for the terminology, I could also have used labels such as Type A and Type B etc., but for mnemonic reasons I have tried to use names which say something about the lexical semantics of each nominal subcategory. Furthermore, since this is a linguistic and not an ontological classification, there is in principle no direct relationship between noun type and (real world) entity type. This is, of course, precisely the reason why it is possible that different noun types (singular object noun, set noun, sort noun, general noun) can be used across the world's languages to refer to an entity whose ontological correlate in the external world is a single and discrete spatial object.

I have discussed this classification of nominal subcategories, since I want to argue now that Hmong Njua, the only classifier language in the sample that has a distinct class of adjectives, employs set nouns (with the lexical feature [+Shape]) rather than sort nouns (with the lexical feature [-Shape]).

## 5. The case of Hmong Njua

This section takes a closer look at expressions of singularity, plurality and collectivity in classifier languages. In the preceding sections I have argued that the employment of any kind of classifier (mensural, sortal, general) in a numeral-noun construction indicates that the noun does not include in its meaning the notion of spatial discreteness; hence all nominal subcategories that require the modifying numeral to combine first with a classifier were characterised by the feature [-Shape] in the noun classification presented above. In Hmong Njua, however, it appears that classifiers have expanded their function and are now (also) used as markers of singularity and collectivity, that is, the two distinctions which are typically coded on set nouns [+Shape]. Ultimately, I will argue that Hmong Njua has set nouns rather than sort nouns and that it is the [+Shape] feature of set nouns that makes it possible for this language to have a distinct class of adjectives.

### 5.1. Classifiers

Classifiers can be the source for various grammatical categories but it seems that in all languages they can also be used as anaphoric constituents (for some references see Rijkhoff 1992: 48, Note 13).<sup>22</sup>

(28) Mandarin Chinese (Bisang 1999: 147–148)

*zhèi shì shū. Zhāngsān mǎi-le yì běn,*  
 DEM COP book. Zhangsan buy-PERF one CL,  
 'These are books. Zhangsan bought one (of them), ...'

Cross-linguistically it is also not uncommon for classifiers to occur with a demonstrative modifier (cf. Greenberg 1975; Bisang 1999), as in:

(29) *zhè běn shū*  
 this CL book  
 'this book'

However, in the current sample Hmong Njua is the only classifier language which requires the classifier to appear not only with numerals and demonstratives but also with possessive modifiers (Harriehausen 1990: 117):

(30) Hmong Njua

- a. *ob tug muam*  
 two CL sister  
 'two sisters' (Harriehausen 1990: 100)
- b. *phau ntawv nuav*  
 CL book DEM  
 'this book'
- c. *kav phau ntawv*  
 1SG CL book  
 'my book' (Harriehausen 1990: 129)

Furthermore, only in Hmong Njua are classifiers also used to express definiteness or specificity (Harriehausen 1990: 117; cf. also Bisang 1993, 1996, 1999):

Im Vergleich mit dem Artikelsystem Indo-Europäischer Sprachen kann Hmong Njua definite vs. indefinite NPn durch das Hinzufügen/Weglassen der Kategoriewörter ausdrücken. Dies ist allerdings nur in einfachen NPn möglich, d.h. in



denen das Nomen nicht weiter durch Zahlwörter, Demonstrativ- oder Possessivpronomen modifiziert wird. [In comparison to the system of articles in the Indo-European languages, Hmong Njua can express definite vs. indefinite NPs by adding/omitting classifiers. This is, however, only possible in simple NPs, that is, NPs in which the noun is not further modified by numerals, demonstratives or possessive pronouns.]

Compare (Harriehausen 1990: 117):

- (31) a. *kan*      *yuav*      *tsev*  
          1SG      buy      house  
          'I buy a house/(some) houses'
- b. *kan*      *yuav*      *lub*      *tsev*  
          1SG      buy      CL      house  
          'I buy the house'

As could be inferred from the translations of some of the examples provided here, Hmong Njua classifiers can also serve to mark grammatical number (or rather: nominal aspect); this is discussed in the next two sections.

## 5.2. Nominal singularity in classifier languages

As pointed out above sort nouns are transnumeral in that the same (unmarked) form can be used to refer to one or more objects. Thus Mandarin *shū* means 'a/the book' or '(the) books'. Presumably singular number can always be expressed by using the attributive numeral 'one' (plus classifier), as in *yì běn shū* 'one CL book', but in some classifier languages the numeral 'one' can be omitted, so that the CL+N construction implies indefinite, singular reference. In the sample this is attested in at least the following languages: Mandarin Chinese, Hmong Njua, Nung, and Vietnamese. In Standard Mandarin Chinese, however, the numeral 'one' can only remain unexpressed "in the postverbal object position, not in the subject position" (Bisang 1999: 178, Note 16).

In the case of Nung it is simply stated that "when a classifier occurs with a noun without a numeral, the numeral 'one' is automatically understood" (Saul—Freiberger Wilson 1980: 15, 27):

- (32)      *mu'hn*    *nəhng*      *tihng*      *côn*      *thihn*  
          he      sit      upon      CL      stone  
          'he sat on a stone'

The CL+N construction is also attested in Vietnamese (Kölver 1982: 169–173), but in a recent study on Vietnamese classifiers Löbel (1995) shows that semantically and morphosyntactically we are not always dealing with the kind of construction discussed above. In some cases the construction is a definite nominal compound used for anaphoric reference (as in 33a) and in other instances it is indeed a numeral-classifier construction which (optionally) involves the numeral ‘one’ (as in 33b) and which is typically used to introduce a new referent. Compare the following examples (Löbel 1995: 37):

- |         |  |    |  |
|---------|--|----|--|
| (33) a. | <i>con</i> <i>quạ</i><br>CL      raven<br>‘the raven’ (aforementioned) | b. | <i>(một)</i> <i>con</i> <i>quạ</i><br>(one)   CL   raven<br>‘a raven’ (not aforementioned) |
|---------|--|----|--|

The difference between (33a) and (33b) (without *một* ‘a, one’) is not visible in writing, but they have clearly different stress patterns. In (33a) the classifier bears the main stress, whereas in (33b) the classifier has only weak stress. If the anaphoric compound is used to refer to a plural entity in the preceding discourse, the so-called plural marker is obligatory (more on *nhữ’ng* below).

- |      |   |
|------|---|
| (34) | <i>nhữ’ng</i> <i>con</i> <i>quạ</i><br>PL      CL      raven<br>‘the ravens’ (aforementioned) |
|------|---|

Löbel (1995: 37) writes that the nominal compound is used “when it is not possible to refer to a referent which or who has already been introduced by means of a pronoun; this might be due, for instance, to a change of frame”, but adds that “[t]he conditions under which it is necessary to use a pronoun or the corresponding anaphoric compound are not quite clear ...”

We already saw in section 5.1 that in Hmong Njua the classifier is also used to express definiteness (rather than indefiniteness).

- |      |   |
|------|---|
| (35) | <i>kav</i> <i>yuav</i> <i>lub</i> <i>tsev</i><br>1SG      buy      CL      house<br>‘I buy the house’ |
|------|---|

Thus, whereas in other languages the CL+N construction is generally analysed as an indefinite NP involving the numeral ‘one’ (which remains unexpressed), this is apparently not the case in Hmong Njua, where the NP has definite reference.<sup>23</sup> Harriehausen 1990 does not explicitly state that the CL+N construction also has sin-

gular reference (as is suggested by the translation), but according to the Miao Language Team (1972: 16) this is indeed the case (cf. also Bisang 1993: 26; Wang 1972: 125): “With the exception of the Hsiang hsi dialect, classifiers may occur as single modifiers of the noun to indicate definite singularity”.

### 5.3. Nominal plurality in classifier languages

Let us now take a closer look at plural marking in the classifier languages in the sample. It has been known for at least some decades that as a rule, nominal ‘plural’ marking is at most optional in a classifier language and (if used at all) often restricted to human or animate nouns: “Numeral classifier languages generally do not have compulsory expression of nominal plurality, but at most facultative expression” (Sanches—Slobin 1973, as cited in Greenberg 1974: 25).

It seems, however, that these so-called plural markers in these languages have little in common with the obligatory markers of nominal plurality as they are found in, for instance, Dutch and English. I will argue that in most cases they are better regarded as quantifiers (equivalent to English quantifiers such as ‘several’, ‘some’ and ‘many’) and that in Hmong Njua (and probably Mandarin Chinese) we are dealing with a collective (aspect) marker rather than a plural marker.

The element that comes closest to a nominal plural marker in Mandarin Chinese is the suffix *-men*, which also implies definiteness (see Note 27). However, it is used only occasionally and its occurrence is restricted to human nouns (cf. Norman 1988: 159; see also Iljic 1994; Li—Thompson [1989]: 40, 83; Chao 1961: 40):

Number is obligatorily expressed only for the pronouns. The same plural suffix found in the pronouns, *-men*, can also be employed with nouns referring to human beings; however, the resulting forms differ from English plural nouns in several ways. They are not used with numerals; they are not obligatory in any context; and they tend to refer to groups of people taken collectively. Examples: *háizimen* ‘(a certain) group of children’, *lǎoshimen* ‘the teachers’.

Several studies have been devoted to the rare and “versatile” Korean plural marker *tul*, but many of its syntactic and semantic properties remain unclear (see, for example, Seok Choong Song 1975; Kuh 1986; Lee 1991; Kim 1993; Kang 1994; Sohn 1994: 268–269). For instance, it can occur in many different places in the sentence and although it is clear that *tul* cannot be characterised as a plural marker (Song 1997), there seems to be no consensus as to its proper meaning(s). Some state that it means ‘all, several, together’ (Ramstedt 1939, as quoted in Seok Choong Song 1975: 538) or ‘group’ (Martin—Lee 1969: 32), whereas others have argued it has a distributive meaning and even serves as a focal element (Song 1997).

The exact status of the so-called plural marker in Burmese, Nung, and Vietnamese is not quite clear either. In these languages they are all treated as members of a closed class of quantifiers (like English 'some, few', etc.) and do not seem to convey the notion of 'group' or 'collective'.

(36) a. Burmese (Okell 1969: 96)

*eiñ hka'ciçi tci*  
house fairly.big PL  
'fairly big houses'

b. Nung (Saul—Freiberger Wilson 1980: 29)

*mahn má hau lái*  
PL dog bark much  
'the dogs are barking much'

c. Vietnamese (Emeneau 1951: 87)

*nhũ'ng con trâu*  
PL CL buffalo  
'the buffaloes'

In Burmese, where they are called "auxiliary nouns" (Okell 1969: 82), the three so-called plural markers (*toú*, *tei/twei* and *myà*; the differences however are not made explicit) are discussed alongside such apparently varied items as *taññ* 'every', *ci* 'great', *hkăleĩ/lei* 'little', *hsoũñ* 'extreme', *lau* 'approximately' and *htè* 'only, no more'.<sup>24</sup>

In Nung *mahn* 'plural' is one of the "non-specific numerators" (Saul—Freiberger Wilson 1980: 22); some other members of this class are *i* 'small amount/little', *kì* 'several', *lái* 'much/many', *táhc* 'any' and *thèm* 'more'.

The Vietnamese marker for plurality *nhũ'ng* is called "general quantifier" ("ein allgemeiner Quantifikator"; Kölver 1982: 170) and "pluralizer article" (Nguyễn Đăng Liêm 1969: 113; cf. also Thompson 1965: 179; Emeneau 1951: 87–88) and falls in the same category as, for instance, *các* 'plural generality', *mọi* 'every' and *mấy* 'restrictive plurality, some'.<sup>25</sup>

Finally, in Hmong Njua the collective classifier *cov* replaces all other classifiers to express plurality or rather: collectivity. Harriehausen (1990: 115, 117) writes:

Cov ist eine "neutrale" Mengenbezeichnung, die alle Kategoriewörter ersetzen kann (daher die Bezeichnung "neutral"), wenn die Nominalphrase eine Plural-Bedeutung implizieren soll. Somit hat cov die Bedeutung "viele, mehrere, mehr als ein" ... . [Cov is a neutral quantifier, which can replace all classifiers (hence the label "neutral") if the noun phrase is to imply plurality. Thus cov means "many, several, more than one" ... .]

Ohne weitere Modifikation kann die Pluralbedeutung eines Nomens nur durch cov ausgedrückt werden. [Without further modification nominal plurality can only be expressed by cov.]

- (37)      *kav*      *yuv*      *cov*      *tsev*  
              1SG      buy      PL      house<sup>26</sup>  
              'I buy (the) houses'

Compare also:

- (38) a.      *kav*      *lob*      *hoob*                      b.      *kav*      *cov*      *hoob*  
              1SG      CL      room                      1SG      COV      room  
              'my room'                                      'my rooms'

According to Ratliff (1991) *cov* has a collective meaning and most probably derives from *cov*<sup>51</sup> 'bunches or clusters of fruit' (superscript 51 refers to tone marks).<sup>27</sup> Although without *cov* the NP would certainly be interpreted as having indefinite reference, example (37) shows that *cov* may appear in definite and indefinite NPs.

#### 5.4. Hmong Njua: set nouns [N<sub>+Shape</sub>]

On the basis of the data presented above we may conclude that Hmong Njua is like other classifier languages in that its nouns are transnumeral, but the fact that in this language classifiers are also used to mark both singularity and collectivity is a strong indication that Hmong Njua employs set nouns [+Shape] rather than sort nouns [-Shape], the kind of noun that is normally attested in classifier languages. Singularity is expressed by adding one of the sortal classifiers, collectivity by using the group or collective classifier *cov* (see Note 13):

- (39) a.      N<sub>set</sub>                      b.      CL:SG      N<sub>set</sub>                      c.      CL:COLL      N<sub>set</sub>  
              *tsev*                              *lub*      *tsev*                              *cov*      *tsev*  
              'house(s)'                              'the house'                              '(the) houses'

As a matter of fact, Hmong Njua is the only classifier language in the sample which uses grammatical markers to indicate (definite) singularity and collectivity in both animate and inanimate nouns. Furthermore, unlike the other classifier languages that have collective marking (such as Mandarin Chinese), these markers are not rare and (as in Oromo) the collective aspect marker is mutually exclusive with a numeral (Harriehausen 1990: 106, 117):

- (40)      *kuv*    *pum*    *peb*    *tug/\*cov*    *tlev*    *luv*  
           1SG    see    four    CL/\*COV    dog    big  
           'I see four big dogs'

In sum, the data presented in sections 5.1–5.3 clearly set Hmong Njua apart from the other classifier languages. First, classifiers in Hmong Njua seem to have widened their functional range more than in any other language in the sample. Second, whereas number is rarely marked (if at all) in a classifier language, number (or rather: singular object and collective aspect) marking is not rare in Hmong Njua.<sup>28</sup> Thus, if it is true that Hmong Njua uses set nouns [+Shape] rather than sort nouns [-Shape], we have an exceptionless implication:

- B    If language L has a distinct class of adjectives, then nouns in language L are generally characterised by the feature [+Shape].

This gives us three possible combinations, each of which is attested in the sample:

1. [A & B]—languages that have a major (distinct) class of adjectives and first order nouns are generally characterised by the feature [+Shape]; that is, the language uses singular object nouns and/or set nouns, neither of which require a classifier when modified by a numeral. In the sample this involves all the languages of Type 3; for example Hungarian (Moravcsik 1997: 315).

- (41) a.    *ez*    *a*    *piros<sub>A</sub>*    *alma*                      b.    *ez*    *a*    *két*    *alma*  
           this    the    red    apple                      this    the    two    apple  
           'this red apple'                                      'these two apples'

2. [not A & B]—languages without a major (distinct) class of adjectives but with [+Shape] nouns (such as singular object nouns and/or set nouns); these are basically the languages that do not belong to Type 3 in Figure 2 above and which do not employ (sortal or general) classifiers: Samoan, Hurrian, Imbabura Quechua, Bambara, Galela, Gude, Hixkaryana, Kisi, Koasati, Krongo, Nungubuyu, Pipil, Sarcee, Tamil, Tsou, West Greenlandic. The following example is from Bambara (which only has a minor class of adjectives); *tími* 'be sweet' is one of the stative verbs that must take the suffix *-man* before it can be used as a noun attribute (Kastenholz 1989: 31, 79):

- (42)      Bambara
- |    |                 |                                     |    |              |             |
|----|-----------------|-------------------------------------|----|--------------|-------------|
| a. | <i>mángoro</i>  | <i>tími<sub>V</sub>.stative-man</i> | b. | <i>sò</i>    | <i>fíla</i> |
|    | mango           | be.sweet-MAN                        |    | horse        | two         |
|    | 'a sweet mango' |                                     |    | 'two horses' |             |

3. [not A & not B]—languages without a major (distinct) class of adjectives and without nouns that are characterised by the feature [+Shape]; these are basically the classifier languages (Hmong Njua being the exceptional case, of course; recall that Gilyak is ignored here): Burmese, Korean, Mandarin Chinese, Nung, Vietnamese. These examples are from Korean (Martin—Lee 1969: 78):

- (43) a. *khun*            [= *khe* + *un*]            *cip*  
          be.large        [= be.large + UN]        house  
          'large house, house which is large'
- b. *kây*        *twū*        *mali*  
          dog        two        CL  
          'two dogs'

The following type is logically excluded: \*[A & not B], that is, languages with a major (distinct) class of adjectives but without nouns that are characterised by the feature [+Shape]. Hmong Njua was the only potential counterexample in the sample: it has adjectives and uses classifiers, which typically occur in languages with sort nouns [–Shape]. But as I have argued, Hmong Njua is the only classifier language in the sample that on a more or less regular basis indicates whether the referent consists of a collective or a singleton *set* entity (rather than a sort entity). Although it is probably true that Mandarin can also express the grammatical notion of collectivity with nominal NPs, the element in question (i.e. the suffix *-men*) is rarely used and seems to be restricted to non-monosyllabic human nouns (Li—Thompson [1989]: 40). Note, incidentally, that the existence of languages with set nouns and without a major class of adjectives does not violate the implication formulated above.

## 6. Towards an explanation

Why can a language only have a major class of adjectives if first order nouns such as 'book' and 'girl' have the lexical feature [+Shape]? I can only attempt to provide a tentative answer here.

We saw above that languages may differ with respect to the encoding of ontological properties in the lexical information of a noun (notably regarding the features Shape and Homogeneity) and that this is precisely the reason why different kinds of nouns (general noun, sort noun, set noun, singular object noun) can be used for the same object in the non-linguistic world. Nouns in classifier languages, for example,

are generally believed to designate properties that are specified as being not spatially bounded. Thus, in the case of nouns languages have a choice: either they have nouns whose lexical features “agree” with certain ontological facts (notably [+Shape]) about the ontological correlate of the referent, or they have nouns whose lexical semantics do not mirror these ontological facts.

In the case of adjectives, however, the choice between [+Shape] and [–Shape] does not seem available, simply because there is nothing in the physical world to suggest that adjectival notions such as ‘poor’, ‘ripe’, or ‘green’ have (by themselves) a definite spatial outline: one can draw a picture of a house and even a waterfall, but one cannot draw a picture of ‘poor’ or ‘ripe’.<sup>29</sup> In other words, properties designated by adjectives are all necessarily characterised by the feature [–Shape].

If indeed adjectives are characterised by the feature [–Shape], then the reason why they only occur in languages with [+Shape] nouns may have to do with the fact that there is no good way to distinguish adjectives from nouns in languages using [–Shape] nouns (general nouns, sort nouns) in relation with (real-world) discrete objects. Conversely, one could hypothesise that only if a language uses [+Shape] nouns (like singular object nouns and set nouns) can it accommodate another major word class whose members are all exclusively characterised by the feature [–Shape]: adjectives.

## Notes

- \* I am grateful to Edith Moravcsik and Johanna Scibt for helpful discussions.
1. The text continues as follows: “Not all roots occur with the same frequency as verbs and nouns. Some roots predominantly function as verbs, whereas others are more likely to be found in the function of nouns. Until now we have not, for instance, found *alu* ‘go’ in a nominal function or *mea* ‘thing’ in a verbal function ... But we hesitate to say that *alu* is inherently a verb and *mea* inherently a noun for two reasons. First, we cannot find any functional explanation why *alu* should not be used as a noun and *mea* as a verb, whereas, for instance, *gaoi* ‘thief, to steal’ and *tagata* ‘person, to be a person’ are bi-functional. And, second, previous experience taught us to be careful with classifications. The more texts we analyzed, and included in our corpus, the more items were unexpectedly found in nominal or verbal function.”
  2. There are, however, a number of derived predicates carrying the causative prefix *fa’a-*, which typically occur as modifiers of the head of the term phrase (Mosel—Hovdhaugen 1992: 73, 119, 175).
  3. Notice that morphosyntactic changes of the adjective that are due to agreement phenomena are irrelevant in this context. For example, Dutch attributive adjectives



- take an *-e* suffix, except in indefinite singular NPs headed by a neuter noun (*groot+e* is spelled *grote*): *het grot-e huis* [the:NEUT big-E house] 'the big house'.
4. The [*s*] between *jongen-* and *-achtig* is a so-called "tussenklank" (Dutch), a "connecting sound", which appears between members of a compound.
  5. The fact that parts-of-speech systems are not evenly distributed among the languages in the sample probably reflects global distribution patterns. It is not difficult, however, to find other languages of types 1, 2 and 5 (or 4/5). For example, languages with one major flexible word class (Type 1: V/N/A) are not only attested in Samoan but also in other Polynesian languages such as Tongan (cf. Broschart 1991, 1997; Churchward 1953: 16), as well as in, for example, Mundari, an Austro-Asiatic language (Hoffmann 1903; Sinha 1975: 76). Many of the Turkic languages do not distinguish between nouns and adjectives (Type 2: V-N/A; see, for example, the contributions in Deny et al. 1959) and there are other Iroquoian languages, such as Mohawk (Bonvillain 1973), which resemble Cayuga (Type 4/5: V(-N)).
  6. See also Hengeveld (1992: 69), who writes that "languages at best show a strong tendency towards one of the types".
  7. See also Brauner (1974: 38) on Bambara, Fortescue (1984: 108) on West Greenlandic, Hoskison (1983: 53) on Gude, Childs (1995: 126) on Kisi, Lee (1989: 40) on Korean, and Campbell (1985: 120) on Pipil. The situation in Sarcee, however, is not entirely clear. Although the two most frequently used "qualifiers" (*tsit*: 'á and *tcúw*) "are obviously related to verb stems *-tsit*: 'á 'to be small' and *-tców* 'to be big'", Cook (1984: 67) also writes that not every qualifier is traceable to a verb stem.
  8. On the verbal character of predicates expressing adjectival notions, see, for example, Chao (1961: 52) and Gao (1994: 494).
  9. Cf. also Okell (1969: 49–50) and Wheatley (1987: 851) on Burmese, and Saul—Freiberger Wilson (1980: 33) on Nung.
  10. The diacritic marker "˘" (as in *ô*) indicates mid-low dropping pitch; the symbol "˙" (as in *q*) indicates low dropping pitch.
  11. Strictly speaking all sort nouns and set nouns should be glossed with the English noun in the singular and plural (for want of a more appropriate form), but since I follow the original glosses only the bare (singular) form of the noun is given in the examples.
  12. Of course, this does not mean that speakers of these languages do not know that umbrellas are discrete entities in the external world; see also Note 20.
  13. See also, for example, Iljic (1994: 99) on Chinese nouns: "In itself, out of context, the noun has a purely qualitative meaning, henceforth referred to by the term 'no-tion'."
  14. Sortal classifiers can be further divided into classifiers that are used to count single entities (*common classifiers*) and classifiers that are used for counting discrete entities in groups (*collective or group classifiers*). The following examples of collective classifiers are from Burmese (Okell 1969: 211): *pyà hnă si* [flower two bunch] 'two bunches of flowers'; *pāñ hnă ouñ* [bee two swarm] 'two swarms of bees'.
  15. Interestingly, the classifier is not always used with Spanish numerals (Yucatec is

spoken in Mexico), which are often used with referents involving four or more units or individuals. However, since "the syntactic significance and interpretation of these mixed constructions is quite complicated" they are not discussed in Lucy's study (Lucy 1992: 43, 51).

16. There is some variation with respect to the occurrence of the so-called number marker on non-numerated set nouns. In some languages it is compulsory (for example, Hungarian), in others it is optional (Oromo) and there are also languages in which it is totally absent (for example, most nouns in Ngiti).
17. "Singulative markers" are regarded as one of the features in the Ethiopian Language Area (Ferguson 1976: 74; Unseth 1988: 88). The same marker has also been called "particularizing determiner", "individualis", "suffisso d'unità", "forma individuante" (Tucker—Bryan 1966: 525). Note that singularity is also explicitly expressed in the Bantu-type noun class affix and by a numeral classifier in certain languages of Southeast Asia (see below).
18. See, for example, Holmer (1947: 61, 86–87) on Cuna; Churchward (1951: 15–16) and Dixon (1988: 175) on Fijian; Beekes (1990: 213) on Proto-Indo-European; Derbyshire (1979: 126) on Hixkaryana; Merlan (1982: 86) on Mangarayi; Du Feu (1996: 135) on Rapanui; Cook (1984: 65) on Sarcee; Thomsen (1984: 59) on Sumerian; Swanton (1911) on Tlingit; Benzing (1959: 722) on Chuvash; Szakos (1994: 68) on Tsou.
19. Note the difference between "dissective" and "agglomerative": both singleton and non-singleton sets are agglomerative, but only non-singleton sets can be dissected.
20. Since this is a classification of basic (underived, uninflected) nouns, it does not apply to, for example, plural forms of singular object nouns, which also denote agglomerative entities: apple(s) + apple(s) = apples.
21. For the same reason *Seinsarten* are not quite the same as *modi essendi*, which were developed by the group of medieval grammarians known as *Modistae* and "which were meant to provide an ontological foundation for grammar" (Gabler 1991: 567). Although both terms can be translated as "modes of existence" or "modes of being", *modus essendi* is an *ontological* notion and concerns the thing itself. *Seinsart* on the other hand relates to the property as denoted by the noun (especially how it is specified in terms of the features Shape and Homogeneity) and is thus a linguistic category. Different languages may use different nominal subcategories (*Seinsarten*) in connection with the same thing in the extra-linguistic world. For example, whereas the real-world entity 'table' is a discrete physical object, the referent of a NP headed by the equivalent of the noun 'table' in Language L may be (depending on the nominal subcategory employed by speakers of Language L): a general entity, a sort entity, a set entity, or a singular object entity. This does not mean, of course, that the speakers of, for example, Thai or Yucatec Maya do not know that a table in the physical world is a discrete object, but this piece of knowledge is simply not part of the lexical semantics of the noun (for a similar point see, for example, Unterbeck 1993).
22. Greenberg (1975), for example, suggested that classifiers may evolve into gender or noun class markers, and a study by Hopper (1986: 342) indicates that in Malay

classifiers may also serve as topic markers in that they typically occur with “potential topics”. For a more extensive treatment of the grammaticalisation of classifiers the reader is referred to Bisang (1993, 1996).

23. I am not aware of any evidence that would indicate that we are dealing with an anaphoric compound of the kind that is attested in Vietnamese (see above). Note, however, that according to a description provided by the Miao Language Team (1972: 14) Hmong classifiers can be used for both definite and indefinite reference: “Each regular classifier has five forms, indicating the size, appearance, and definiteness of an object. Note, for example, the changes in lu 55 “clf. for round or hollow objects” [numbers correspond to tone values—JR]: lu 55 (definite or indefinite, large attractive), lɔi 55 (definite, ordinary), lɔ 55 (definite, tiny), lɔi 35 (indefinite, ordinary), lɔ 35 (indefinite, tiny)”. In addition, it should be noted that Hmong has a fair amount of internal diversity, so it is not the case that generalisations for one variety would necessarily hold for another.
24. See also Cornyn—Roop (1968: 78): “The syllable -tei (sometimes -twei) in noun expressions denotes the plural. It is much less common than the English plural and is used only when plurality is stressed.”
25. Cf. also Vū Duy-Tù’ (1983: 52) on *các* and *nhũ’ng*, who shows among other things that *nhũ’ng* has the pragmatic function of marking (expanding) focus (cf. Dik 1997: 331–335): “Die Verwendung der Substantive im Plural erfordert keine besondere Form: *các* und *nhũ’ng* werden zur Pluralbildung von Substantiven verwendet, wenn klarer hervorgehoben werden soll, daß es sich um eine Mehrzahl von Größen (Menschen, Tieren, Dingen, Angelegenheiten) handelt. ... *các* umfaßt alle Elemente der erwähnten Größe, *nhũ’ng* erfaßt nur bestimmte Elemente davon. ... *nhũ’ng* kann vor einer Zahl verwendet werden, um diese als eine (relativ) große Menge zum Ausdruck zu bringen, z.B. *chị ấy có nhũ’ng hai con mèo* ‘Sie hat sogar zwei Katzen’”. [To use the noun in the plural does not require a special form: *các* and *nhũ’ng* are used to form plural nouns if one wants to bring out more clearly that a plurality of kinds of entities is involved (people, animals, things, situations). ... *các* can be employed with all of these entities, *nhũ’ng* only with some of them. ... *nhũ’ng* can be used before a numeral ... to express a (relatively) large number, for instance, *chị ấy có nhũ’ng hai con mèo* ‘she [literally: “older.sister”] [DEM have PL two CLF:animal cat—JR] has even TWO cats’.]
26. Although I regard *cov* as a marker of collectivity rather than simple plurality, the glosses are those provided by Harriehausen (1990); see also Note 10.
27. See also, for example, Bisang (1996). One could hypothesise (as Ratliff indeed does; cf. Ratliff 1991: 696, 699) that ultimately *cov* may become a real plural marker. The possible diachronic relation between collective and plural markers has also been observed in, for example, Kartvelian (Tuite 1992: 271), Ket (Werner 1994: 51), the Mesoamerican languages (Suárez 1983: 86), and the Semitic languages (Kuryłowicz 1976); cf. on the same phenomenon also Kuryłowicz (1964, 1972); Jespersen (1924: 195); Meillet (1967: 66); Comrie (1981: 167); Menges (1968: 111–112). Since collective markers appear to be a common source for (real) plural markers (Rijkhoff 1992: 90–91), one could now propose the following chain of

grammaticalisation: collective noun/group classifier > collective marker > plural marker. Since classifiers occur with sort nouns, collective aspect is marked on set nouns and plural marking is a typical feature of singular object nouns, we may also hypothesise the following development of noun types: (general noun >) sort noun > set noun > singular object noun.

28. The language that resembles Hmong Njua closest in this respect is Mandarin Chinese. The optional suffix *-men* is a grammatical element, has a collective meaning, and is mutually exclusive with numerals. Since *-men* is currently restricted to human nouns, one could hypothesise that Mandarin has an emergent category of set nouns.
29. Notice that "bigness" or "smallness" does not come in any particular shape either. Although notions such as "big" and "small" may imply a spatially bounded region, the properties by themselves (big, small) are not characterised as being spatially bounded.

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# Grammaticalisation and part-of-speech systems

Petra M. Vogel

## 1. Introduction\*

I will present a model for ungrammaticalised (in the sense of not grammaticalised), grammaticalised, and de-grammaticalised part-of-speech systems exemplified by Tongan, German, and English.<sup>1</sup> This model is based on the assumptions made in Broschart (1997) that the main difference between part-of-speech systems in languages like Tongan and German is the distribution of the features [ $\pm$ pred] (predicatability) and [ $\pm$ ref] (reference in discourse), in lexicon and syntax.

Lexemes in Tongan are [ $-$ ref] and [ $-$ pred], which is why there are no “word classes” in the lexicon because all words are “nominal”. However, syntactic phrases in Tongan are either [ $+$ ref/ $+$ pred] (“verbal”) or [ $+$ ref/ $-$ pred] (“nominal”). Thus, the main distinction in Tongan is between [ $-$ ref] lexemes and [ $+$ ref] syntactic phrases.

Lexemes in German are also [ $-$ ref] but are at the same time either [ $-$ pred] (nouns) or [ $+$ pred] (verbs). Syntactic tokens are [ $+$ ref] and also either [ $-$ pred] or [ $+$ pred]. Thus, the main distinction in German is between [ $-$ pred] nouns or NPs and [ $+$ pred] verbs or VPs.

I will argue that the presence or absence of the feature [ $+$ pred] with regard to a lexeme makes for a grammaticalised or ungrammaticalised part-of-speech system according to the definition that grammaticalisation is, among other things, “concerned with the question ... of the fixed and the less fixed in language” (Hopper—Traugott 1993: 1). I will show what consequences this must have for transfers in the lexicon (marked lexical derivation and unmarked lexical conversion or multifunctionality) and on the syntactic level (marked syntactic derivation and unmarked syntactic conversion or multifunctionality).

The acquisition or loss of the feature [ $+$ pred] in the part-of-speech system of a language is called a grammaticalisation or de-grammaticalisation process respectively. I will show what historical developments may lead from an ungrammaticalised to a grammaticalised and back to a de-grammaticalised part-of-speech system. The latter process will be exemplified by the case of English, especially the half millennium of Middle and Early Modern English from about 1200 to 1700 AD, which is a prime example of a “break-down” of a part-of-speech system.

## 2. Parts of speech and grammaticalisation

The concept of grammaticalisation can be applied to the degree of fixedness between syntactic slot and lexeme. Given that there are two syntactic slots signalling identifying reference and predication, and given that not all lexemes can appear in both (without any further measures being obligatorily taken), the degree of grammaticalisation increases as lexemes allow less for such an unmarked syntactic variation while showing at the same time fixedness to a particular syntactic slot, and vice versa. This concept could even be applied when there is only one syntactic slot, as Sasse (1993: 200) claims for Cayuga, and thus absolute fixedness for lexemes following from missing variation (cf., however, on this problem in Iroquoian the paper by Mithun, this volume).

In the following figures, the grammaticalisation of parts of speech is exemplified by a sketch of two lexeme groups A and B, classified on the basis of the syntactic slots in which they can appear.

In Figure 1, most of the lexemes are assigned to mutually exclusive syntactic slots and only a few may appear in both positions ( $A \cap B$ ). This represents a high degree of grammaticalisation, fixedness between lexeme and syntactic slot.

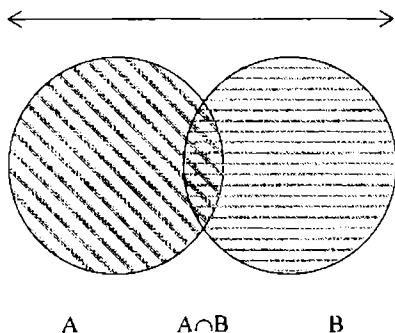


Figure 1. High degree of grammaticalisation

In Figure 2, only a few lexemes are assigned to mutually exclusive syntactic slots and most may appear in both positions ( $A \cap B$ ). This represents a low degree of grammaticalisation, fixedness between lexeme and syntactic slot.

Therefore, a language's part-of-speech system is highly grammaticalised if the greater number of its lexemes is assigned to one particular syntactic slot signalling, for example, predication or identifying reference. In this case, the assignment to a particular syntactic category is already an obligatory and integrative characteristic of the lexeme itself. Interestingly, languages of this kind often have inflectional end-

ings that can be considered to be historically “old” free syntactic markers that are now assigned to the lexeme itself (and are thus characteristic for the whole group of lexemes belonging to one and the same part of speech).

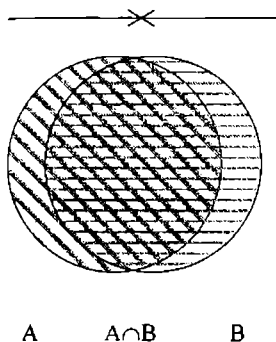


Figure 2. Low degree of grammaticalisation

This leads to a concept in which lexemes are grouped according to their syntactic slots (and their inflectional endings). One could speak here of “syntactically determined” lexeme classes, which is exactly what is traditionally meant by “word classes” as morphosyntactic categories of a particular inflectional paradigm and syntactic slot characterising the “lexeme”. The concept of word classes (and subclasses like verbs or nouns) is important in traditional grammar writing, especially since all the classical Indo-European languages are characterised by such syntactically determined lexeme classes. In fact, only these should be called “word classes” (as a specific part-of-speech system), just as terms like “verb” or “noun” should only be used within the “word class” framework.

But theoretically there may be other types of categorisation. For instance, there are languages with highly ungrammaticalised part-of-speech systems, where the greatest part of the lexemes can appear in quite different syntactic slots (signalling, for example, predication and identifying reference) without any further measures being obligatorily taken. In this case, lexemes are neutral with regard to identifying reference or predication and are syntactically not specified in the lexicon. Syntactic specification takes place on the phrase level, where the lexical types are transformed into syntactic tokens. Only these phrases are syntactically determined and not the lexemes themselves.

Hengeveld (1992) takes another approach to parts of speech which is compatible with the grammaticalisation framework and even lends another perspective to it. As his starting point he takes content words (“predicates”, as opposed to grammatical elements such as articles, prepositions, conjunctions, etc.; Hengeveld 1992: 47) and their possible functions in linguistic expressions (Hengeveld 1992: 58).



A *verbal* predicate is a predicate which, without further measures being taken, has a predicative use *only*.

A *nominal* predicate is a predicate which, without further measures being taken, can be used as the head of a term.

An *adjectival* predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head.

An *adverbial* predicate is a predicate which, without further measures being taken, can be used as a modifier of a non-nominal head.

Based on these assumptions, Hengeveld (1992: 62–72) distinguishes flexible, specialised and rigid languages. Specialised languages have a particular part of speech for every function, whereas flexible languages “combine the functions of two or more parts of speech in a single part of speech” and rigid languages “simply lack one or more parts of speech, and have to use alternative constructions instead” (Hengeveld 1992: 48). However, one problem that arises here is terminology. As outlined above, terms like “noun” refer to a part-of-speech system traditionally represented by specialised languages (those with highly grammaticalised parts of speech), so it might be preferable not to use the same terms for the functions of parts of speech and for the actual parts of speech or word classes.

	1	V/N/A/Adv				Tongan
Flexible	2	V	N/A/Adv			Quechua
	3	V	N	A/Adv		Dutch
Specialized	4	V	N	A	Adv	English <sup>2</sup>
	5	V	N	A	—	Wambon
Rigid	6	V	N	—	—	!Xū
	7	V	—	—	—	Tuscarora

Figure 3. Flexible, specialised and rigid languages (Hengeveld 1992: 69)

A combination of my approach and Hengeveld’s will start out from the degree of fixedness within the framework of grammaticalisation and further integrate the concept of number and hierarchy of classes as outlined in Hengeveld’s approach. Hengeveld’s differentiation between specialised and rigid languages need not be explicitly expressed in my approach as it is implied in the number of syntactic slots or categories found in a language. Also, there is no explicit expression for a mixture of more grammaticalised and less grammaticalised parts of speech as in, say, Quechua or Dutch. Although I refer here to whole part-of-speech systems, the degree of grammaticalisation can be investigated for every single part of speech.

Another interesting feature of Hengeveld’s approach is the implied hierarchy of parts of speech, namely verb > noun > adjective > adverb: “this hierarchy says that a category of predicates is more likely to occur as a separate part of speech the more

to the left it is in the hierarchy" (Hengeveld 1992: 68). Translated to the framework of grammaticalisation, this means that when de-grammaticalisation processes occur, they will tend to start from the "right" side in the hierarchy. This happened, for example, in German, which moved from specialised Old or Middle High German (with an explicit manner adverb marker *-o* or *-e* respectively) to more flexible New High German (with no explicit adverb marker, just like in Dutch in Figure 3). Thus, in my approach, the process in which a language moves from a specialised or rigid language to a (more) flexible language is called de-grammaticalisation. De-grammaticalisation processes apparently tend to start from the "right", first affecting the N–A–Adv part.

A last important point within Hengeveld's approach is the implied markedness dichotomy of  $\pm$ inherent predicability (cf. quote above). Verbal predicates are inherently predicatable, while nominal, adjectival and adverbial predicates are not. Thus, the latter group may or may not need additional material in order to be predicatable, while verbal predicates definitely do in order to appear in another than the predicative use (cf. also Broschart 1997: 154). This means that on the one hand the "fixedness" parameter is not absolute but must be modified by the parameter of (un)-markedness. On the other hand, Broschart (1997) shows that in noun-verb languages, which I call highly grammaticalised languages, this is true for the lexemes themselves; but in type-token languages (which I refer to as less grammaticalised languages), this holds true not for the lexemes but only for the syntactic tokens.

Before I come to an analysis of English in the framework of grammaticalisation, suggesting a de-grammaticalisation shift from a "specialised" noun-verb language (with a grammaticalised part-of-speech system) towards a "flexible" type-token language (without a grammaticalised part-of-speech system), I shall first give some examples of what distinguishes a typical type-token language (exemplified by Tongan) from a classical noun-verb language (exemplified by German) and determine what role inflection, word-formation, and syntactic transposition play in both systems.

### 3. Ungrammaticalised and grammaticalised part-of-speech systems

Broschart (1997) shows in his very interesting paper on Tongan (Polynesian) that with regard to parts of speech, there are at least two language types, which he calls "noun-verb" and "type-token" languages. Tongan is a representative of an (ungrammaticalised) type-token language, while many Indo-European languages belong to

the (grammaticalised) noun-verb type. Both part-of-speech types share the characteristic that they have non-referential lexical items, so-called types with the feature [-ref], and referential syntactic items, so-called tokens with the feature [+ref]. Referentiality here refers to being [ $\pm$ ref] in discourse.

However, in type-token languages the predominant distinction lies in the opposition lexical type vs. syntactic token; that is, the further differentiation regarding predicability is confined to the syntactic level, and the majority of lexemes is neutral with regard to this distinction. In grammaticalised noun-verb languages, the differentiation [ $\pm$ pred] is already part of the lexicon; thus the predominant distinction here is [+pred] vs. [-pred] or verb vs. noun. The majority of lexemes is not neutral with regard to this distinction.

The crucial point, however, is that [-pred] is ambiguous (cf. Broschart 1997: 154). It can either imply that an item is strictly non-predicatable (case A), or it can imply that it is neutral with regard to predicativity (case B): "nothing is positively said about the presence of the property in question" (Broschart 1997: 154). In case A the shift from one category to another is necessarily marked (or even impossible), while in case B it may be marked or unmarked.<sup>3</sup> Therefore, in case A lexemes cannot simply change from one word class to another; instead, they need specific markers to do this.

An unmarked transfer from [-pred] to [+pred] will be called *lexical conversion* on the type level, and *syntactic conversion* on the token level. Likewise, a marked transfer from [+pred] to [-pred] or from [-pred] to [+pred] will be called *lexical derivation* on the type level, and *syntactic derivation* on the token level.

### 3.1. Ungrammaticalised type-token languages

The greater number of the lexemes in a type-token language can, without any further measures being obligatorily taken, appear in different syntactic slots signalling, for example, syntactic functions like predication and identifying reference. A type-token language is characterised by lexical multifunctionality with regard to syntactic functions because the lexemes themselves are syntactically not specified; they are not only [-ref] types but also [-pred]. The syntactic specification in type-token languages takes place on the phrase level, where the lexemes are combined with referential or predicative elements, for example, article (ART) or tense/aspect/mood (TAM) elements. Thus they are transformed into syntactic tokens, specified, for example, for identifying reference [-pred] or predication [+pred].

Typically, a Tongan TAM phrase is used in predicative function, and an ART phrase in an identifying referential syntagm:

- (1)      TAM-phrase      ART-phrase
- |             |             |          |                |
|-------------|-------------|----------|----------------|
| <i>na'e</i> | <i>kata</i> | <i>e</i> | <i>tangatá</i> |
| PAST        | laugh       | ART.SP   | man.DEF        |
- 'the man laughed' (Broschart 1997: 134)

Following Broschart (1997: 159), the lexical "types" are unmarked for identifying reference as well as for predication: [–ref/–pred]. There seems to be no absolute restriction with respect to the ability of lexemes to appear in different syntactic slots.

- (i) Most lexemes may appear in predicative TAM phrases [+pred/+ref], regardless of whether they refer to ontological objects or events.

- (2) a. object (Broschart 1997: 133)

<i>'e</i>	<i>'uha</i>
FUT	rain

'it will rain'

- b. event (Broschart 1997: 134)

<i>na'e</i>	<i>kata</i>	<i>(e</i>	<i>tangatá)</i>
PAST	laugh	ART.SPEC	man.DEF

'(the man) laughed'

- (ii) Most lexemes may appear in non-predicative ART phrases [–pred/+ref], regardless of whether they refer to ontological objects or events (examples Broschart 1997: 133).

- (3) a. object

<i>e</i>	<i>tangatá</i>
ART.SP	man.DEF

'the man'

- b. event

<i>e</i>	<i>'alu</i>
ART.SPEC	go

'the (act of) going'

The phrasal tokens, however, cannot be used in all syntactic contexts without further measures being taken. While TAM as well as ART phrases are able to refer in discourse [+ref], only TAM phrases are also inherently predicatable ([+pred]). They may never be used in an identifying referential phrase: \*[+pred/+ref] > [–pred/+ref].

The ART phrase is [-pred] and may be used as a predication in connection with a special “presentative marker” *ko* for “nominal predications”: [-pred/+ref] > [+pred/+ref] (*syntactic derivation*).

- (4) a. object (Broschart 1997: 136)

*ko*        *e*            *puaka*  
PRST     ART.SP     pig/pork  
'(it is) a pig/pork'

- b. event (Broschart 1997: 140)

*ko*        *e*            'alu    'a        *Sione*   *ki*    *kolo*  
PRST     ART.SP   go     GEN.AL   Sione   ALL   town  
'(it is) a going of Sione to town' = "Sione is presently/  
visibly going to town"

In such a type-token language, the primary categorial distinction holds between non-referential lexical types and referential phrasal tokens. Secondly, these phrases can be distinguished according to whether they are TAM-marked [+pred] or ART-marked [-pred]. Only ART phrases can be transferred. Moreover, they need an additional marker *ko* in order to be predicatable.

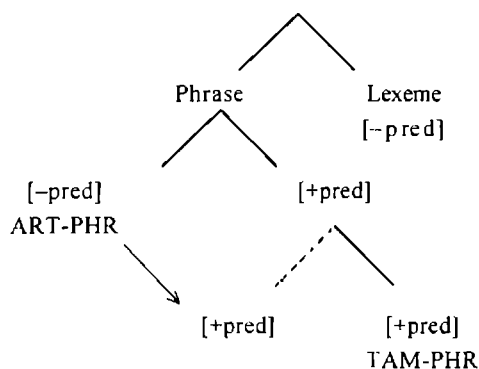


Figure 4. Type-token concept in Tongan

However, what about inflection and derivation in Tongan?

There is no inflection and, accordingly, no finite and nonfinite word forms. TAM and ART items, for example, are phrase markers and do not form an inflectional paradigm characteristic of a specific group of lexemes.

Although derivation can be found in Tongan, the affixes can combine with words from a wide range of semantic domains and do not set off one “word class” from another (Broschart 1997: 146). Many meanings expressed with the help of derivation markers in a noun-verb language will be understood from the lexical content or the context in a type-token language. For example, this is true of the so-called “nominalisations”, *ko*+ART phrase. Although *ko'ene katá* [KO POSS laugh] can refer to the whole proposition ‘(it is) the fact that he laughs’, it can also mean ‘(it is) his action of laughing’. And although *ko e fu'u (CL) katá* [KO ART.SP CL laugh] can mean ‘(it is) the one who always laughs’, thereby even referring to one of the arguments of the proposition, it can also refer to the action itself, ‘(it is) the big laughter’ (Broschart 1997: 142). Broschart (1997: 141–142) also points out, that TAM markers do not operate on specific “hidden predicates”. *te u puaka* [FUT 1SG pig/pork] ‘I will provide pork’ does not involve a verb with a fixed cluster “object + inherent action”; instead, it comprises an instantiation of the object in time as in ‘in the future (there will be) (non-referential) pig-manifestation (as provision) of me’ (Broschart 1997: 142). The respective predication results from lexical knowledge, because body parts, for example, induce a possessed-by-one relation, names refer to a held-by-one relation, actions to a performed-by-one relation, etc.

### 3.2. Grammaticalised noun-verb languages

In noun-verb languages the syntactic category is an integrative part of the lexicon. Syntactic category and lexeme are fixed clusters as opposed to the lexemes in Tongan, which are neutral and can combine with different syntactic categories. Thus, on the type level, lexemes are also non-referential [–ref] in discourse but at the same time they are either [+pred] or [–pred]. An unmarked transfer from [–pred] to [+pred] represents lexical conversion, and a marked transfer from [–pred] to [+pred] or from [+pred] to [–pred] is (lexical) derivation on the type level.

The most typical noun-verb language would be one in which the phrasal markers of type-token languages have become an inherent part of the lexeme and have developed into so-called inflectional markers. There would be no difference between the [–ref] lexical type and the [+ref] syntactic token; i.e., in contrast to a type-token language, all syntactic tokens would be able to refer in discourse [+ref] without any marker apart from their inflectional ending. Lexical and syntactic transfers from [+pred] to [–pred] would be impossible or marked, while transfers from [–pred] to [+pred] would be marked or unmarked.

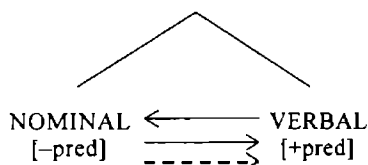


Figure 5. Noun-verb concept

The next step in a noun-verb language is characterised by the development of marked nominal phrases (e.g., ART phrases) so that there would evolve a differentiation between simple non-referential  $[-\text{ref}/-\text{pred}]$  lexical types and complex referential nominal phrases  $[\text{+ref}/-\text{pred}]$ . Furthermore, these  $[\text{+ref}/-\text{pred}]$  phrases are predicatable with or without an additional marker. When marked, they represent  $[\text{+ref}/\text{+pred}]$  phrases in which the marker is (mostly) a copula (syntactic derivation). In the case of unmarked nominal  $[-\text{pred}]$  to  $[\text{+pred}]$  phrasal transfers, one could speak of syntactic conversion. These phrases are functionally  $[\text{+pred}]$ , but they are not “verbal” because they have nothing to do with the lexemes which are inherently  $[\text{+pred}]$ .

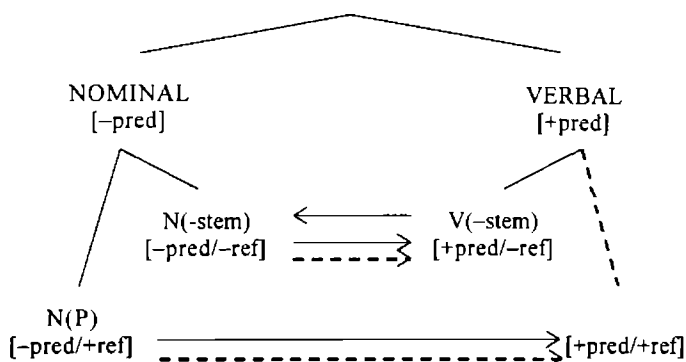


Figure 6. Expanded noun-verb concept (Part 1)

I will assume for the time being that this is the noun-verb concept we find, for example, in German. Nominal and verbal stems (i.e., lexical types) in a noun-verb language are both  $[-\text{ref}]$ , but verbal stems carry the feature  $[\text{+pred}]$ , while nominal stems are  $[-\text{pred}]$ .

First, we will consider the lexical type level. When a verbal stem  $[\text{+pred}]$  is transferred to the nominal side  $[-\text{pred}]$  it must be marked. In that case the stem is “neutralised” and can be combined with inflectional markers and syntactic categories of other word classes. These marked transfers are the so-called (lexical) derivations, i.e., marked stems in noun-verb languages. In contrast to Tongan, derivations are connected to word classes, because the stem itself is already categorised as belong-

ing to a certain syntactically determined lexeme category. A transposition from [+pred] to [-pred] will result in marked verbal abstract nouns and clusters of features with [+pred] as the lexical “nucleus” and [-pred] as the inflectional and syntactic “shell” (for example, *Beschreib-ung* ‘description’, *Reinig-ung* ‘cleaning’, *Zubereit-ung* ‘preparation’).

However, deverbal nouns constitute a continuum with regard to “nouniness”, which is why some are more “nouny” and others are more “verby”. The more nominal the deverbal noun, the more features it shares with “typical” nouns with respect to inflection and syntax. On the other hand, as lexeme and syntactic context are a fixed cluster, a stem transfer from one word class to another also results in a transfer of the original syntactic context. Therefore, it is possible and even necessary to distinguish an inner and an outer syntactic “shell”, with only the outer shell corresponding to the “new” syntactic context. Because of these two kinds of syntactic distributions, Haspelmath (1996: 52) distinguishes between “word-form word-classes” (concerning elements outside the phrase = external syntax) and “lexeme word-classes” (concerning combinations with elements inside the phrase = internal syntax). In an expression such as *der im Wald laut singende Wanderer* [the in+the forest loudly singing hiker], the present participle is adjectival with regard to its word-form word class (modification of head noun: (*der*) ... *Wanderer* [(the) ... hiker]), but it is verbal with regard to its lexeme word class (valency-connected locative and manner adverbial: *im Wald* [in+the forest], *laut* [loudly]) (Haspelmath 1996: 52).

Besides, primary, non-derived nouns in noun-verb languages imply a kind of “limitedness” in the wider sense, resulting in inherent definiteness, concreteness and individuality; this is why they are often nouns with the feature [+count].

Very “nouny” deverbal nouns should resemble primary nouns with the feature [+count] and should thus have singular and plural inflectional forms. Syntax-externally they should be combinable not only with the definite, but especially with the indefinite article (as a sort of “counter”). Because of the verbal “core”, “nouny” deverbal nouns should refer to the whole predication, including its valency-dependent arguments, rather than only describe the action as such. However, these syntax-internal arguments should be connected not by verbal but by nominal government (e.g., genitive or prepositional *von* ‘of’ phrase): *etwas beschreiben* ‘to describe something [ACC]’ vs. *die Beschreibung von etwas* ‘the description of something’, but not \**die Beschreibung etwas* ‘the description something [ACC]’. Because of the inherent valency feature, nominalisations can even “turn” into one of their own arguments—a process called “reduction” (Iturrioz 1987). Consider, for example, *Bedienung* ‘service/staff’ as an abstract noun (*die Bedienung ist ausgezeichnet* ‘the service is excellent’) and as its “own” agentive argument (*die Bedienung ist sehr*



*freundlich* 'the staff is very friendly'; here, *Bedienung* stands for the agent 'someone who serves someone').

Interestingly, maximally "nouny" deverbal nouns are often unmarked or zero derivations. They show typical nominal features such as pluralisation, combination with the indefinite article, reduction and concretisation: (*der*) *Treff* 'meeting' or 'place where one meets (locative reduction)', (*der*) *Abwasch* 'washing-up' or 'things that one has to wash up'. Because of their unmarkedness and the semantic and syntagmatic parallel to marked verbal abstract nouns, they may be called zero derivations. Moreover, the unmarkedness of zero derivations may establish an iconic relation to the conceptually similar primary count nouns.<sup>4</sup>

In section 3.1 we have seen that Tongan *ko* marked phrases display similar characteristics as the derived verbal nouns in noun-verb languages (which may be the reason why they are called "nominalisations"). Predominantly due to lexical and contextual knowledge, a Tongan "nominalisation" can refer either to the action described in the verbal noun itself, to the entire proposition, or to one of the "verb's" own arguments ("reduction"). However, due to the grammaticalisation factor, in noun-verb languages derived verbal abstract nouns are mostly "complex" and refer to the entire proposition (or to one of the inherent propositional arguments in case of reduction)—but rarely to the action itself.

When a nominal stem [-pred] is transferred to the verbal side [+pred] it can be marked (case A) or unmarked (case B) because noun stems are neutral with regard to the feature [pred]. Marked transpositions (case A) can result in perfectives (aspect or aktionsart), not only in the narrower sense of temporal limitation but also in the wider sense of extensionally more limited by the addition of further features. Derived denominal verbs represent clusters of features with [-pred] as the "nucleus" and [+pred] as the inflectional and syntactic "shell". In case B, a denominal verb will be paraphrased by an object encoded in the stem and an action specified in the marker (e.g. *ent-waffn-(en)* = 'take away the weapons', *be-pflanz-(en)* = 'to put plants somewhere', *ent-kleid-(en)* = 'take off the clothes', etc.). Unmarked case B transpositions from [-pred] to [+pred] are quite frequent in many languages and also in child language (cf. Clark—Clark 1979; cf. also Hopper—Thompson 1984). "Instrumental" verbs like these consist of complexes of an object and an action that is lexically or contextually connected to the respective object: *fisch-(en)* = 'catch fish', *urlaub-(en)* = 'take a vacation', *bomb-(en)* = 'throw a bomb/bombs' etc.; English *to bike* = 'go by bike', *to microwave* = 'prepare in the microwave', etc. They represent lexical conversion, but in a noun-verb language with dominant derivational transpositions in the lexicon such verbs may be integrated into the derivational system as unmarked or zero derivation because of similar semantic and syntactic structures (and consequently represent a pattern for productive derivations).

We will now consider the syntactic token level. Complex syntactic tokens are referential in discourse [+ref] and at the same time either verbal [+pred] or nominal [-pred]. So far we have assumed a developmental stage where there are only complex nominal [-pred] tokens, for example, ART phrases (although indefiniteness is often not explicitly marked; without going into detail, we can speak of a zero article here). A transition from [-pred] to [+pred] results in [+pred/+ref] tokens that are either marked (case A) or unmarked (case B) nominal constructions in predicational contexts. They are usually called predicate nouns or nominal predications. (For a detailed study on nominal predications, see Hengeveld (1992: chapter 5.1).) In case A, they are mostly combined with syntactic markers such as the copula: (*er*) *ist der König* '(he) is the king', (*ich*) *bin König* '(I) am king'. In case B, the noun alone may serve as a complete predication because of the neutral feature [-pred]: Hungarian *ember* '(it) is a man/human being' (Broschart 1997: 154). In case A, one could speak of syntactic derivation, in case B of syntactic conversion.

There is even a next developmental step when complex verbal predicational [+pred/+ref] phrases evolve. These are auxiliary (AUX) phrases which are combined with so-called infinitives, e.g., (*ich*) *will singen* '(I) want to sing'. Verbal phrases cannot be transposed to nominal phrases, not even with a marker: \*(*das*) *will singen* '(the) want to sing'. The infinitive, however, is a nonfinite verbal form because the verbal categories remain unspecified and the feature [+pred] is neutralised (> [-pred]).<sup>5</sup> Although the notion of non-finiteness is equally as vague as that of finiteness, it is the category of person that seems to be the one most likely to be absent (Koptjevskaja-Tamm 1994). Because of the feature [-pred] every infinitival phrase can be transferred to the [-pred] nominal side without a marker (syntactic conversion): (*das*) *Bücher Lesen* '(the) books reading', (*das*) *singen Wollen* 'the wanting to sing'. Even secondarily predicatable nominal phrases may now be transferred back to the nominal side by using the infinitive form of the copula: (*das*) *König Sein* '(the) being king'. This even more expanded noun-verb type is, for example, characteristic for Germanic languages such as German, Dutch, and the Germanic languages of Scandinavia (see Figure 7).

Until the end of the Middle High German period the infinitive had verbal government only (Koning 1933: 91). In Modern German, however, a split occurred.<sup>6</sup> After that split we still have infinitival phrase with verbal government in the predicate and in argument position: (*ich*) *will das Buch lesen* '(I) want to read the book', *Bücher lesen macht Spaß* 'reading books is fun' (unmarked/unmarked). On the other hand, infinitives in argument position have also acquired nominal government now (e.g., genitive): (*das*) *Lesen dieses Buches* '(the) reading of this book [GEN]'. Therefore it is more appropriate to speak of deverbal derivations in the latter case because in these constructions the so-called "substantivised infinitive" has acquired features of verbal nouns, though extremely "verby" ones. Infinitival verbal nouns

cannot be used in the plural (*\*die Lesen* “the to reads” (literally)) and the combination with indefinite articles is either impossible or unusual (*?ein Lesen* “a to read” (literally)). Moreover, they are semantically simple and not complex as they refer to the action as such without its arguments. As a consequence, they rarely undergo the process of reduction (but compare: *das Schreiben* = “the to write” (literally) = ‘what is written’ = ‘letter’).<sup>7</sup>

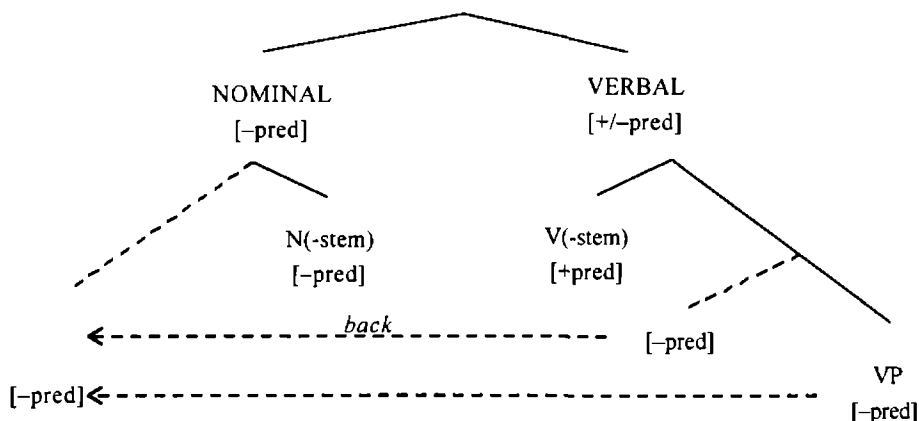
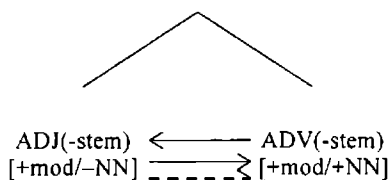


Figure 7. Expanded noun-verb concept (Part 2)

Finally, we will look at the modifier system with adjectives and adverbs and see how they fit into the grammaticalised noun-verb system. The following ideas owe much to Jürgen Broschart (personal communication).

Adjectives and adverbs are modifiers and thus they carry the feature [+mod] as opposed to nouns and verbs that are simply neutral [-mod] regarding modification. Adjectives are modifiers of nominal heads, while adverbs are modifiers of non-nominal heads. Modification of non-nominal heads is the marked feature; therefore, adverbs are [+NN], while adjectives are [-NN] (“NN” stands here for “modification of non-nominal heads”). This explains why adjectives can function as “adverbs” with or without a marker, but adverbs are generally only adverbs.



When the adverb marker is lost, the feature [+NN] turns into [-NN] and the morphological difference between adjectives and adverbs is neutralised. A de-grammaticalisation process sets in and a specialised language Type 4 (V-N-A-Adv) develops into a partly flexible language Type 3 (V-N-A/Adv) (following Hengeveld's terminology). In general, the class of adverbs is extremely restricted; for example, there are very few derivations with adverbs as basis (De Groot 1997), so in the following section I will concentrate on the class of adjectives.

Nominals and verbals are [-mod], which is why they can function as reference modifiers with markers (case A: derivation) or without markers (case B: conversion). On the [-ref] lexical level, nouns and verbs can be transferred either as unmarked pure stems (case B: *Sommer-urlaub* 'summer vacation', *Fahr-schule* 'driving school') or as marked derivations (case A: *sommer-lich* 'summery', *vergeß-lich* 'forgetful'). On the [+ref] token level nominal phrases may have modifying function as, for example, unmarked genitive phrases (case B: *der Hut meines Vaters* 'the hat of my father') or marked prepositional phrases (case A: *der Hut auf dem Schrank* 'the hat on the cupboard'). Verbal phrases can have reference modification as marked relative clauses (case A: *der Hut, der auf dem Schrank liegt* 'the hat that/which is [lies] on the cupboard').

Adjectives themselves are [+mod] but at the same time they are also [-pred]. On the [-ref] lexical level they behave like nouns; that is, they are transferred into verbs with (case A) or without a marker (case B): *be-grün-(en)* 'cover with greenery', *grün-(en)* 'turn green'. However, the same holds true for adjectival transfers to nouns because both are [-pred]: *Frei-heit* 'freedom', (*das*) *Grün* '(the) green'. As for the [+ref] phrasal level, the same feature [-pred] is responsible for the fact that adjectives may appear in an unmarked manner as "substantivised" adjectives in noun position (note, though, that semantically they are still modifiers: (*ein*) *grüner* '(a) green one'), and, consequently, in "nominal" predications (see Figure 7): (*der Baum*) *ist grün* '(the tree) is green', (*der Baum*) *ist ein grüner* '(the tree) is a green one'.

The so-called participles (present and past) follow the pattern of adjectives. On the one hand, they are considered to be nonfinite verbal forms (and thus [-pred]) because they have verbal government (cf. above: *der im Wald laut singende Wanderer* [the in+the forest loudly singing hiker]). On the other hand, they are [+mod] because they have adjectival inflections and can be used just like "real" adjectives in attributive function (*eine blühende Blume* 'a blooming flower', *das gelobte Land* 'the promised land').

When the inflectional markers on adjectives vanish, the feature [+mod] (which in noun-verb systems is connected to the inflection) is lost and [+mod] becomes [-mod]. Compare, for example, the [-mod] predicative adjectives and participles in German as in: *der Baum ist grün/ich bin gelaufen* 'the tree is green/I have [am]

walked vs. the [+mod] use in *der Baum ist ein grüner* 'the tree is a green one'. In New High German the unmarked form appears also in adverbial function (*ich laufe schnell* 'I am running fast').

While this "break-down" at the "lower" or "right" adjective/adverb end of the Hengeveld continuum (see section 2) seems to be quite normal, English has undergone a much more widespread de-grammaticalisation process. Here, even the verbal realm was affected and thus the very basis of a noun-verb system.

#### 4. De-grammaticalisation of a word class system: English

The complete noun-verb concept described in section 3.2 is typical of a specialised language (in Hengeveld's terminology) with its implications for derivation, inflection, and syntactic transformation.

A system of this type existed in all Germanic languages at least in their earlier historical stages. While most of them underwent some de-grammaticalisation processes in the nominal part of their word class system (see section 3.2), English and especially the half millennium of Middle and Early Modern English from about 1200 to 1700 AD is a prime example of a "break-down" of a word class system.

This "break-down" is characterised by, among other things, a reduction or conflation of inflectional endings and a strikingly large number of morphologically unmarked shifts of function between parts of speech, traditionally called conversions or zero derivations.<sup>8</sup> Here, the naked stem, without any further measures being obligatorily taken, can appear in syntactic slots and with inflectional endings of different parts of speech. Most prominent are, for example, changes from noun to verb (such as Modern English *to bike somewhere*, *to microwave sth*, *to pen sth*, etc.) or from verb to noun (such as in *to have a go*, *to have a think*, *to give a shout*, etc.). The important point is that many lexemes are now "underspecified" for "word classes"; moreover, the specification takes place on the syntactic level by phrase markers, e.g., articles. Therefore, Modern English resembles Tongan much more than it resembles German, which is why it is typologically often put on a par with languages like Mandarin Chinese.

When looking for an explanation or a motivation for these developments in Modern English—reductions or conflations of inflectional endings and an increasing number of zero derivations/conversions—one is confronted with extreme, even contradictory statements.

Jespersen ([1972]: 153), for example, attributes the increasing number of zero derivations/conversions to the reduction of inflectional endings: "As a great many na-

tive nouns and verbs had thus come to be identical in form ... it was quite natural that the speech-instinct should take it as a matter of course that whenever the need of a verb arose, it might be formed without any derivative ending from the corresponding substantive”.

Marchand (1969: 363), on the other hand, objects to Jespersen's view: “I do not think that the weakening of the inflectional system has anything to do with the problem of zero-derivation”. His conclusion is due to the fact that zero derivations/conversions can also be found in a highly inflectional language such as Latin and that the number of zero derivations/conversions in English was increasing even before the reduction of inflectional endings.

I will argue that both Jespersen and Marchand are right.

De-grammaticalisation of word classes is indeed directly linked to inflection reduction because inflections are an inherent feature of grammaticalised parts of speech, i.e., word class systems. But not every inflection reduction leads to the “break-down” of a whole word class system as we have seen in section 3.2. While many Western European languages show inflection reduction, especially in the nominal realm, English seems to represent an extreme case (compare Anward 1998). Not only has English taken this development in the nominal realm one step further but here even the verbal word class is affected. With that the noun-verb opposition, the very basis of a word class system, has been affected.

Let us look briefly at the specific features of English that indicate a de-grammaticalised word class system in the extreme not only in the nominal but also in the verbal realm.

In Middle English, many nominal inflections have been reduced or have even vanished altogether. For one, the substantival declension is extremely restricted because the *s*-suffixes for the plural and the (Saxon) genitive are the only inflectional markers in Modern English. On the other hand, adjectival inflectional markers have been completely abandoned. Thus, adjectives have become [–mod/–pred]. Because nouns are also [–mod/–pred], adjectives are purely nominal apart from their semantics.

Therefore, on many occasions the “demarcation” line between nouns and adjectives has vanished. Unmarked “transfers” from adjectives to nouns to form collectives (actually lexical conversions now in the new system) have become extremely frequent and are considered by Preuss (1963: 109) to be even more productive than the transfer noun to verb: *the sick*, *the homeless* (person collectives; but in contrast to German, for example, they never show plural inflection: \**the sick-s* vs. *die Krank-en*); *the unusual*, *the unkind*, *the unknown* (impersonal abstract collectives), etc. Sometimes nominal inflection can now even spread to adjectives, compare: *the fed-s* (short for ‘the federals’ = ‘the federal agents (FBI agents)’).<sup>9</sup> Last but not least, the conflation of nouns and adjectives is undoubtedly also responsible for the

spreading of the nominaliser *-ing* to the VP and the replacement of the (adjectival) present participle suffix *-nd(-)*: *he was hunting* vs. Old English *he wæs huntiende*.

Adverbs, on the other hand, have not (yet?) been affected by these changes, they are still [+mod] (and [+P], see section 3.2), and cannot be transferred to nouns: \**the slowly*.

Next we will have a look at the verbal realm. Recall that the verbal lexeme (including its inflectional forms) is [+pred/-ref], while the VP is [+pred/+ref]. However, the verbal form used in a VP, the so-called infinitive is [-pred]. The next important step in the verbal de-grammaticalisation scenario takes place when the infinitive marker is lost and infinitive and stem are identical. In that case, especially if other inflectional forms are also lost, the feature [-pred] becomes part of the whole lexeme and thus of all verbs. At that crucial point in time both, nouns and verbs, are [-pred] and "nominal", and nominal features spread to verbs.

Although in all Germanic languages unmarked VPs are much less frequently used than marked VPs (compound tenses, passives), it is striking that unmarked VPs with inflected main verbs are even more rare in Modern English. Instead, the VP is now typically marked. This is not only true for auxiliary + infinitive/participle phrases (where the auxiliary carries the feature [+pred]), but also for constructions like *(to) have a listen*, that are characteristic for the so-called nominal style in Modern English. Because "verbal" lexemes are [-pred] now, it is much easier for other word class elements to be "transferred" to "verbs" (lexical conversion in the new system). This holds true not only for the well-known noun-verb and adjective-verb conversions but also for grammatical elements (in Hengeveld's 1992: 47 terminology): e.g., *(to) up*. As in Tongan, the specific semantics is typically assigned through the context or the lexical content—which is why conversion verbs are, for example, called "contextuals" (Aronoff 1980).

Also due to the loss of the [+pred] feature in verbs, the so-called English gerund evolves—that is, a verbal noun in *-ing*, but with verbal government: *reading books is fun*. Within the new English aspect system (see below), it may be classified as a "new" imperfective (marked) infinitive (see below) as opposed to the "old" perfective (unmarked) infinitive: *I saw her crossing the street* vs. *I saw her cross the street*. But unlike the infinitive, the *-ing*-form still has nominal government as well: *the crossing of the street* vs. \**(to) cross of the street*.

Within the de-grammaticalisation framework, the "gerund" is a nominal form that has spread to the verbal realm. Now the *-ing*-form can appear in many positions reserved for nouns, adjectives, and verbs: argument with verbal government ("substantivised" infinitive; noun > adjective > verb), attribute (noun > adjective), adverbial (noun > adjective), predication (present participle; noun > adjective).

Although a new (partial) system with a primary distinction lexical type [-pred/-ref] vs. syntactic token [-pred/+ref], as in Tongan, has evolved, English

hasn't given up the whole of its inflectional/derivational system. Thus, there are now two overlapping systems: a specialised noun-verb-adjective-adverb-system and a flexible noun/verb/adjective-adverb-system.

Specialised	V	N	A	Adv
Flexible	V/N/A			Adv

Figure 9. The Modern English part-of-speech system

So far we can see that Jespersen was right and that the loss of markers is indeed a way to a less grammaticalised word class system. However, a real "break-down" is possible only then when the basic difference between [-pred] and [+pred] in the verbal lexicon is affected so that [+pred] becomes [-pred].

What about Marchand's objection, however, that the weakening of the inflectional system has nothing to do with the problem of conversions/zero derivations because a) they can also be found in a highly inflectional language such as Latin and b) their number in English was increasing even before the reduction of inflectional endings?

As for a), we have seen in section 3.2 that lexical conversion, i.e., unmarked lexical transposition from noun to verb, is an inherent feature of a word class system and due to the neutrality of nouns regarding predicativity ([-pred]). In that respect Marchand's critique is not valid.

As for b), there is also another explanation that has to do with the newly developing aspectual system in English. This may be connected to the de-grammaticalisation of its part-of-speech system; however, this point can be only briefly investigated here.

In contrast to other Germanic languages, English has developed a "new" aspect system, though it did not become fixed until the 18th century. Its well known characteristics are that the marked Expanded Form ending in *-ing* stands for aspectual imperfectivity and the unmarked simple form for perfectivity (Brinton 1988: 16). This is illustrated by the English temporal system. Because the feature of "ongoingness" is incompatible with perfectivity, the simple form of action verbs doesn't allow ongoing actions in the present tense (\**I swim*), nor can the simple past indicate situations that are still ongoing at the time of speech (*I swam* \*and I still do) (Langacker 1982: 277).

The development of the aspectual system is due to the fact that most verbal prefixes functioning as aspect/aktionsart markers were first reduced and later eliminated (for example, *of-*, *for-*, *ed-*, *ymb-*, *ge-* (> *gi-* > *i-* > *ĩ-* > Ø; Weick 1911: 144–145)). This development started during the Old English period and ended in the 13th century (Marchand 1969: 130–131; Mossé 1925: 292). It is the reason why, for example, aktionsart pairs of terminative and durative verbs in other Germanic languages, often correspond to a single English form: e.g., *shoot* vs. German (*er*)*schießen*, *stop*



vs. German (an)halten, *tear* vs. German (zer)reißen, *sink* vs. German (ver)sinken, *freeze* vs. German (er)frieren, *climb* vs. German (be)steigen, etc. If necessary, ambiguities can sometimes be countered on the syntagmatic level by using verbs in combination with prepositional or adverbial particles (e.g., *shoot dead*, *freeze to death*, *tear up/apart*, *climb up*, etc.). Besides, a new aspectual system evolved with unmarked perfectivity and marked imperfectivity.

- (5) aktionsart terminative
  - a. aspect perfective  
*they shot them (dead)*  
German 'sie erschossen sie'
  - b. aspect imperfective  
*they were shooting them (dead)*  
German 'sie erschossen sie'
- (6) aktionsart durative
  - a. aspect perfective  
*they shot them*  
German 'sie schossen auf sie'
  - b. aspect imperfective  
*they were shooting them*  
German 'sie schossen auf sie'

This historical scenario is the reason why not only existing verbs became unmarked; moreover, besides prepositional or adverbial compounds, the only way to form new verbs was through lexical conversion. This accounts for the increasing number of conversions/zero derivations mentioned by Marchand.

The last question, however, must be why the unmarked form has become perfective and the marked form imperfective. The answer to that leads us back to the parts of speech.

It may be argued that the combination unmarked/perfective and marked/imperfective was motivated by two factors:

- (i) All Germanic languages had the general *-nd-* suffix (Modern English *-ing*, see above) for present participles referring to durativity that could easily develop into a suffix for the aspectual subcategory imperfective.
- (ii) From a conceptual point of view, verbal aspectual perfectivity and nominal individuativity (typical for count nouns) share the same feature, namely "limit-*edness*" or "definiteness" in the wider sense. When nominal unmarked stems

are typically limited-individuative, verbal unmarked stems can also be interpreted as limited-perfective and thus “nominal” (for this argumentation, see Leiss 1997).

Both points—the existence of a suffix encoding imperfectivity/durativity and the interpretation of unmarked verbal stems as limited-perfective—may lead to the aspectual correlation unmarked/perfective and unmarked/imperfective respectively.

But at the same time, the point mentioned under (ii), together with verbal inflection reduction, could well have increased the pressure on verbs to assume a “nominal” character. The combination of both verbal “morphological accidents”—inflection reduction and aspectual prefix reduction—can lead to an exceptionally strong “nominalisation” and might explain why Modern English is extreme among the Germanic languages regarding the de-grammaticalisation of their word class system. Perhaps it is even possible to go one step further and assume that it was the concept under (ii) that led to verbal inflection reduction and thus the “break-down” of the English word class system. This, however, must be left to further investigations.

## 5. Conclusion

Type-token and noun-verb languages represent part-of-speech systems that are based on similar but different concepts. Both systems are characterised by lexical types defined as unspecified with respect to reference in discourse [–ref] and by syntactic tokens that are [+ref]. However, in noun-verb languages like German, most lexical types are also specified for inherent predication ([+pred] = “verbal”) or are neutral with regard to this feature ([–pred] = “nominal”). But in type-token languages like Tongan, this specification is not part of the lexicon because most lexemes are not only [–ref] but also [–pred]). Instead, in such languages this specification is part of the syntactic level where phrases, syntactic tokens, are marked as [+pred] or [–pred]. The ability of lexical types to be inherently specified for a specific syntactic context is regarded as an indication for part-of-speech grammaticalisation according to the definition that grammaticalisation is, among other things, “concerned with the question ... of the fixed and the less fixed in language” (Hopper—Traugott 1993: 1). The more lexemes in a language are syntactically specified, the higher the degree of grammaticalisation and vice versa. This is the reason why highly grammaticalised parts of speech can and should be called word classes, because even their lexemes are syntactically specified, not only their syntactic phrases.

The representation of the symbol “+” as the marked term and “–” as the unmarked or neutral term implies also that the transfer of a specified “+”-category is

impossible or must be marked, while the transfer of a neutral “-”-category can but need not be marked. Unmarked transfers may be called syntactic or lexical conversion; marked transfers may be called lexical or syntactic derivation.

Thus, in Tongan the transfer of [+pred] to [-pred] syntactic tokens is not even possible, while a token shift from [-pred] to [+pred] is marked. As most lexemes are [-ref/-pred], they may appear in [+pred] as well as in [-pred] phrases; there are no “word classes”, at least not with respect to syntactic categorisation. Tongan is characterised by lexical conversion and syntactic derivation.

Noun-verb languages, on the other hand, show lexical conversion as well, although in a much more restricted way. This is why the transfer of a noun to a verb on the lexical level ([-ref/-pred] > [-ref/+pred]) is possible without the obligatory use of a marker in most languages. Apart from this, however, there are also marked lexical transfers, that is, derivations that are much more frequent among verb > noun than among noun > verb transfers. In contrast to Tongan they have become affiliated with the word classes and separate one word class from another. Still, lexical conversion must be distinguished from unmarked or zero derivation, especially in the nominal realm. Zero derivations have no marker but they correspond semantically to “real” derivations. On the syntactic level, noun-verb languages possess conversion as well as derivation.

Grammaticalisation as a historical process generally occurs when lexical entities are confined to specific syntactic contexts only, for example, when the feature [+pred] becomes a “fixed” part of their grammatical specification. Typically, free syntactic markers become at some point part of the lexical entities themselves, which leads to the so-called inflections that are not only specified with respect to lexeme classes but also for syntactic contexts—the “new” phrases.

De-grammaticalisation, on the other hand, occurs through the loss of the word class feature, which is mainly or even always caused by inflection reduction. While many Western European languages show at least some degree of inflection reduction, mostly in the nominal realm, English represents an extreme case among the genetically related Germanic languages. In Modern English, the very basis of the part-of-speech system as a word class system has been corroborated by the reduction in the verbal [+pred] realm, which has become [-pred] and thus “nominal”. It is suggested that this extreme development is the result of another “accidental” loss in verbal derivation that led not only to the “break-down” of the word class system but also, for example, to other grammatical changes in the English temporal and aspectual system. However, that does not make English a type-token language, but it is also not a typical noun-verb language because both systems exist side by side.

## Notes

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- 1. For the time being, I use “part(s) of speech” as a neutral term instead of “word class(es)”, cf. section 2.
- 2. Hengeveld refers here to English as an example for a specialised language. I will demonstrate, however, that English has acquired characteristics of a much more flexible language, cf. section 4.
- 3. Which transfers are marked and which are unmarked in case B is a very interesting question, which cannot, however, be investigated here. For more information on conversion, see Vogel (1996).
- 4. In German, this conceptual difference is even paralleled by differences in gender—feminine for marked (*-ung, -keit*) and masculine for unmarked derivations (Vogel 1999).
- 5. Historically, the infinitive element in Germanic (e.g. Gothic *-an*, German *-en*, Dutch *-en*, Swedish *-a*) goes back to the Indo-European accusative of a neuter verbal noun in *-no-* (*\*bhero-no-m*, Gothic *bair-an* ‘to carry’).
- 6. In other Germanic languages, this split may be accompanied by a formal split. For example, in West Frisian, the reduced form in *-e* has only verbal government, while the unreduced form in *-en* has verbal and nominal government. In Swedish, the infinitive in *-a* is now confined to verbal government only (Anward 1998).
- 7. In German, the “infinitive” in the nominal phrase is always neuter, cf. Note 4.
- 8. The terms “conversion” and “zero derivation” go back to Sweet (1900: 38) and Marchand (1969: 360) respectively. Marchand introduced “zero derivation” to stress the syntagmatic and semantic parallelism with overtly marked derivations. He makes a sharp distinction between word-formational “zero derivation” and syntactic “functional change”, “conversion” or “syntactic transposition” (e.g. *government* in *government job*). Sweet’s concept of conversion, on the other hand, was rather ambiguous and covered phenomena in both word-formation and syntax, because for him the common feature of unmarkedness was of primary importance. Today, the term “conversion” is still more often used to cover both types of phenomena (e.g. Quirk et al. [1994]: 1558).
- 9. The opposite phenomenon, adjectival features spreading to nouns, seems also possible, however. Compare the colloquial expression “This is *so* fun”, where an adjectival syntactic construction has spread to a noun.

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# Lexical prototypes as a universal basis for cross-linguistic identification of “parts of speech”

Anna Wierzbicka

## 1. Introduction\*

It is generally agreed in modern linguistics that it makes sense to establish word classes for any language on the basis of language-specific formal (morphosyntactic) criteria. It is also widely agreed that some word classes established in this way in different languages “match” to some extent, and that, in particular, the distinction between “nouns” and “verbs” is, if not universal, then at least near universal. (cf., however, Sasse 1993; Broschart 1997). In his classic work *A course in modern linguistics* Hockett (1958: 221) formulated this modern consensus as follows:

*A part of speech* is a form-class of stems which show similar behaviour in inflection, in syntax, or both. The *part of speech system* of a language is the classification of all its stems on the basis of similarities and differences of inflectional and syntactical behaviour. ...

Although it is rare to find two languages with identical part of speech systems, a great many languages show the same basic plan and differ only as to details. A few languages deviate more drastically.

But if word classes are set up on language-internal formal grounds, on what basis can correspondences between them be established across languages? Obviously, not on formal grounds (for these may differ from language to language), but on semantic grounds. So for example, Schachter (1985: 7) states first that “the distinction between *nouns* and *verbs* is one of the few apparently universal parts-of-speech distinctions” and then defines the “labels” *noun* and *verb* in terms of meaning. The definitions he offers read as follows (Schachter 1985: 7, 9):

The label *noun* is assigned to the class of words in which occur the names of most persons, places, and things.

*Verb* is the name given to the parts-of-speech class in which occur most of the words that express actions, processes, and the like.



One can certainly sympathise with the spirit of Schachter's distinctions, but it is hard to regard the phrasing of his definitions as fully satisfactory. Take for example his definition of *verb*. One can say that a word such as *oh!* or *wow!* expresses a feeling, but not that words like *hit* or *run* "express actions". Presumably what Schachter means is not "express" but "describe" or "denote". Nor is it clear what is meant by the phrase "actions, processes, and the like", since no criterion is offered to tell us what else is "like" actions and processes ("like" requires some basis for comparison, but none is offered).

Furthermore, in the case of "adjectives", if not "verbs", it is known that the class in question may be quite small (see Dixon 1982), and therefore in some languages most words with what Schachter (1985: 13) calls "adjectival meanings" would in fact not belong to the class that would normally be identified in these languages as "adjectives". Surely, Schachter doesn't really mean that parts of speech should be established on a statistical basis.

But even if we ignore these three problems we are still left with a fourth problem, that is, with the phrase "words that express actions, processes, and the like". It is easy to imagine a language in which "words that express actions, processes, and the like" (assuming that we know how to find them) would be predominantly "nouns" rather than "verbs". For example, it is normally held that in English the word *laugh* (which refers to an action) can be either a verb or a noun, and in addition there is another noun, *laughter*, so in this case it is one verb versus two nouns. Suppose then that we find a language in which the overall number of "nouns" for "actions and processes" would be greater than the number of "verbs". Would we then give up the distinction between "nouns" and "verbs" for that particular language? Surely, this is not what Schachter really has in mind. But he doesn't say what he does have in mind.

Finally, Schachter's definitions run into the same difficulties that the much ridiculed definitions of parts of speech in traditional grammar did. Schachter (1985: 3) himself rejects the "notionally-based" definitions of parts of speech as impossible to work with:

As has been amply demonstrated in the linguistic literature (cf. for example, Fries 1952), the familiar notional parts-of-speech definitions, such as 'a noun is the name of a person, place, or thing', fail to provide an adequate basis for part-of-speech classification, since there are many cases in which their applicability or inapplicability is unclear.

But if we have no clear criteria for distinguishing, say, "names of things" from "names of actions and processes", then we have no criteria for matching "nouns" in English with "nouns" in Japanese (or any other language). In fact, we don't even

have any criteria for distinguishing “nouns” from “verbs” in English, for Schachter’s definitions of these classes depend on our ability to find “names of persons, places and things” and “words that express actions, processes, and the like”: ultimately, Fries’ objections apply to Schachter’s own definitions, too.

A similar objection applies to the definitions of “nouns” and “verbs” in Sasse’s (1993) otherwise excellent discussion of the “parts-of-speech” problem. For while Sasse starts by rejecting “the naïve view that nouns (substantives) denote persons or things, verbs denote actions, adjectives denote properties, and so on” (Sasse 1993: 648), nonetheless throughout his paper he talks about words denoting “‘nominal’ (thing-like) concepts” and those denoting “verbal (event-like) concepts” (Sasse 1993: 653), and about “notionally event-like expressions”, and “notionally noun-like concepts” (e.g. Sasse 1993: 655–656), and he relies on these expressions in his definitions of “nouns” and “verbs”. To quote: “We can speak of ‘true nouns’ and ‘true verbs’ only insofar as we are able to define, on morphosyntactic evidence, two distinct lexical categories that identify thing-concepts and referentiality on the one hand, and event-concepts and predication on the other” (Sasse 1993: 657).

Sasse doesn’t explain, however, what he means by “thing-like concepts” and “event-like concepts”, or on what “notional” criteria the two categories can be distinguished. In effect, therefore, he is running into the same problem which—as pointed out by Fries (1952), Palmer (1978) and many others—traditional grammar typically ran into in its treatment of “parts of speech”. And although Sasse’s definitions are clearly more sophisticated than traditional ones, insofar as he links the distinction between “thing-concepts” and “event-concepts” with that between “referentiality” and “predication”, this added sophistication does not deliver conceptual clarity. For just as he doesn’t explain what he means by “thing-concepts” and “event-concepts”, he doesn’t explain what he means by “referentiality” and “predication” either.

Naturally, at some point all explanations must come to an end, and some concepts have to be accepted as indefinable and intuitively self-explanatory (at least in the sense that there is nothing that would be intuitively clearer). But few people would argue that “referentiality” and “predication” are intuitively self-explanatory.

How can we, then, match any word classes across languages? In my view, this can only be done on the basis of empirically established linguistic universals, that is, concepts which can be found in an identifiable form in all languages, and which can also be accepted as intuitively intelligible (non-technical) conceptual primitives. In this paper I will try to show how this can be done. (For a more general discussion and other illustrations of this approach, see Wierzbicka 1998.)

## 2. Anchoring “parts of speech” in semantic universals

Dixon (1995: 175) states that “Grammar exists to code meaning”; and he continues (Dixon 1995: 175–176):

The words of any language can be grouped into a number of lexical classes called SEMANTIC TYPES, which have a common meaning component and some shared grammatical properties. Each semantic type will, in a given language, be associated with a particular word class. Thus the DIMENSION (e.g. ‘big’, ‘little’, ‘long’), COLOUR (‘black’, ‘white’), AGE (‘new’, ‘old’) and VALUE (‘good’, ‘bad’) types are in most languages related to the Adjective class. Words with CONCRETE reference (‘woman’, ‘hand’, ‘water’, ‘axe’, ‘hill’, etc.) always belong to the Noun class. The semantic types expressing MOTION (e.g. ‘go’, ‘throw’) AFFECT (‘cut’, ‘burn’), ATTENTION (‘see’, ‘hear’) and SPEAKING (‘say’, ‘ask’, ‘tell’) are always associated with the Verb class.

Dixon’s basic approach is more specific than Schachter’s or Sasse’s (e.g. “dimension” or “colour” is more specific than “quality” or “attribute”) and relies more on concrete exemplars than on broad generalisations. For example, verbs are defined by Dixon not with reference to “actions”, “processes” or “events”, but with reference to certain quite specific lexical meanings: ‘go’ and ‘throw’, ‘cut’ and ‘burn’, ‘see’ and ‘hear’ and ‘say’, ‘ask’, and ‘tell’. If every language had words expressing these meanings, and if these words fell (in a given language) into one grammatical class, we would have a clear criterion for identifying “verbs” cross-linguistically.

But cross-linguistic evidence suggests that of the nine “prototypical” verbs listed here by Dixon only three (‘see’, ‘hear’ and ‘say’) are universal. German, for example, doesn’t have a word corresponding in meaning to the English *go*, and French doesn’t have a word corresponding to the English *tell* (as distinct from *say*).

What I want to suggest, then, is that cross-linguistic identification of “verbs” should be based on genuinely universal lexical prototypes such as ‘see’, ‘hear’, and ‘say’, rather than on meanings corresponding to English words such as *go*, *throw*, *cut*, *burn*, *ask* or *tell*, which are to some extent language-specific.

General categories proposed by Dixon such as MOTION, AFFECT, ATTENTION or SPEAKING are less helpful in the task of cross-linguistic identification of word classes than the exemplars, for we don’t have any clear criteria for deciding whether a particular word does or does not belong to, say, the “affect” type or to the “attention” type. Since Dixon does not provide definitions of his “semantic types”,

only examples, it seems clear that in establishing these types he is in fact relying on exemplars rather than on any stateable generalisations.

What applies to verbs applies also to the other proposed word classes. For example, we cannot really match classes of “adjectives” in different languages on the basis of undefined putative categories such as “dimension”, “value” or “colour”. If we can’t match “names for persons, places, and things” without some clear criteria, we can’t match “words for dimensions”, “words for values” or even “words for colours” without some clear criteria either. We can, however, match classes of “adjectives” on the basis of universal exemplars such as ‘big’ and ‘small’, or ‘good’ and ‘bad’. Dixon’s second example, ‘black’ and ‘white’, is not equally well suited, for evidence suggests that while all languages have indeed words for ‘big’ and ‘small’ and ‘good’ and ‘bad’, not all languages (pace Berlin and Kay 1969) have words for ‘black’ and ‘white’. (For example, the Dani language studied by Eleanor Rosch Heider 1972 does not; for detailed discussion, see Wierzbicka 1996a; for a comprehensive recent review of “colour” research, see Goddard 1999.)

The idea of a “semantic type” implies some kind of semantic generalisation, but if this generalisation is not precisely spelled out, the usefulness of this notion as an analytical tool is questionable. On the other hand, the idea that word classes can be matched on the basis of specific exemplars is something that one can really work with—provided that the exemplars are chosen from empirically established lexical universals.

Since all the empirically established lexical universals stand for simple concepts which are intuitively quite clear (unlike technical and philosophical notions like “referentiality”, “predication”, “quality”, “value”, “affect”, and the like), by basing our description on lexical universals we are anchoring it at the same time in conceptual primitives, which are—relatively if not absolutely—self-explanatory (e.g. if someone didn’t know, intuitively, what THIS means, they wouldn’t know what “referentiality” means either).

In what follows, I am going to survey the traditional “parts of speech”, as well as some of their latter-day extensions, and propose for them universally applicable definitions based on certain universal exemplars. Before doing so, however, it will be in order to present to the reader my basic analytical tool: the set of universally lexicalised concepts which has emerged from empirical cross-linguistic investigations carried out in the framework of the “NSM” (“Natural Semantic Metalanguage”) semantic approach. The latest version of this set looks as follows (for detailed discussion and justification see Goddard—Wierzbicka; Wierzbicka 1994; Wierzbicka 1996a; Goddard 1998):

Table 1. Semantic and lexical universals

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Substantives	I, YOU, SOMEONE(PERSON), SOMETHING(THING), PEOPLE, BODY
Determiners	THIS, THE SAME, OTHER
Quantifiers	ONE, TWO, SOME, MANY/MUCH, ALL
Attributes	GOOD, BAD, BIG, SMALL
Mental predicates	THINK, KNOW, WANT, FEEL, SEE, HEAR
Speech	SAY, WORD, TRUE
Actions, Events, Movements	DO, HAPPEN, MOVE
Existence and possession	THERE IS, HAVE
Life and death	LIVE, DIE
Logical concepts	NOT, MAYBE, CAN, BECAUSE, IF
Time	WHEN(TIME), NOW, AFTER, BEFORE, A LONG TIME, A SHORT TIME, FOR SOME TIME
Space	WHERE(PLACE), HERE, ABOVE, BELOW, FAR, NEAR; ON (THIS) SIDE, INSIDE
Intensifier, Augmentor	VERY, MORE
Taxonomy, Partonomy	KIND OF, PART OF
Similarity	LIKE

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## 2.1. "Nouns"

Like other word classes, "nouns" have of course to be established in every language on the basis of internal, grammatical criteria. When it comes to cross-linguistic matching, however, this can be done on the basis of some universal exemplars. Which ones?

In the quotation adduced earlier, Dixon (1995: 176) cites five examples of prototypical "nouns": 'woman', 'hand', 'water', 'axe', and 'hill'. He also proposes a generalisation in the form of the phrase "words with CONCRETE reference". But it is not clear why, for example, 'water' and 'hill' are "concrete", whereas 'big' and

'little' or 'cut' and 'burn' are not. And in this case, the examples do not represent lexical universals. For example, Japanese has a word for 'female' (*onna*) but not for 'woman'; it has also a word for 'cold water' (*mizu*), and another word for 'hot water' (*yu*), but no word for 'water' in general (cf. Suzuki 1978); and of course not every language has a word for 'hill' (as distinct from 'mountain'; cf. Nida 1947).

Looking for empirically established lexical universals of the kind traditionally associated with "nouns" I find two words which clearly fit the bill: PEOPLE and THINGS, although these two present some analytical problems too.

Thus, the English word *people* is inherently plural, whereas the corresponding words in other languages are often unmarked and can stand for one person as well (e.g. *hito* in Japanese (cf. Onishi 1994), *orang* in Malay (cf. Goddard forthcoming), *khon* in Lao (cf. Enfield forthcoming)). In other languages, the word corresponding to *people* has two forms, a singular and a plural one (e.g. *Mensch/Menschen* in German). In some cases, the relation between the singular and the plural form is one of suppletion (e.g. *čelovek/ljudi* in Russian). In some languages the word for 'people' is polysemous (e.g. in French *l'homme* can mean either 'human being' or 'man', and in Kayardild, there is also a third sense: 'a Kayardild person', cf. Evans 1994).

Despite all such problems, however, the word for 'people' can be readily identified in any language—provided that some canonical sentences are given as standardised contexts and that these sentences themselves are stated in lexical universals, to ensure comparability (otherwise, *human*, as in the expression *human race*, could be regarded as a noun in English). For example, the following canonical sentences can be proposed for this purpose:

- (1) a. *all people do this*
- b. *many people did this*
- c. *many people don't know this*

A second prototypical "noun" is provided by the English word *thing* and its semantic equivalents in other languages. Here, too, the equivalence can only be established with reference to some canonical sentential contexts, stated in words which themselves are lexical universals. For example:

- (2) a. *I see two big things*
- b. *this thing is moving*

Like PEOPLE, the hypothetical universal THING, too, poses some analytical problems which need to be addressed here at some length. The main one among them has to do with the fact that some languages appear to distinguish "abstract

things" from "concrete things". For example, the Austronesian language Mangaaba-Mbula has two words, *koron* and *mbulu*, the first of which is used in sentences like 'I saw two big things' and 'this thing is moving' but is not favoured in sentences like 'I did something' or 'something bad happened to me', where *mbulu* is usually used (Bugenhagen 1994, forthcoming). Careful analysis of the Mbula data, however, allows us to recognise *koron* and *mbulu* as two "allolexes" (partially conditioned variants) of the same primitive SOMETHING (*koron*) rather than as two words with two distinct meanings. In particular, the fact that *koron* freely occurs as a substitute for a clausal complement of mental predicates WANT, KNOW, FEEL, and HEAR, shows that it doesn't really mean 'something concrete'. Furthermore, as Bugenhagen (forthcoming) shows, in sentences like 'something good happened to me' both *koron* and *mbulu* are in fact possible, although usually *koron* would be avoided here—arguably, because of the polysemy of the verb *-pet*, which can mean either 'happen' or 'appear'.

Similarly, it can be shown on language-internal grounds that the Japanese words *mono* 'thing' ("concrete") and *koto* 'thing' ("abstract") can be regarded as allolexes of the universal concept SOMETHING rather than as two words with different meanings, as *mizu* 'cold water' and *iu* 'hot water' are two words with different meanings.

To begin with, SOMETHING does have a "neutral" exponent in Japanese (*nani*), which covers both things called *mono* and those called *koto*. Furthermore, although *mono* is normally used for "concrete" (i.e. visible and tangible) things, in some contexts it can be used for invisible things as well. For example, the phrase *seishin-teki na mono* 'spiritual things' can refer to "things" such as *kokoro* 'heart', *ki* 'spirit', *tomashii* 'soul', *kimochi* 'feelings', and *ai* 'love' (Yuko Asano, personal communication). *mono* can also be used in sentences like the following ones: 'I want only two things (*mono*): a job and a car'.

The word for 'job' is *shigoto* (where *-goto* is a variant of *koto*), yet there is no problem with including *shigoto* under *mono* in this context. Thus, while *mono* is normally used with reference to "things" that one can see, it couldn't possibly be defined as 'something that one can see' (e.g., one can't see a job). Similarly, although *koto* is normally used with reference to "things" that one cannot see, it couldn't possibly be defined as 'something that one cannot see'. For example, a sentence like *Honto ni ii koto o shimashita ne* 'You have really done something good' (Alfonso ([1971], 1: 402) does not mean 'you have really done something good that can't be seen' ("invisibility" is not part of the sentence's intended meaning).

I conclude from this that *mono* and *koto* (both covered by the same indefinite and interrogative form *nani*) are in fact two highly specialised "allolexes" (lexical variants) of the same primitive (whose primary exponent is the neutral form *nani*). The

differences between *koto* and *mono* can be described by a linguist, but they cannot be identified in paraphrases substitutable in context for the words *koto* and *mono* themselves. (For a detailed discussion of the concept "allolexy" see, for example, Wierzbicka 1994, 1996a: 26–27; Goddard 1998: 59–60.)

Two points need to be explained here, to clarify the difference between the approach to parts of speech exemplified in this section and the other approaches which have been proposed in recent literature.

First, this approach belongs, in a sense, to the class of "prototype approaches" to parts of speech, advocated, for example, by Lyons (1977, 2), Croft (1984), Givón (1984), and Hopper—Thompson (1984). In contrast to those other "prototype approaches", however, the one advocated here is based on universal lexical prototypes PEOPLE and THING (in the ordinary, intuitively clear sense of these words) rather than on some vague philosophical notions such as "objects", "entities" or even "things", in some sense different from that familiar from normal usage and characteristic rather of European philosophical tradition (cf. Descartes' "res cogitans"). In natural languages people are definitely not "things".

It might seem that while the charge of obscurity and ethnocentricity may apply to "object" and "entity", it does not apply to the word *thing*, which has been proposed in the NSM work as a universal semantic primitive. In fact, however, "thing" as used in the linguistic literature on parts of speech is applied to people, too, whereas in natural languages "things" and "people" are universally distinguished. It is not "thing" in some technical sense which is being proposed here as one of the two lexical prototypes of the category "noun", but "thing" in the "normal", "naive", and universal sense, which cannot be defined further but which can be illustrated with some canonical sentences. "Thing" in this sense does not cover people, and in fact PEOPLE (*orang*, *hito*, *khon*, etc.) is proposed here as a second universal prototype of the category in question.

The second point is this: the two prototypes proposed here do not stand for some "thing-like" concepts but for the concepts THING and PEOPLE themselves (to repeat, in the ordinary sense of these words). It is not clear what "thing-like" means, and it is not helpful to base our analysis on such an obscure notion. By contrast, the concepts THING (SOMETHING) and PEOPLE (ORANG, HITO, KHON, etc.) are intuitively clear at least in the sense that they are as clear as any concepts can be. The notion "thing-like" is not clear in that sense, and if it is meant to stand for both "things" and "people" then it is counter-intuitive as well as obscure.

Furthermore, "abstract" words like *laughter* or *sale* are "nouns" not because they denote "thing-like concepts" but because they are like the prototypical nouns *people* and *thing* in terms of some formal, morphosyntactic characteristics, which can be enumerated. These characteristics are language-specific. It is only the lexical prototypes which are universal. A vague and obscure notion such as "thing-like", which



is not anchored in any ordinary word in any language, let alone in all languages, can be simply dispensed with.

Palmer (1978: 39) writes the following about the definition of nouns given by his favourite *bête noire*, Nesfield:

Nesfield defines a noun as 'A word used for naming anything' and notes that 'thing' in the definition stands for person, place, quality, action, feeling, collection, etc.! This is clearly a notional definition at its worst. For how do we know what a thing is? Is fire a thing? Is peace? Is hope or intention? ...

How can we possibly identify 'thing'? There is an easy answer. We do so by using an article or such words as *his*, *this*, in front of the words—*the fire*, *the suffering*, *the place*—and by making them the subject of the sentence. But this is to say that we identify 'things' by looking for the grammatical characteristics of nouns. In other words 'things' are identified by being referred to by nouns. A definition, then, of nouns in terms of things is completely circular. There is no clearly identifiable independent criterion of 'thing'.

Clearly, Palmer has a point—but I don't think we can solve the problem by merely replacing the undefined notion "thing" (in some sense which can include fire, suffering, places, and people) with the undefined notion "thing-like concept". On the other hand, the lexical universals THING and PEOPLE do provide us with a clear basis for cross-linguistically valid identification of "nouns".

## 2.2. "Verbs"

In the case of word classes in different languages traditionally associated with the label "verb" there are several plausible exemplars to consider: in addition to 'see', 'hear', and 'say' mentioned by Dixon there is also 'do', 'move', and 'happen'. (Since all these candidates are, as far as we know, lexical universals, I will refer to them here in capitals: SEE, HEAR, SAY, DO, HAPPEN, MOVE.) But to have an effective operational criterion it is probably better to propose one or two exemplars rather than six or more, for there is always the possibility of some divergence within a larger group. If we decided to adopt the simplest solution and to choose just one prototypical "verb", then my choice would fall on DO; should in any language the word corresponding in meaning to, say, *see* or *hear*, fall into a different grammatical class from the word corresponding to *do*, then, I propose, it is the class of words to which the word for DO belongs which should be labelled as "verbs".

But of course it is not enough to say “the word for DO” (for isn’t *action* a word for DO, too?); to have a truly effective operational criterion we need to link this “word for DO” with some specific contexts—and once again, contexts presented in lexical universals. We can use for this purpose some sentences which have already been mentioned as possible canonical contexts for “nouns”:

- (3) a. *all people do this*
- b. *many people did this*

But although one exemplar can make cross-linguistic identification of “verbs” easier, there are also some advantages in using two exemplars rather than one, for if we use only one exemplar we may end up establishing a word class narrower than the one which would allow us to capture all the relevant generalisations. For this reason, I would propose using for “verbs” not one exemplar but two, and, moreover, two very different ones: DO and HAPPEN (rather than DO and some other word requiring a “human” or quasi-human subject, such as SAY, SEE, or HEAR). For this second exemplar of the “verb” class one could propose canonical sentential contexts such as the following ones:

- (4) a. *many bad things happened to me*
- b. *what happened?*

The “verbal prototypes” proposed here are of course reminiscent of many definitions proposed in the literature: for Croft (1984: 56), verbs are associated with “physical action”, for Sasse (1993: 656–657)—with “event-like concepts”, for Schachter (1985: 9)—with “actions and processes”, and so on. What I propose, however, is two quite specific lexical prototypes, which can be found in all languages: DO and HAPPEN, and, moreover, prototypes which are linked with specific canonical contexts: not “action”, but “DO, as in ALL PEOPLE DO THIS”, and not “event” or “process”, but “HAPPEN, as in WHAT HAPPENED”.

### 2.3. “Adjectives”

It is widely believed that not all languages have a class of “adjectives” (cf. e.g. Sasse 1993: 661). But the question of whether or not a language does have such a class can only be meaningfully asked if we know what we mean by “adjectives”. Traditional definitions based on vague notions such as “qualities” or “attributes” are not much help in cross-linguistic investigations, but as noted, for example, by Schachter (1985: 13), “no obviously better notional definition has been proposed”.

Modern linguistics has hardly been more successful in this regard than traditional grammar. For example, Schachter (1985: 13) himself defines adjectives syntactically, as "words which modify nouns", then notes that on this definition words such as *some*, *this*, or *other* should also be regarded as "adjectives", and then declares arbitrarily that nevertheless he is not going to treat such words as adjectives and will put them into a different word class, "noun adjuncts"—without explaining on what grounds he does it.

Sasse (1993: 661) suggests that the "prototypical function [of adjectives] is to attribute properties", and that "this claim is supported by a number of languages whose adjectives occur only as modifiers, and do not occur as predicates at all." Accordingly, Sasse (1993: 661) offers the following definition: "Language-specifically a class of adjectives can be defined on this basis if there is a morphosyntactically identifiable word class which prototypically serves the attribution of properties to individuals".

But this definition, too, relies on undefined notions: what is a "property"? and what is "attribution"? Again, the definition is more sophisticated than the traditional one which says that "adjectives denote properties", but it, too, relies on the assumption that we know what "properties" are and can distinguish them from "things", "actions", "states", and so on. But this is an assumption that Fries (1952) and Palmer (1978), for example, have so persuasively rejected.

In fact, Sasse (1993) appears to be more committed to semantic characterisation of "adjectives" than he finds possible in the case of "nouns" and "verbs". Whereas in the case of nouns and verbs he speaks of "thing-like concepts" and "event-like concepts", in the case of "adjectives" he talks simply of "property concepts" and makes certain strong semantic and syntactic generalisations about them. In particular, he claims that "adjectives always remain within the realm of non-referentiality" and "are never used for the attribution of those referential expressions which the possessive genitives are responsible for. A *Chomskyan revolution* is not the individual Chomsky's personal revolution, but rather a revolution associated with the name of Chomsky" (Sasse 1993: 662).

But while I agree with the interpretation of this particular example, the generalisation it is supposed to illustrate does not seem to be valid. For example, in Polish expressions such as examples (5) and (6) the adjective does refer to a particular individual, just like the English possessive genitive does.

- |     |                      |                   |
|-----|----------------------|-------------------|
| (5) | <i>Marys-in-a</i>    | <i>chustk-a</i>   |
|     | Mary-POSS-FEM.NOM.SG | scarf(FEM)-NOM.SG |
|     | ‘Mary’s scarf’       |                   |

- (6) *ojcow-sk-a* *kurtk-a*  
 Father-POSS-FEM.NOM.SG jacket(FEM)-NOM.SG  
 "Fatherian jacket" = 'Father's jacket'

The words *Marysina* and *ojcowska* are "adjectives" because they belong to the same formal morphosyntactic word class as the Polish exponents of the universal exemplars of "adjectives" do (they inflect for gender, number, and case), and not because they denote, in some sense, "non-referential property concepts".

What are, then, the universal lexical exemplars of the word classes usually linked with the term "adjective"? I suggest that there are only four plausible candidates for this role: BIG and SMALL and GOOD and BAD (all well-attested lexical universals).

But suppose that in a certain language the words for BIG and SMALL behave in some respects differently from the words for GOOD and BAD—which pair would we then treat as the deciding one?

In my view, in a case like this the best solution will be to go with BIG and SMALL, rather than with GOOD and BAD; for it is more likely that the words for GOOD and BAD will behave in some respects like the words of the class including DO and HAPPEN (that is, "verbs") than that the words for BIG and SMALL will. (For example, this appears to be the case in the Austronesian language Mangaaba-Mbula; cf. Bugenhagen forthcoming.) Although Dixon's (1982) research suggests that in languages with a small "adjectival" class both pairs (BIG and SMALL and GOOD and BAD) are likely to belong to that class, BIG and SMALL appear to be better exemplars than GOOD and BAD.

For example, in Dixon's (1982: 7) survey of 20 languages which included 17 languages with small adjective classes, and morphologically determined subsets in three other languages, BIG occurred in all 20 languages, and SMALL in 19, whereas GOOD occurred in 13 and BAD in 14. Since in some languages the exponent of SMALL looks like a negative exponent of BIG (but means SMALL rather than NOT BIG), it seems likely that on closer examination the figures for BIG and SMALL in this particular sample might in fact turn out to be 20:20 rather than 20:19.

Returning now to Schachter's "noun adjuncts" such as *some*, *other*, or *this* in English, we will note that although the exemplar approach is not meant to decide on class membership in individual languages it gives in this case better (intuitively more satisfying) results than Schachter's "functional" definition. Schachter wished to exclude words like *some*, *other* and *this* from his class of "adjectives", but could do so only by an arbitrary fiat. In the approach outlined here, however, we can reach a decision on this point in a more principled way. The word class to which *big* and

*small* belong in English can be defined (for English) as words which can occur in the following canonical context:

- (7) *all these big things, all these small things*

The words *this* and *some*, which Schachter wished to exclude from the class of “adjectives”, don’t meet this criterion, for they do not occur in this canonical context:

- (8) a. \**all these these things*  
 b. \**all these some things*

By contrast, the English word *other* does occur in this canonical context, so by this criterion it could be described as an adjective. In some other languages, the semantic equivalent of *other* may find itself in a different class, and in fact even in English there is a word (*else*) which means the same as *other* (in the relevant sense) but is not an adjective, in terms of the proposed canonical context.

## 2.4. “Adverbs”

The traditional class of “adverbs” is heterogeneous and the definition usually given to this class is “functional” rather than semantic: “adverbs” are said to be, essentially, modifiers of verbs and adjectives. Some definitions (e.g. Curme’s 1935 quoted by Schachter 1985: 20) say that “adverbs” are “modifiers of verbs, adjectives, and other adverbs”, but this is obviously circular. Schachter (1985: 20) himself defines “adverbs” as “modifiers of constituents other than nouns”. While not circular, this definition is highly theory-bound and assumes an agreement on what a “constituent” is, and what a “modifier” is (especially since Schachter’s scheme includes also a word class of “verb adjuncts”, distinct from the class of “adverbs”). Furthermore, unlike Schachter’s own definition of “nouns” and “verbs”, it is totally unrelated to meaning.

But the strategy of “universal exemplars” can be applied here, too, allowing us a unity of approach. As in the previous categories, here, too, two universal exemplars can be proposed: VERY and LIKE THIS (HOW). This does not mean, of course, that we will expect to find a class of “adverbs” in all languages, but only that when we do wish to speak of “adverbs” in various languages we do know what we are talking about: a word class defined on language-internal grounds and including the local exponents of the universal concepts VERY and LIKE THIS, and the proposed canonical contexts are:

- (9) a. *very big, very small*  
 b. *I did it like this*

We can then define “adverbs” as a class of words which can be substituted for *very* or *like this* in these canonical contexts or which behave in some specifiable ways like the words which can.

For example, in English the words *extremely*, *exceedingly*, and *unusually* can substitute for *very*, and the words *slowly*, *fast*, *carefully*, and *thoughtlessly* for *like this*, in the canonical contexts, and so they could be counted on this basis as “adverbs”. If we now extend the class of (English) “adverbs” to all words which can combine with either “adjectives” (as *very* does) or with verbs (as *like this* in the canonical context does), then we can count words like *yesterday*, *now*, *here*, and *nearby* as “adverbs”, too. On the other hand, words like *unfortunately*, *probably*, or *possibly* would probably not make it into this class, and would have to be referred to the class of “sentence particles”, to be discussed below.

The class of “adverbs” established on this basis in a given language may not always coincide in all details with that established in earlier descriptions on other grounds, but of course there is no consistency in the existing practice anyway.

In nominating the semantic molecule LIKE THIS, in the context of the combination DO LIKE THIS, as one of the two universal exemplars of “adverbs” I find myself in full agreement with Sasse (1993: 666), who states that “manner adverbs” are the core group of the word class of “adverbs”. On the other hand, I must differ from Sasse (1993: 666) when he suggests that despite appearances all “adverbs” share some semantic features. The suggestion that “the scope of adverbs *always* includes some overt or covert predicative element as its central member” (Sasse 1993: 666) seems to me incompatible with the fact that words like *very* can always combine with the exponents of BIG and GOOD, given that (as Sasse has noted himself), in some languages, e.g. in Hua, the words for BIG and SMALL or GOOD and BAD can only be used “attributively” (e.g. ‘big pigs’) and cannot be used “predicatively” at all (e.g. ‘these pigs are big’).

Sasse (1993: 666) also seeks to link all “adverbs” with the notion of “scenery”: “everything points to an explanation of adverbs as a prototypical combination of the syntactic act of predicate modification and a very loose semantic concept of ‘circumstance’ and ‘scenery’”. It is not clear, however, how the “concept” of “scenery” could be applied to words like *very* or *extremely*. It seems more realistic to admit that so-called “adverbs” do not have any semantic invariant and that they have to be identified in each language on the basis of formal, language-specific criteria, while at the same time acknowledging that they can be cross-linguistically matched on the basis of the lexical prototypes VERY and LIKE THIS.

## 2.5. "Pronouns"

In the case of "pronouns", the choice of universal exemplars is obvious: all languages have distinct words for YOU (THOU) and I, so clearly, these two concepts can serve as universal exemplars. Once again, the extension of the class of "pronouns" can be defined in every language on language-internal grounds, but the classes in question can be matched across languages on the basis of one clear criterion: in each case, what is meant is the word class to which the words for I and YOU (THOU) belong.

Every now and again, the existence of distinct words for I and YOU (THOU) is denied, but on closer inspection the alleged counter-examples turn out to be more apparent than real. (See e.g. Harré 1993 and Goddard's 1995 rebuttal of Harré's claims.)

Sasse (1993: 669) says, carefully, that "the occurrence of personal pronouns is *nearly* [emphasis added] universal"; and he notes Wiesemann's (1986: viii) claims that (a) in the West African language Bolante, the morpheme *ha* stands for both '2nd and 3rd person singular', and (b) that in the Mura Pirahã language of Brazil "personal pronouns [are] number-indifferent" (Sasse 1993: 670).

Claims of this kind, however, need to be regarded with caution. Sasse (1993: 671) himself suggests that "in such languages the lexeme that refers to the first person simply means 'speaker included' rather than 'I'", but to my mind such an interpretation is not very plausible. For example, if the speaker says "I did it alone, without anybody else", how could he or she possibly mean that "the speaker was included (among those who did it)"? It is far more plausible to assume that—even if the report is, *prima facie*, accurate—the word in question can be shown, on language-internal grounds, to be polysemous, just as the English word *you* can be shown to be polysemous. Sasse (1993: 671) states that "Modern English has given up the number distinction in the 2nd person by generalising the form *you* in place of *thou*", but the fact that English distinguishes the forms *yourself* and *yourselves* shows that it hasn't really given up this distinction. (For further discussion, see Wierzbicka 1996a; Goddard 1995.)

## 2.6. "Numerals" and "quantifiers"

Traditional grammar distinguished also a class of numerals (usually subdivided into "cardinal numerals" and "ordinal numerals"). Obviously, not all languages have a separate grammatical class of "numerals" (for example, Australian Aboriginal languages don't), but since the notion is useful for describing *some* languages, it, too, requires a universal (language-independent) definition. Once again, such a definition

can be built on the basis of exemplars, and in this case, too, the choice is obvious: since all languages (including Australian) have words for ONE and TWO (for discussion, see Wierzbicka 1996a), the class of “numerals” can clearly be based on these two exemplars.

Since the membership of the class in question has to be decided on formal rather than semantic criteria, it may well turn out that “ordinal numerals” are not “numerals” at all (for they may not be in the same class as the words for ONE and TWO).

For some languages, it may be more useful to establish a class of “quantifiers” rather than a class of “numerals”. For example, Schachter (1985: 38) doesn’t mention “numerals” as a “part-of-speech” at all, whereas he does include in his schema a class of “quantifiers”, which he defines as “modifiers of nouns that indicate quantity or scope: for example, numerals, and words meaning ‘many’, ‘much’, ‘few’, ‘all’, ‘some’, ‘each’, etc.”.

But there are problems with this definition, too. First, it is not clear what Schachter means by “scope” (and he offers no definition). Second, it is not clear what he means by “etc.”. And third, some of the words which he discusses as “quantifiers” are not, grammatically, “modifiers of nouns”; the Japanese words *samba*, *sammai* and *sambon* (‘three’, with different classifier morphemes), are in fact primarily verbal adjuncts, rather than nominal adjuncts. (cf. Alfonso [1971], 1: 272–273).

The main point, however, is that if a word class of “quantifiers” is to be posited at all, it needs a definition, and a vague reference to “quantity or scope” is not enough (just as a vague reference to “actions or processes” is not sufficient in the case of “verbs” or a vague reference to “qualities or attributes” is not sufficient in the case of “adjectives”).

If we do posit (for some languages) a class of “quantifiers” we need, here, too, some universal exemplars. If we use ONE and TWO as exemplars for the class of “numerals”, we clearly cannot define the class of “quantifiers” in terms of the same exemplars (if we want to set up two distinct classes we need two distinct definitions for them). We could, however, use for this purpose two other lexical universals: MANY (MUCH) and ALL, linking them to some specific canonical contexts. I would propose the following ones:

- (10) a. *many people (do this)*  
 b. *all these things (are here)*

I suspect that sentences like these do in fact spell out what Schachter really has in mind when he talks about “quantity”, “scope”, and “nominal modifiers”: his “quantity” may be taken to correspond to MANY (HOW MANY?), his “scope” to



ALL, and his reference to “quantifiers” as “nominal modifiers” suggests that he is probably thinking of phrases like ‘many people’ or ‘all things’ (rather than of phrases like ‘not at all’ or ‘only partially’).

I suggest, then, that both the notions “numerals” and “quantifiers” can be useful in the description of word classes in different languages, but that to be useful they need to be clearly defined; and also, that they *can* be both clearly defined with reference to some universal exemplars: ONE and TWO in one case, MANY and ALL, in the other.

## 2.7. “Conjunctions”

Schachter (1985: 46) defines “conjunctions” as “words that are used to connect words, phrases, or clauses”, and Sasse (1993: 679) offers a similar definition: “Particles that join clauses or parts of clauses (words or phrases) are traditionally called conjunctions”. It could hardly be said, however, that these are definitions that one could work with when trying to establish word classes in one language or to match word classes in different languages. For don’t words traditionally known as “prepositions” “connect words”, too? For example, don’t the words *with*, *to*, and *about* “connect” the verb with the noun (*Mary*) in the following sentences?

- (11) a. *John went with Mary*  
       b. *John wrote to Mary*  
       c. *John thought about Mary*

Clearly, this is not what Schachter has in mind, but he offers no explanation of what he does mean.

I propose that in this case, too, we can offer universal exemplars for the intended class of words. The specific exemplars which I want to propose for this purpose may come as a surprise, for they are not “co-ordinating conjunctions” like *and*, *or*, or *but* (which may first come to mind when one hears the word “conjunction”), but rather a “subordinating conjunction”: the “conditional” IF. As canonical sentences within which this exemplar can be identified I propose the following ones:

- (12) a. *if you do this, something bad can happen to you*  
       b. *if I do this, people can say something bad about me*

The reason why I am proposing IF as a lexical exemplar rather than any “co-ordinating conjunctions” is that not all languages have words corresponding to *and*, *or*, or *but* (for discussion, see Wierzbicka 1996b), whereas evidence suggests that

the “conditional” IF can be regarded as universal. In languages in which one morpheme can express either IF or WHEN (or IF and MAYBE) polysemy can be established on language-internal grounds. (For detailed discussion see Wierzbicka 1996a, 1996b, 1997 and 1998).

Once again, I do not mean that the class of “conjunctions” in a particular language can be established exclusively with reference to these two exemplars. Rather, I mean that if on language-internal grounds a word class is established which includes the word for IF (as used in the canonical contexts), then this class can be called “conjunctions”, and that this criterion is applicable to any language whatsoever (whether or not it does have such a word class).

## 2.8. “Prepositions” (and “adpositions”)

Traditional sets of “parts of speech”, focused on European languages, included also a class of “prepositions”. From a more global perspective, “prepositions” are seen as no more than a special case of “adpositions”. Since no precise definition of either “prepositions” or “adpositions” (whether a “notional” or a “functional” one) appears to be available, in this case, too, it would be helpful to find some universal exemplars, as a foothold for a rigorous and universally applicable definition.

If we look at the English version of the hypothetical sets of lexical universals established on the basis of empirical cross-linguistic investigations (cf. Goddard—Wierzbicka 1994; Wierzbicka 1996a), the first candidates for the role of such exemplars which may suggest themselves are the temporal concepts BEFORE and AFTER and the spatial concepts ABOVE, BELOW, and INSIDE, all realised in English (and in many other languages) by means of words which are known traditionally as “prepositions”. From a global perspective, however, the words listed above do not look like useful exemplars of a universally applicable category: in some languages, the concepts BEFORE and AFTER are realised primarily as “verbs”, and the concepts ABOVE, BELOW, and INSIDE as complex expressions including “nouns” as well as some other elements.

In fact, a foothold for a universally applicable definition of a word class of “prepositions” or “adpositions” is provided not by some universally lexicalised concepts (such as BEFORE and AFTER or ABOVE and BELOW) but by certain universal “extensions” of some predicates (“verbs”), and in particular, of DO and SAY. This can be illustrated from English as follows:

- (13) a. *I did this*  
       b. *I did this WITH two other people*

- (14) a. *you said something*  
 b. *you said something ABOUT this*

In the NSM semantic theory, sentence patterns such as (13a–b) and (14a–b) above are said to realise different “valency options” of the same conceptual universals (DO and SAY). Of course elements such as *with* and *about* in the sentences above may be rendered in some languages as bound morphemes rather than as separate words. If they are rendered by separate words, however, they can be regarded as a nucleus of a word class defined in each language on language-internal grounds but matched cross-linguistically on the basis of the universal exemplars WITH (in the so-called “comitative” sense, as illustrated above) and ABOUT (in the so-called “topic” sense, as illustrated above).

## 2.9. “Interjections”

One other word class in the traditional schema of “parts of speech” is known as “interjections”. Schachter (1985: 58) defines this class as follows: “*Interjections* are words, often of an exclamatory character, that can constitute utterances in themselves, and that usually have no syntactic connection to any other words that may occur with them.”

Of the three characteristics referred to in this definition, one is introduced with the word “often”, and another, with the word “usually”, so presumably neither of these two is critical. We are left, therefore, with the following definition: “Interjections are words that can constitute utterances in themselves”.

This is a purely syntactic definition, however, and one which does not distinguish “interjections” from “proper names”, which can also “constitute an utterance in themselves”. For example, if I call *John!* or *Mary!*, each of these nouns constitutes “an utterance in itself”. Should we conclude that *John!* and *Mary!* are “interjections”? Surely this is not Schachter’s intention.

Here as elsewhere, a possible solution lies in the idea of exemplar. Schachter (1985: 58) himself illustrates the category of “interjections” with the English words “*ah, aha, bah, oh, wow*, etc.”. These words are of course only examples, not exemplars, for they are language-specific. In this case, there are in fact no words which can be matched across languages and serve as both examples and exemplars of “interjections” (such as *big* and *small*, and BIG and SMALL, in the case of “adjectives”). There are simply no “interjections” which could be spelled in capital letters and presented as language-specific instantiations of universally lexicalised meanings.

Nonetheless, the general strategy of using exemplars as a basis for universally applicable definitions can be used here, too, though in this case it must be applied in a different way. What words such as *ah*, *oh*, and *wow* or *ouch!* have in common is their shared semantic invariant, which can be spelled out in lexical universals as 'I FEEL SOMETHING NOW' (where FEEL covers both "bodily" and "mental" feelings). Not all words usually described as "interjections" have such a semantic component, but many do, and we can propose that the words which do (such as *ah*, *oh*, *wow* or *ouch*) constitute the core of this category, and that their semantic invariant ('I feel something now') can serve as an exemplar of the whole category.

For example, Schachter includes the words *hmm*, *pst*, and *shh* in his category of "interjections", too, and these words do not express any feelings. Nonetheless, they can be included in the class of "interjections" if this class is defined as a class of words which share some (specified) characteristics of the words whose meaning includes the component 'I feel something now'. (For further discussion, see Wierzbicka 1991; Ameka 1992.)

## 2.10. Other word classes

The "parts of speech" accepted in traditional grammar are of course not the only ones which could be reasonably posited, or which have been posited. Other word classes which have been widely used in modern linguistics and which have proved useful in the description of many languages include, in particular, "classifiers" and "sentence particles". But here, too, the lack of rigorous definitions has often created confusion and chaos. For example, as shown by Aikhenvald (forthcoming) the word "classifier" has been used by different authors in many different senses, and the diversity in the use of the notion "particle" is notorious (cf. Wierzbicka 1986).

To overcome the confusion, we need rigorous definitions; and I suggest that here as elsewhere, such definitions can be phrased on the basis of universal exemplars: not *lexical* exemplars (as BIG and SMALL in the case of "adjectives"), for none are available, but *semantic* exemplars, as in the case of "interjections". Thus, in the case of "(numeral) classifiers" the following approach could be proposed: a prototypical "classifier", we could say, indicates how (in what terms) one is thinking about the objects spoken about.

Consider for example the following expressions from Thai (kindly provided, with explanations, by Tony Diller, personal communication):

- (15)      *klúay*      *sìi*      *bay*  
              banana      4      round/roundish thing ("leaf")  
              'four bananas'

- (16) *klúay sii wii*  
 banana 4 “comb”  
 ‘four small bunches of bananas’
- (17) *klúay sii khrua*  
 banana 4 family  
 ‘four big bunches of bananas’
- (18) *klúay sii tón*  
 banana 4 stalk (long-vertical-thing)  
 ‘four banana trees’
- (19) *klúay sii kɔɔ*  
 banana 4 clump  
 ‘four clumps of banana trees’
- (20) *klúay sii chanít*  
 banana 4 species  
 ‘four kinds of bananas’

Every classifier offers one particular way of looking at the things spoken of (and consequently provides a basis for counting). Tentatively, I would propose the following explications for each of the six classifiers listed above:

- (21) [“roundish things”]  
 I think about it like this:  
 “a person can carry one thing like this in one hand  
 a person can put a hand around (i.e. on all sides of) a thing like this”
- (22) [“combs”]  
 I think about it like this:  
 “a person can carry a thing like this in one hand  
 a person can’t put a hand around a thing like this  
 a thing like this has many parts side by side, like a comb”
- (23) [“big bunches”]  
 I think about it like this:  
 “a person can carry a thing like this in both hands  
 a person can’t carry a thing like this in one hand  
 a thing like this has many parts, like a family”

- (24) ["stalks", "long vertical things"]  
 I think about it like this:  
 "a person can't carry a thing like this  
 one part of a thing like this is in the ground  
 another part of a thing like this is far above the ground"
- (25) ["clumps"]  
 I think about it like this:  
 "a thing like this is a part of a place  
 people can say about a thing like this:  
 there are many things of one kind in this place"
- (26) ["kinds"]  
 I think about it like this:  
 "there can be many kinds of things like this"

Thus, I am suggesting that the shared semantic core of the Thai "classifiers" in question can be stated in universal concepts as 'I think about it like this'.<sup>1</sup>

I do not claim that all words regarded as "classifiers" in Thai syntax will necessarily include such a semantic component. I am only suggesting this component as the shared semantic core of some words chosen as prototypical examples of the class in question—a class which can be defined on formal, language-internal grounds. But since this class does include some words which share this semantic component, we can match this class, under the label "classifiers" (or "numeral classifiers"), with similar classes in other languages, that is classes established also on the basis of some prototypical examples sharing the semantic component 'I think about it like this'. (Having said this, I must stress that the semantics of classifiers requires further investigation, and what has been said here is extremely tentative.)

What applies to "classifiers" applies also to "sentence particles" (sometimes referred to also as "mood markers"). Schachter (1985: 58) defines this word class as follows: "Mood markers are words that indicate the speaker's attitude, or that solicit the hearer's attitude, toward the event or condition expressed by a sentence". To the extent to which this definition is intuitively clear, it would seem that the English word *unfortunately* should qualify for membership—yet according to Schachter's description, *unfortunately* is an "adverb", not a "mood marker", whereas the English word *please*, unaccountably, does qualify as a "mood marker".

In the approach proposed here the class of "sentence particles" can be established with reference to the semantic exemplar 'I say this because' and can be defined as a class of words (with whatever language-specific formal characteristics) which includes some words with the semantic component 'I say this because ...'. Consider,

for example, the three Japanese examples (from Kuno 1973) adduced by Schachter (1985: 58):

- (27)      *Kore*      *wa*      *hon*      *desu*      *yo.*  
           this      TOPIC      body      is      STATEMENT  
           ‘(I am telling you that) this is a book.’

- (28)      *Kore*      *wa*      *hon*      *desu*      *ka?*  
           this      TOPIC      book      is      QUESTION  
           ‘Is this a book?’

- (29)      *John*      *wa*      *baka*      *sa*  
           John      TOPIC      foolish      STATEMENT  
           ‘(It goes without saying that) John is a fool.’

The meaning of Japanese sentence particles such as *yo*, *ka*, and *sa* can be defined (in lexical universals) along the following lines:

- (30)      *yo*      —      I say this because I want you to know it

- (31)      *ka*      —      I don’t know this  
                           I say this because I want to know it

- (32)      *sa*      —      I say this because I know it  
                           everyone knows it

(No doubt these definitions can be improved on, but they are offered here only as approximations.) Once again, the semantic exemplar ‘I say this because ...’ is not proposed as the semantic invariant of all Japanese “sentence particles” but only as the shared core of the words chosen as prototypical examples of the class. For other words, the membership in the class must be decided on formal, language-specific grounds.

Finally, let us take a quick look at the class of “ideophones”, characteristic, as Sasse (1993) notes, of many African, Australian, and Amerindian languages. Sasse (1993: 667) himself doesn’t attempt to define this class, but he notes that “all scholars agree on the phonological criterion as the basic characteristic of ideophones”, and also that while they are often seen as closely related to interjections, and even as a subset of interjections, in fact in contrast to interjections they “typically occur as sentence constituents and are hardly found in isolation”.

In the case of “ideophones”, there are clearly no universal *lexical* exemplars; we can, however, understand the rationale for positing such a class at all if we posit for it a *semantic* exemplar, as we have done in the case of interjections. I would propose—as a first approximation—the following phrasing of this semantic exemplar:<sup>2</sup>

- (33) I say this word now  
when someone hears this word  
I can say to this person: [it was moving etc.] like this

I will illustrate this from Japanese, although in Japanese linguistic tradition the words in question are usually known as “mimetic words” or “mimetic adverbs” rather than “ideophones”.

Consider, for example, the Japanese words *bura-bura*, *fuwa-fuwa* and *puka-puka*, usually glossed as “aimlessly”, “lightly”, and also “lightly” (examples from Haya-kawa 1985: 166, 173, 181) (O stands here for object marker, Q for quotative marker, S for subject marker, and T for topic marker):

- (34) *choochin ga kaze de BURA-BURA yureteiru*  
lantern S wind by aimlessly is.swinging  
'the lantern is swinging in the wind BURA-BURA'
- (35) *dare mo notteinai buranko ga kaze de*  
nobody even not.ride swing S wind by  
*BURA-BURA yureteiru*  
aimlessly is.swinging  
'a swing, which nobody is on, is swinging BURA-BURA'
- (36) *fuusen ga FUWA-FUWA to sora o tondeiru*  
balloon S lightly Q sky O is.flying  
'a balloon is flying up and down in the sky repeatedly.'
- (37) *sora ni FUWA-FUWA to kumo ga ukandeiru*  
sky in lightly Q cloud S is.floating  
'a cloud is floating in the sky.'
- (38) *booru ga PUKA-PUKA mizu ni uiteiru*  
ball S lightly water on is.floating  
'a ball is floating on the water, bobbing up and down'



- (39) *maruta ga PUKA-PUKA mizu no ue ni uiteiru*  
 log s lightly water of top on is.floating  
 'a log is floating on the water, bobbing up and down'

The core meaning of the "mimetic words" in question, which includes a reference to the sound of the word itself, can be represented as follows:

- (40) I say this word (e.g. *bura-bura*) now  
 because when someone hears this word  
 I can say to this person: [it was moving etc.] like this

### 3. The universal syntax of "parts of speech"

According to the hypothesis outlined in this paper, "parts of speech" can be defined and compared across languages on the basis of certain universal exemplars. It is interesting to note, however, that the approach based on exemplars can be combined, to some extent, with considerations based on universal syntax—that is, on combinatorial and "substitutional" properties of classes based on lexical universals.

Thus, it can be said that "verbs" combine, in principle, with the universal "epistemological classifier" (Durie 1985: 151) WHEN, and with other "temporal" concepts such as AT THIS TIME, AT ANOTHER TIME, AT THE SAME TIME. This is consistent with the widely held view that "verbs" have a special relationship with time, due to their function as descriptors of changeable states of affairs, in contrast to "nouns", which have the function of focusing the thought on what is perceived as "stable" elements in human experience (cf. e.g. Givón 1984; Sasse 1993: 655).

In addition to its combinability with the notion WHEN ('at [this] time'), all "verbs" combine with "negation" (NO)—a fact consistent with the view that by having "verbs", a language "preclassifies" certain words "for predicative use" (Sasse 1993: 655).

Given their "potential for reference" all "nouns"—like "personal pronouns"—can combine with "verbs" to form a "sentence": a sentence requires a "predicate", and "verbs" are, as Sasse (1993: 655) put it, "lexemes preclassified for predicative use". The reverse is not true: it is not the case that all "verbs" can combine with some "nouns", for many languages have so-called "impersonal verbs" (usually referring to the speaker's environment or to the processes occurring in the speaker's body), which do not combine with "nouns".

"Nouns" can be said to combine, universally, with *THIS*—a statement consistent with the widely held view that "nouns" can be seen as a category of words "preclassified for referential use" (cf. Sasse 1993: 655).

At the same time, it needs to be noted that "nouns" are not the only category of words which have what Sasse (1993: 655) calls "a referential potential": "referential potential" is characteristic, above all, of "personal pronouns", and "nouns" attain it only by combination with some other elements (*THIS*, *THE SAME*, *ANOTHER*). Unlike "personal pronouns", "nouns" have also another basic task: they serve as an instrument of categorisation, and their referential function depends on their role as categorisers. Thus, it can be said that the words *I* and *you* achieve reference directly, whereas an expression like *this cat*, *this bird* or *this tree* achieves it only via a prior categorisation of living things into categories such as "cats", "birds", "trees", and so on.

Words like *you* and *I* can effectively refer the addressee's thoughts to the person whom the speaker has in mind because of the "real", "indexical" connection between a particular occurrence of these words and particular interlocutors (cf. Peirce 1932). But for the vast majority of other topics that a given speaker may wish to speak about a "real", "indexical" connection between a linguistic expression and its referent can be established only via the deictic element *THIS*—and if there are many different things, animals, and people being referred to, words like *this* would not be sufficient to identify for the addressee all the intended referents. Categorisation is therefore a necessary prerequisite of effective reference (it is easier to make clear what one is referring to by saying *this cat—this woman—this oaktree—this stone* than by saying *this—this—this—and this*).

As I have argued in earlier work (cf. Wierzbicka 1986, 1988), the bulk of the category of "nouns" consists of words which designate specific *KINDS*—kinds of living things, kinds of things made by people (artefacts), kinds of "stuffs", kinds of people. I am not suggesting, however, that *KIND* is part of a semantic invariant of all "nouns". Like other word classes, "nouns" must be defined on the basis of formal, language-specific criteria; and they can be matched across languages on the basis of the proposed universal exemplars.

All over the world, people talk a great deal about people and things of different kinds. Presumably this is why "words for people" and "words for things" tend to be, as Sasse (1993: 659) puts it, pre-classified for reference. Since, however, there are so many different things that one may want to say something about, for effective communication it is useful to have many words pre-classified not just for "reference" but for reference based on prior categorisation. This explains why so many languages have a distinct, large, "open" category of words designating, for the most part, different kinds of things. (In the case of "words for people" categorisation is not equally important, from the point of view of reference, for individual people can

be identified by means of proper names—an option not usually available in the case of “things”.)

Moving now to “adjectives”, it can be said that all “adjectives” combine with some “nouns”—an observation consistent with the view that the main task of “adjectives” is that of “attribution” (e.g. BIG THINGS, SMALL THINGS, GOOD PEOPLE, BAD PEOPLE).

All “adverbs” can be said to combine either with (some) “adjectives” or with (some) “verbs”. To say this is not to exclude the possibility that “adverbs” may also combine with other “adverbs”, or sometimes even with “nouns” (cf. Sasse 1993: 663), but to stipulate that they all *can* combine with either “verbs” or “adjectives”.

“Interjections” (as noted earlier) can be said to occur “on their own”, as independent utterances—a property consistent with the view that their function is “expressive” rather than “symbolic”: an “interjection” is not part of ‘something that one says about something’ (a “sentence”) but a global expression of a current psychological state.

By contrast, “ideophones” *are* a part of ‘something that one says about something’, and so they are syntactically integrated with some other words into a “sentence”.

“Personal pronouns”, too, have some universal combinatory characteristics: like “nouns”, they can combine with “verbs”, but unlike “nouns”, they do not co-occur with the elements THIS, THE SAME, and ANOTHER. If the class of “pronouns” is understood more broadly, as including so-called “relative pronouns”, “reflexive pronouns”, “reciprocal pronouns”, and so on, it can still be characterised in formal terms as a class of words which can be substituted (in a range of frames) for “nouns” and which, unlike “nouns”, cannot combine with the exponents of THIS, THE SAME, and ANOTHER.

“Numerals” (defined in terms of the universal exemplars ONE and TWO) combine with (some) nouns; in addition, however, they, too can be described with reference to substitution: all “numerals” can be substituted for the “epistemological classifier” HOW MANY (in a canonical context like HOW MANY PEOPLE ARE THERE IN THIS PLACE?).

“Adpositions” can be described (not defined, for we have already defined them with reference to exemplars) as words which can “link” a “verb” with a “noun” (or a “pronoun”); and “conjunctions” can be characterised as words which can “link” an expression with another expression of the same kind (e.g., a clause with another clause, a “verb” with another “verb”, or a “noun” with another “noun”). Finally, it can be said that “(numeral) classifiers” link a “numeral” with a “noun”, and that a “sentence particle” combines with a “sentence”.

As mentioned earlier, various other word classes are of course set up for individual languages, and if these classes are linked with some universal lexical or semantic exemplars, they can be useful in linguistic typology, too. On the basis of the present cursory examination of the traditional "parts of speech", and of some of their modern extensions, I would also venture to hypothesise that word classes with a wider typological significance can always be expected to have some universal syntactic properties.

The most important point, however, is that to be an effective tool in the description and comparison of languages, the metalanguage of linguistics must be based on empirically established linguistic universals (cf. Wierzbicka 1994, 1995, 1996a, 1998); and this applies to "parts of speech" as much as to any other aspect of linguistic typology and linguistic description.

## Notes

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- 1. The approach to the semantics of classifiers presented in this paper owes a great deal to discussions with Cliff Goddard. In particular, I follow here Goddard's view that so-called "shape classifiers" are often based not so much on the description of an object's form as on the characterisation of the way this object can be handled by people (see also Denny 1976). For a discussion of the anthropocentrism of many "concrete concepts" and the importance of references to "hand" in their meaning, see Wierzbicka 1985 (cf. also Johnson 1987).
- 2. The phrasing of this exemplar has been influenced by helpful comments offered by Nick Enfield.

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## **II. Language-specific studies**



# Modal particles in German: Word classification and legacy beyond grammaticalisation

Werner Abraham

## 1. Types of syntactically classifiable grammaticalisation

In IJbema (1997), the following distinctions were made with respect to three fundamentally computational (= syntactic) types of grammaticalisation in the area of verbal affixation.

- (i) one type of grammaticalisation where a lexical element becomes a functional (= inflective) element, an affix, which is generated structurally in a *functional head* (e.g. the future tense affix *-ai-* in French);
- (ii) another type of grammaticalisation involving a lexical element becoming a functional (= inflective) element and structurally a head, but not an *affix* (such as the English “infinitival preposition” *to*);
- (iii) yet another type of grammaticalisation where a lexical element becomes functional (= inflective) and an affix, but does not end up structurally as a *functional head*. The latter is illustrated by the “infinitival preposition” *zu/te* in German/ Dutch as well as prefixes such as German/Dutch *be-*, *ver-* (which have emerged from a prior adverbial status).

This is straightforward and an essential step in the direction of restricting paths and results of grammaticalisation. The present essay is meant to demonstrate to what extent the source category, the selection constraints it is subject to, and, finally, its categorial status (i.e. its status as a NP—or clause conjunction, or as a focus particle, to name just two of several possibilities) either continue, or change, in the course of grammaticalisation and, if they change, what the order and extent of such a change can be and whether limitations on change can be detected. To pursue this course, two chapters are chosen in the history of grammaticalisation *in statu nascendi* of present day modal particles (MPs) in German: first, their logical classifiability on the basis of the source categories and meanings; and, second, their combinability, which is strongly constrained on the basis of their source status with different cate-

gory membership. Recall that modal particles are an ideal field of research for matters of grammaticalisation since both uses, the pre-particle one and the particle one, are still existent side by side. Yet, they will hardly ever enter into the consciousness of the speaker as having anything in common with one another except their form. In essence, the present essay is also an attempt to illustrate that the *monogenetic hypothesis* (as opposed to the *polygenetic hypothesis*) may rightfully be assumed: i.e. that the methodological position that a homonym representing both a modal particle and another lexical category and meaning derives its particle meaning and syntactic distribution from the stronger lexical representative (usually in the function of an adverb, a conjunction or co-ordination, or a focus particle). Opting for the *monogenetic hypothesis* saves one assuming two separate and unrelated entries in the lexicon, but saddles one with the task of defining and delimiting the set of principles relevant and general enough to support such a derivative methodology.

It will be shown throughout that MPs do have meaning, albeit vague and syncategorial, which can be derived from the lexical meaning and behavioural syntactic properties of their homonyms in syntactic distributions and with other categorial membership. It will be demonstrated that the weak meanings and behavioural properties of MPs lend themselves to a threefold classification: there are MPs with a causal meaning, others with an adversative meaning, and a third class with a more or less clear veridical meaning. This will be summarised in section 4.

## 2. Modal particles in the narrow sense: German for continental West Germanic

### 2.1. Illustrations and distributions

Modal particles of the sort described below occur only in a couple of Germanic languages with the notable exclusion of English (cf. Abraham 1975, 1989, 1991).<sup>1</sup> Romance does not display this category in the sense defined below (see (i)–(iv)), nor does Slavic. While it cannot be said with certainty that MPs are unique in the continental West Germanic languages (German, Dutch, West Frisian, Yiddish) the exoticness of this phenomenon can be illustrated by the following examples, (1)–(3), and their distributional constraints, (i)–(iv), of which (i) is most fundamental. Notice that the glosses cannot render the true illocutionary force of the German MPs.

- (1) *Was ist **denn** das? Was hast du **bloß** gemacht? Die Maschine ist **ja** ganz heiß geworden. Hast du **denn schon** wieder vergessen, sie auszuschalten?*

*Ich habe dir **doch schon** so oft gesagt, wie wichtig es ist, darauf zu achten, aber du gibst dir **ja auch** gar keine Mühe; **schon** die Art, wie du dasitzt, zeigt, daß du **auch** gar nicht wirklich bei der Sache bist. Na, nun mach **schon**, Du könntest dich **vielleicht** gerade aufsetzen und den Krimskrams da vor dir aufräumen. So ist es **schon** besser!*

What is that? What have you done? The machine has got quite hot. Did you forget to turn it off again? I've told you so many times before how important it is to pay attention to this, but you don't take any trouble. The very way you sit there shows that your mind is not on your job. All right, get a move on! Sit up straight and clear away that junk in front of you. That's better!

MPs are subject to heavy constraints both as regards clause types and combinability. Consider the following examples.

(2) a. Declarative structure

*Du* [<sub>U/C</sub> *bist* **aber** **schon** [<sub>VP</sub> *ein rechter Idiot*]]!  
 you are but(MP) already(MP) a real idiot  
 'You are truly an idiot!'

a'. \**Du* [<sub>U/C</sub> *bist* **schon** **aber** [<sub>VP</sub> *ein rechter Idiot*]]!  
 you are but(MP) already(MP) a real idiot

b. Interrogative structure

\**Bist* *du* **aber** **schon** *ein rechter Idiot*?  
 are you but(MP) already(MP) a real idiot

(3) a. Interrogative structure

*Was* [<sub>C</sub> *hast* *du* *dir* **denn** [<sub>VP</sub> *gedacht*]]?  
 what have you you:DAT then(MP) thought  
 'What exactly did you think?'

b. Declarative structure

\**Das* *hast* *du* *dir* **denn** *gedacht*.  
 that have you you:DAT then(MP) thought

c. Interrogative structure

*Das* *hast* *du* *dir* *dann* *gedacht*?  
 that have you you:DAT then thought  
 'This is what occurred to you?'

Notice that an English illocutionary rendering has to make use of full lexical adverbials. Nothing like *yes*, *but* or *then* exists with similar illocutionary force. According to (2a/a'–b), the order of the two MPs cannot be reversed, nor can the two MPs occur in anything but a declarative clausal structure. (3a–b) shows that the MP *denn* (English *then*; *than*) is restricted to questions. (3c) is evidence for the claim that, although the MP *denn* in (3b) is historically derived from the temporal adverb *dann* 'then', the MP is subject to distributional constraints that are different from those for adverbs in identical clausal positions. MPs occupy the syntactic slots of clausal adverbials in the "middle field" (roughly, left of VP, but to the right of finite V in clause-second position, V2; see Table 1 below). However, they cannot be regarded as adverbs for reasons of both a semantic and a syntactic nature. Generally speaking, the following syntactic and semantic constraints apply to MPs in the narrow sense, as in German, Dutch, West Frisian, and Yiddish. Notice that the continental West Germanic languages observe a strict V2 as well as Vlast with clear complementary distribution between main and subordinate clause. Between V2 and Vlast a wide "middle field" allows hosting all kinds of Particles of speech and reserving structural space for just one clausal Particle before V2 (unlike English, for example!). To make the distribution completely systematic and computable, the conjunction takes the position of V2 in the subordinate clause. Thus, the main clause has either strict V2 or V2+Vlast, whereas the subordinate clause displays Vlast, only the conjunction occupying the V2 position. See Abraham (1995a).

Now to the delimitation of modal particles against the brief structural background sketched above.

- (i) MPs are lexically derived from homonyms which are semantically and categorially unambiguous, but which have a distribution fundamentally distinct and different from their MP homonym; cf. the MP lexical elements in (1)–(3), which all mean something sharply delineated semantically—something which the MP use reflects only vaguely or not at all.
- (ii) With all but single and clearly definable exceptions, MPs occur only in positions in the "middle field"<sup>2</sup>—i.e. not clause-initially or clause-finally, or even in clause extraposition; all these latter positions, however, are in principle fillable by their homonyms (except for homonymic focus particles, which are usually directly before their scopal lexical element, sometimes also directly after it, but never floating to positions separated from their scopal lexical element).
- (iii) MPs can be focused only with a limited number of MP lexical elements; such a focused status has a very distinct discourse function.
- (iv) MPs have illocutionary force despite the fact that their lexical semantics is vague to non-existent. Given the fact that MPs occur, to all appearances, only

in languages with an explicit and categorially distinct  $SV_{fin}OV_{fin}$ -base,<sup>3</sup> it may be speculated that the occurrence of MPs is interactive with the particular typological topology of the continental West Germanic languages (German, Dutch, Frisian, and Yiddish as well as all their dialect variants all being of the strict V2- and the  $SV_{fin}OV_{fin}$ -type; notice that English, French, Italian, and the Scandinavian languages are neither SOV nor strictly V2).

None of the descriptions above (i.e. (i)–(iv) as well as Notes 2 and 3) readily lends itself to an answer to the question what the specific class of MPs is in categorial terms, i.e. in which property their specific distributional behaviour with respect to clause types is rooted and how their characteristic and unmistakable illocutionary force comes about. The present paper is a continued attempt at answering these questions. Specifically, we shall ask whether MPs need to have their own lexical entries, with illocutionary descriptions of their own, or whether their specific illocutionary force can be derived, and if so, from which basic status and meaning. To pursue this, the present paper is divided into the following sections: Section 3 investigates whether MPs can be classified semantically and what is gained by such a classification. Section 4 pursues the question which MPs occur in a selected clause-type, namely the imperative (continuing research into other clause-type constraints) and whether these restrictions can be derived from both meaning and syntactic distributional characteristics of the MP homonyms. In section 5, the combinations of MPs and their linear orders are grouped together and compared to the semantic classes of MPs. The conclusion will be that the syntactic behaviour rests crucially on the semantic classification of MPs.

Before this is tackled, however, let us consider briefly the linear restrictions to which MPs are characteristically subject.

## 2.2. Syntactic constraints

MPs can only occur in what is called the “middle field”, see Table 1 below. In other words, MPs occur to the left of VP only, i.e. in positions assigned to VP- and clausal adverbials. See Table 1 below.

Since the VP generally contains argument material which is rhematic in discourse-theoretical terms, it has been speculated that MPs operate as functions upon discourse referentially new material, or, in other terms, that MPs are at the scopally widest operator end of such material in the clause (Abraham 1989, 1995b). This speculation, no doubt crucial, awaits typological confirmation. It will not be the focus of the present discussion. Rather, we will address the question of the extent to



Table 1. Topological field distribution in German

	←		THEME ← ⇒ RHEME		⇒
	COORD	FF	1st VB	MF	2nd VB PF
a.	–	<i>Du</i> you	<i>kommst</i> come	<i>aber PÜNKTLICH!</i> MP punctually	–
b.	–	–	–	<i>Aber PÜNKTLICH</i> MP punctually	<i>kommen!</i> come
c.	–	<i>Wieso</i> how so	–	<i>denn aber PÜNKTLICH</i> MP MP on time	<i>kommen?</i> come
d.	<i>Aber</i> MP	<i>wieso</i> how so	–	<i>denn PÜNKTLICH</i> MP on time	<i>kommen?</i> come

COORD = co-ordination (such as English *however*); FF = fore field (comprising, in GB-terms, the structural period above T- or InflP); 1st VB “first verbal bracket” = T or Comp; MF “middle field” = the structural space between T/InflP and the predicative; 2nd VB = V<sup>0</sup> in a SOV-clause structure for German (Dutch, West Frisian, Yiddish); PF “post field” = area of clause-extraposition; all caps denote clausal accent—other accent distributions beyond those provided below are possible

which the syntactic, semantic, and systematically pragmatic properties of what we called the MP homonyms—i.e. their homonymic lexical elements with a full semantics and a clear syntactic categorisation—are reflected in the behaviour of the positionally and clause-typically heavily constrained MP occurrences. In pursuing this question, this general line of investigation will be restricted to the occurrence of MPs in imperative expressions (cf. Abraham 1995b, where a similar investigation was pursued restricted to interrogative contexts). The goal of this presentation is thus to show that, indeed, the occurrence of a number of MP lexical elements in imperative contexts as well as the exclusion of other MP lexical elements is rooted in the behaviour and meaning of the lexical homonyms in non-MP functions.

Our overall methodological position is a “monogenetic” interpretation of the status of MPs and their specific illocutionary force. In other words, the illocutionary force of MPs is a function of the interplay between the semantics and syntax of the MP homonyms, on the one hand, and the specific distributional constraints that the MPs are subject to. There is thus no need to have separate entries in the mental lexicon.

### 3. The distribution of MPs in syntactic and illocutionary imperatives: clause types and speech acts

#### 3.1. Clause types and hortative illocutions

The use of MPs is conditioned crucially by two factors: first, by the (syntactic) clause type; and, second, by the illocutionary intention (Helbig—Buscha 1993: 486). Let us first consider constraints for the occurrence of MPs in syntactic imperatives and illocutionary hortatives. Syntactic imperatives are characterised by the particular imperative morphology in C—i.e. in the clause-initial position. If the familiarising *du/ihr* (2nd person singular or 2nd person plural ‘you’) is supposed to be the imperative clause subject, it is obligatorily suspended. Non-imperative hortatives come in different kinds (Helbig—Buscha 1993: 614). See (4)–(9).

- (4) pure imperative form (verb in C)  
*Mach Deine Hausarbeiten!*  
 ‘Do your homework!’
- (5) question imperative (verb in C as well as V<sup>0</sup>)  
*Wann machst du nun endlich mal das Fenster zu?*  
 ‘When will you finally close the window?’
- (6) declarative imperative  
 (verb in C as well as V<sup>0</sup>) (Spec,CP occupied)
  - a. *Du wirst jetzt gehen!*  
 ‘You are going to leave now!’
  - b. *Du mußt mir helfen!*  
 ‘You must help me!’
- (7) impersonal *man* + present subjunctive  
 (verb in C as well as V<sup>0</sup>) (Spec,CP occupied)  
*Man lasse den Tee fünf Minuten ziehen.*  
 ‘Let the tea draw for five minutes!’
- (8) isolated embedded clause (verb only in V<sup>0</sup>)
  - a. *Daß du mir gut aufpaßt!*  
 that you to.me well pay.attention

- b. *Wenn Sie bitte einen Moment warten wollen!*

if you please a moment wait would

- (9) one-word clause

- a. infinitive

*Aufpassen!*

'Be careful!'

- b. preterite participle

*Hiergeblieben!*

here-stayed

In order to uncover the constraints on the occurrence of MPs in imperatives and hortatives, let us investigate their distributions in the adhortative types above. See (10)–(16) below.

- (10) pure imperative clause form

*Komm {aber/auch/bloß/\*denn/doch/eben/\*eigentlich/\*etwa/halt/JA/mal/man/nur/schon/\*vielleicht/\*wohl} pünktlich!*

come MP on time

- (11) *wh*-interrogative form

*Wann machst du {aber/\*auch/bloß/denn/doch/eben/eigentlich/\*etwa/halt/\*JA/mal/man/nur/schon/vielleicht/wohl} endlich das Fenster zu?*

'When will you close the window?'

- (12) declarative form

*Du mußt {aber/auch/bloß/\*denn/doch/eben/\*eigentlich/\*etwa/halt/JA/mal/man/nur/schon/\*vielleicht/wohl} fleißig lernen.*

'You will have to study hard'.

- (13) subject pronoun *man* declarative + present subjunctive

*Man komme {aber/auch/bloß/\*denn/doch/eben/\*eigentlich/\*etwa/halt/JA/mal/\*man/nur/\*schon/\*vielleicht/\*wohl} pünktlich.*

'One should come on time.'

- (14) free embedded clause

- a. *Daß du mir {aber/auch/bloß/\*denn/\*doch/eben/\*eigentlich/\*etwa/halt/JA/*

*mal/man/nur/\*schon/\*vielleicht/\*wohl* } *gut aufgeßt!*

that you to.me well pay.attention

- b. *Wenn Sie {aber/<sup>2</sup>auch/bloß/\*denn/doch/eben/\*eigentlich/\*etwa/halt/JA/  
mal/man/nur/\*schon/vielleicht/wohl} einen Moment warten wollen!*  
'If you would wait a moment.'

(15) infinitival clause

*{Aber/<sup>2</sup>Auch/\*Bloß/\*Denn/\*Doch/\*Eben/\*Eigentlich/\*Etwa/\*Halt/JA/  
\*Mal/\*Man/\*Nur/\*Schon/\*Vielleicht/\*Wohl} aufpassen!*

'Watch out!'

(16) negated infinitival clause

*{Aber/\*Auch/Bloß/\*Denn/\*Doch/\*Eben/\*Eigentlich/\*Etwa/\*Halt/JA/  
\*Mal/Man/Nur/\*Schon/\*Vielleicht/\*Wohl} nicht einschlafen!*

not-fall-asleep

'Do not fall asleep!'

(10)–(16) sketches the principal constraints that the occurrence of MPs are subject to. Quite clearly, certain MPs can occur only in certain clausal types (such as *denn*, *eigentlich*), while other clausal types (in particular, one-word clauses) admit the insertion of MPs only in limited number and kind. In what follows this general impression is tested systematically. Table 2 (next page) summarises the results beyond (10)–(16).

Not all MPs occur in pure imperatives. Nor do only imperative forms host MPs. For example, *denn* is incompatible with imperatives in particular and with adhortatives in general. In other cases, as for instance with *schon*, the MP is compatible with adhortatives, but not in all clausal types. We can thus conclude that MPs are either speech act-constrained or clause type-constrained. It is beyond the scope of the investigation to decide whether one of these criteria prevails over the other.

Something else can be concluded from our chart. Focused uses of MPs clearly have a meaning and function which goes beyond that of the unfocused lexical element to the extent that the focused variant presupposes an extra previous step in the dialogue that is refuted and requires further delineation. This clearly holds for *doch/DOCH* (see, for a detailed discussion, Abraham 1997). Notice that in the framework of adhortatives, only focused *JA* occurs.

Table 2. Occurrence of modal particles in hortative illocutions across several clause types

	Imperative (10)	Interrogative (11)	Declarative (12)	<i>man</i> + subjunctive (13)	free embedded: <i>daß</i> (14a)	free embedded: <i>wenn</i> (14b)	Infinitival form only (15)–(16)
<i>aber</i>	+	+	+	+	+	+	+
<i>auch</i>	+	+	+	+	+	?	?
<i>bloß</i>	+	+	+	+	+	+	+
<i>denn</i>	–	–	–	–	–	–	–
<i>doch</i>	+	+	+	+	–	+	–
<i>DOCH</i>	+	+	+	+	+	+	+
<i>eben</i>	+	–	+	+	+	+	+
<i>eigentlich</i>	–	–	–	–	–	–	–
<i>etwa</i>	–	–	–	–	–	–	–
<i>halt</i>	+	–	+	+	–	+	+
<i>JA</i>	+	+	+	+	+	–	+
<i>mal</i>	+	+	+	+	+	+	+
<i>man</i>	+	+	+	?	+	+	+
<i>nur</i>	+	+	+	+	+	+	+
<i>schon</i>	+	–	+	–	–	–	–
<i>vielleicht</i>	–	–	–	–	–	–	–
<i>wohl</i>	–	+	–	–	–	–	–

## 3.2. Detailed discussion

In the subsequent sections it is demonstrated that it is the precise syntactic positions that determine the status of a lexical element as an MP or something else. This is important since it bears on the categorial status and the previous claim that MPs occur only in the continental West Germanic languages because it is only those that provide the structural space where THEME and RHEME are sharply separated (VP being RHEME, to the left of VP extending THEME elements).

### 3.2.1. *aber* ('but') as an MP

See the adhortative illocutionary forms in (17a–d) below.

- (17) a. *Du kommst **aber** PÜNKTLICH!*  
           you will come MP on time!

- b. *Man komme **aber** pünktlich!*  
one come MP on time!
- c. *Daß du mir **aber** pünktlich kommst!*  
that you come MP on time!
- d. *Wenn du mir **aber** nur pünktlich kommst!*  
if you come MP MP on time!
- e. ***Aber** pünktlich kommen!*  
MP on time come(INF)!
- f. ***Wieso** denn **aber** pünktlich kommen?*  
why MP MP on time come(INF)?
- g. ***Aber** **wieso** denn pünktlich kommen?*  
but-MP(?) why MP on time come(INF)?

There is reason to ask whether *aber* is really an MP—or is it the co-ordinating adverb standing for English *but/however*? Let us try to demonstrate its MP categorial status in purely syntactic terms—i.e. with respect to syntactic distributions that do not allow a different conclusion. Take the example in (17a) as compared with (17e–g) in Table 3 below.

Table 3. Topological field distribution in German

	THEME		$\Leftarrow \Rightarrow$	RHEME		
	COORD	FF	1st VB=COMP	MF	2nd VB=V <sup>0</sup>	PF
a.	–	<i>Du</i> you	<i>kommst</i> come	<i><b>aber</b> PÜNKTLICH!</i> MP punctually	–	–
e.	–	–	–	<i><b>Aber</b> PÜNKTLICH</i> MP punctually	<i>kommen!</i> come	–
f.	–	<i>Wieso</i> how so	–	<i>denn <b>aber</b> PÜNKTLICH</i> MP MP on time	<i>kommen?</i> come	–
g.	<i><b>Aber</b></i> MP	<i>wieso</i> how so	–	<i>denn PÜNKTLICH</i> MP on time	<i>kommen?</i> come	–

The turning point is that of the interrogative *wieso* 'how so', whose clause-structural place is unmistakably in the 1st verbal bracket (= Spec,CP or Spec,TP). Compare (17a), the sentence in question, with (17c–g). Unless a perceivable pause intervenes between *Aber* and *pünktlich* in (17g), such as to bridge the structural space of FF and 1st VB, we have to assume that *Aber* is in the MF, i.e. in its canonical position

for MPs. This decides the question we have posed above about the categorial status of superficially clause-initial *aber*.

### 3.2.2. *The scope of MP: original focus particles*

Consider the following uses of *nur/bloß* (originally, as focus particles, ‘only, just’). The idea is to show that MPs have scope over the VP or the predicate phrase. Compare (18a–c) with the clausal field chart in Table 4.

- (18) a. ***Bloß/Nur*** [<sub>VP</sub> *schön ruhig sein*]!  
           only(MP) nicely still be  
           ‘Keep nicely quiet!’
- b. ***Bloß/Nur*** [<sub>VP</sub> *die Türe nicht aufmachen*]!  
           ‘For God’s sake, don’t open the door!’
- c. ***Aber immer*** [<sub>VP</sub> *Kindern den Vortritt lassen*]!  
           but always (to) children the priority let  
           ‘Just let kids go first!’

In Table 4 below, recall that “Comp(lementiser)” in German identifies the clausal position of the subordinating conjunction as well as V2<sub>finitised</sub> in the main clause.

Table 4. Topological field distribution in German

	FF	COMP	MF	2nd VB=V <sup>0</sup>
ad 18 a.		–	<i>Nur</i>	{predicate}
b.		–	<i>Bloß</i>	[ <sub>VP</sub> DO (Neg) V]
c.	...	–	<i>Aber</i>	[ <sub>VP</sub> IO DO V]

The question is what is the scope of MPs in (18a–c). Note first that MPs cannot contain in their scope the clausal subject, since in imperatives the subject is suspended (in terms of syntactic minimalism, one can exploit this fact for the assumption that the MP lexical element occupies Spec,AgrSP, where, according to its categorial status of [–N], it cannot be assigned nominative case and bars the theta-role from the structural mechanics).

### 3.2.3. *MPs as a reflex of the semantics and syntax of the original homonymic lexical elements*

Consider (19a–c) with the attached illocutionary forces (FP = focus particle).

- (19) a. FP-particle ranging over adjectival

*Sei **bloß** ruhig!*

be MP still

'Be quit for God's sake!'

- b. FP-particle ranging over NP

*Sei **bloß** kein Ballermann!*

'Don't be so grotesquely loud!'

- c. FP-particle ranging over V or V'

***Bloß** die Augen zumachen!*

'Let me just close my eyes!'

The question whether MPs reflect the semantics and syntax of the original homonymic lexical elements in any interesting sense has not been the topic of previous discussions in any true sense (except for Abraham 1989 and, in a diachronic context, Abraham 1991). Generally, it is assumed that MPs are adverbials, since adverbials appear in identical positions in the middle field, i.e. to the left of verb-argument material. However, such an assumption does not do full justice to the question what the categorial reflex of the original, pre-derivative, homonym is. The answer is trivial in such cases as *vielleicht* and *aber*, where quite clearly a sentential adverb and a co-ordination lexical element shift to MP status. The question is far from trivial, however, in the case of focus particles in the homonymic, pre-derivative, status. Take such MP derived focus particles as *bloß* and *nur*, where the semantics of the pre-derived focus particle is such that it maps a scalar property, more precisely: the lower pole of this scale of value predications. For such a scalar property to be effective, however, the category operated-upon must be adjectival since only adjectivals have the property of being scalarly ranged. See the following illustrations for the scalar use of the focus particle (FP)-derived MP *bloß*. Notice that where an NP is the predicate it is generally a non-referential use of NP. In other words, in the canonical cases of the MP derived from a focus particle and operating upon ADJ- and NP-predicatives scalarity is clearly existent.

In the case that the MP has V or a predicative in its scope, however, it may be hard to think of a scalarity range presupposed by the focus particle. See the previous attempts pertaining to (19a–c) to place V on a scalar range and arrive thereby at an



opposite quality. The reason, then, for the fact that we have not reached one single, unifying focus functor status of the “MP” *bloß* and *nur* is that it is hard to interpret any lexical element of the category V as scalable. In general, since scalability is not a discrete property there is the possibility that the meaning of lexical elements is flexible enough to allow openness for a scalar meaning or even a true polar interpretation in the sense of (c) in Table 1. It appears, however, that there are category-dependent restrictions to this scalar flexibility. Witness (19c). For *bloß/nur* to receive true MP category status depends on our failure to conceive of the scope of *bloß* over V as a scalar characteristic.

The crucial conclusion from this discussion is that MPs such as FP-derived *bloß/nur* may still be categorially qualified as focus particles. The weakness of this categorial status is due to the fact that the category, V, selected in the scope of the FP, is not of the default, canonic, category status.

It is, thus, legitimate to say that an MP may often be found to preserve the categorial status of its homonym in its pre-derived state at least in an early stage of the grammaticalising process. By the same token, this early stage of an ongoing grammaticalisation of MPs will be found to retain the selectional properties of the lexical item in the pre-derived state. This categorial shift is completed once the specificity of the selectional adjectival property becomes opaque and the new MP lexical element, on the basis of its newly narrowed down selectional range, is not seen as linked to the pre-derived, homonymic lexical element with different selectional properties. With respect to the MP *bloß/nur*, this development can be traced clearly in the following illustration. Notice that our line of argument about the categorial reflex inherent in the newly developed MP is corroborated if the MP, with the remainder of the original FP-scopal properties, can be said to be focused on V.

- (20) a. A: “Ich gehe jetzt schlittschuhlaufen.” ‘I will go skating now.’  
 B: “*Bloß* \*(*nicht*)! Das Eis ist doch viel zu dünn!” ‘By all means, don’t!  
 The ice is MP far too thin!’
- a’. A: “*Ich gehe jetzt schlittschuhlaufen.*” ‘I will go skating now.’  
 B: “*Bloß* \*(*TUN*)! *Schöner als heute kann es nicht mehr werden.*” ‘For  
 God’s sake, do it! It won’t get any better than today!’

The MP *bloß* in (20a’) requires a focal lexical element, which, as the B-responses show, is either the negation, *nicht*, or a verb or a VP (*tun* ‘do’—replacement for a whole VP-predicate). The behaviour of this FP-derived MP, *bloß/nur*, is unique to the extent that other, non-FP-derived (but, rather, adverb-derived) MPs such as *schon/ja/eben* can be inserted without such a focused element. Notice that stressed

MP lexical elements have a semantic-syntactic function different from unstressed ones. Witness (20b').

- (20) b. A: "*Gehst Du denn nicht eislaufen?*" 'Aren't you going skating?'  
 B: "*SCHON/DOCH/JA doch!*" MP = 'Yes, I will!'  
 b'. A: "*Ich kann das nicht einsehen.*" 'I don't get it.'  
 B: "*EBEN!Aber JA doch!*" MP<sub>1</sub> MP<sub>2</sub> MP<sub>3</sub> = 'That's what I thought!'

FP-derived MPs share this constraint with co-ordinator-derived MPs such as *aber/denn*, in clear contrast to adverb-derived MPs like *vielleicht/eigentlich/wohl* in addition to those illustrated in (20).

### 3.2.4. MP insertion and the finiteness parameter

Let us examine the adhortatives with the MP *schon* or the focused *SCHON* in (21a–d) below.

- (21) a. *Hör schon auf!*  
 stop MP  
 'Do stop that, for God's sake!'  
 b. *Daß du mir schon Platz nimmst!*  
 'Do take a seat, by all means!'  
 c. *\*Schon abgeben!*  
 MP turn in

Recall that we wondered whether to assume that the VP-focused MP such as *bloß* occupies the position of Spec,TP or Spec,AgrSP, in order to explain the fact that the subject is prevented from occurring and, consequently, agreement features cannot be assigned. Another point relevant for this assumption is the behaviour of the FP-derived MP *schon*, which means 'already' in its FP-function. See examples (21a–b) and the non-finite imperative version (21c) in particular. This assumption would explain the ungrammaticality of (21c) since Agr<sup>0</sup> is not occupied (violation of the Spec,head-criterion). This permits the generalisation that MPs are possible only with clausal finiteness of the predicate, albeit irrespective of main or dependent clause.<sup>4</sup> Notice that this assumption does not hold for FP-derived MPs with only V in its scope: an MP of this type would have to be lower than any of the clause-functional nodes.

Is the conclusion above contradicted by (21d) below?

- (21) d. A: "*Willst du NICHT abgeben?*" 'DON'T you want to turn it in?'  
 B: "*Natürlich, SCHON abgeben!*" 'Sure I do!'

Considering that the stressed *SCHON* is in topicalised position (either Spec,CP or Spec,TP) to map syntactically its discourse-semantics of rhematic contradiction, AgrS is completely irrelevant. Thus, no ungrammaticality is expected—which is true to fact.

#### 4. Three semantic types of modal particles and the contingent distributional properties

It was shown in the previous sections MPs do have meaning, albeit vague and syn-categorical, which can be derived from the lexical meaning and behavioural syntactic properties of their homonyms. We have seen that the weak meanings and behavioural properties of MPs lend themselves to a threefold classification: there are MPs with a causal meaning, others with an adversative meaning, and a third class with a more or less clear veridical meaning. Figure 1 summarises our findings.

This classification illustrates the following general characteristics of MPs:

- (i) Only the non-semantic class of MPs are veridical (truth-functional); the two semantically laden classes do not yield a veridical illocutionary meaning.
- (ii) Due to (i) above, only the veridical class occurs in declaratives, but not in interrogative and imperative forms; the non-veridical, semantically laden MPs, on the other hand, also occur in the non-declarative clause types.

This division makes the classification intrinsically valuable. Methodologically speaking, it is always crucial to investigate whether such classes have an independent status or whether there exist deeper interdependencies. The latter position was taken in Abraham (1991). Here is the essence of such an interdependence ("¬" = logical negator).

1. Logical notation of adversative conjunctions and co-ordinators ("¬" for logical negator):

Let "CAUS" or "→" mean "entails": then, causative "*x, deshalb/somit/deswegen—therefore/consequently y*" is represented by "*x CAUS/→ y*"; from this fol-

	adversative	causal	veridical	narrower illocutionary description
<i>aber</i>	+			discrepancy between expected and observed behaviour
<i>auch</i>			+	incorporation of a statement into broader context; link to prior context
<i>bloß</i>	+			down-grader
<i>denn/DENN</i>		+		reason for argument supplied a posteriori
<i>doch/DOCH</i>	+			discrepancy between expected and observed behaviour
<i>eben</i>		+		confirmation of prior reasoning
<i>eigentlich/ EIGENTLICH</i>			+	narrowing down on essentials
<i>etwa</i>			+	focuses polar property
<i>halt</i>			+	confirmation of prior reasoning
<i>ja</i>		+		detecting a reason or causal connection
<i>JA</i>		+		underlining the illocutionary force of the (emphatic) declarative
<i>mal</i>			+	weakening the illocutionary act
<i>man</i>	+			North-German variant of the MP <i>nur</i>
<i>nur</i>	+			down-grader
<i>schon</i>			+	up-grader
<i>SCHON</i>			+	presupposing prior dialogue step with negative answer; verifying alternatives
<i>vielleicht</i>			+	focuses polar property
<i>wohl</i>			+	highlighting the assumptive character
<i>WOHL</i>			+	presupposing prior dialogue step with negative answer; verifying alternatives

Figure 1. Semantic classification of modal particles (independent of the discussion in the text; all caps for accent position)

lows, quite straightforwardly, that if “ $x \rightarrow \neg y$ ” or, more complexly, “ $x \rightarrow \neg z$ ” as well as “ $z \rightarrow y$ ” means the opposite of “CAUS/ $\rightarrow$ ”, then *aber-but* can be represented as “ $x$  CAUS/ $\rightarrow \neg y$ ” (i.e. ‘from  $x$  follows just-not- $z$ ’, and ‘since from  $z$  follows  $y$ , then from  $x$  also follows just-not- $y$ ’).

(1.) permits one to conclude that adversatives can be considered a subclass of, because derivable from, causatives.

2. If “CAUS” or “ $\rightarrow$ ” is the fundamental semantic connective, any merely linearising or veridical connective or particle needs to be represented as discharged from a semantic point of view. In other words, it should be something like “ $\neg (x \text{ CAUS}/\rightarrow)$ ”.

Despite such economising reductions, the distinction of three classes makes sense for the following three reasons:

- (i) We are interested in the fine-grained meaning distinctions.
- (ii) Beyond the restrictions extractable on the basis of the veridicality distinction, the illocutionary constraints provided by each of the MPs appears to depend on the full lexical homonym. In particular, the subclass of veridical MPs appears to be co-extensive with the class of focus particle homonyms. The latter, therefore, have left considerable and distinctive traces in the distributional behaviour and the semantics of their MP counterparts.

Notice that it is the shift from non-focused to focused MPs, both in the veridical and the non-veridical (semantic) class, that deserves our particular attention. Here is what appears to be a valid generalisation: the focus shift relates to the operative shift from sentence scope to sentence-type scope. Compare this shift in the *denn/DENN* pair.

- (22) a. *KENNST du den denn?*  
‘DO you know this one?’  
b. *\*Kennst du den DENN?*  
c. *Wen KENNST du denn?*  
‘Whom DO you know?’  
d. *Wen kennst du DENN?*  
‘Who ELSE do you know?’

- (23) a. *\*Will er das schon?*  
will he that MP<sub>unstressed</sub>

- b. *Will er das SCHON?*  
'Does he really want that?'
- c. *Was WILL er schon?*  
'What does he want then?'
- d. *Was will er SCHON?*  
'What else does he want?'

In each of the cases in (22b/d) and (23b/d), the focused MP evokes a level of the discourse or dialogue beyond the mono-sentential use of the unfocused MP. The restrictions on the focused MP's occurrence characterise the very possibility of such an extension going against the filter of the clause-type. In (22b) it does not make sense to go beyond making sure whether "you know him", whereas such an extension is called for in a *wh*-question as (22c), "whom, if not the ones inquired about before, do you know?". This is different in (23b) vs. (22d). (23c) extends the question beyond a prior negative answer to the proposition-question. The same holds for (23d), which presupposes again a negative answer to "what does he want?". One can thus say that the focused MP is contrastive to the extent that it presupposes a prior answer to the simple question—an answer which, being unexpectedly negative, requires asking about an alternative.

## 5. Combinability of modal particles

In this section we first investigate the distributional constraints on MPs in imperative forms. From these findings, more general conclusions are drawn in section 6.

### 5.1. Combinations of modal particles in imperative forms

This section is dedicated to pair combinations of MP lexical elements in imperatives. See Figure 2 below (cf., quite similarly, Dahl 1988: 158). Notice that we restrict our survey to pure formal imperative clauses (cf. (10) in Table 2 above).

Notice that certain MPs are highly restricted. The MP *mal* occurs more frequently in combinations with other particles, however, always in second position. *doch*, on the other hand, is placed in first pair position. The MP *nur* is hardly ever combinable. It is striking that the quasi-synonyms *halt* and *eben* behave differently if combined with the MP *schon*. And, finally, although synonymous, *halt* and *eben* do occur in

in pair-first position →										
in pair-second position ↓	aber	auch	bloß	doch	eben	halt	JA	mal	nur	schon
aber	Ø	+	+	?	Ø	Ø	+	+	Ø	Ø
auch	Ø	Ø	+	Ø	Ø	Ø	+	+	Ø	Ø
bloß	Ø	?	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø
doch	+	Ø	+	Ø	Ø	Ø	Ø	+	?	+
eben	Ø	?	Ø	Ø	Ø	+	Ø	+	Ø	Ø
halt	Ø	?	Ø	Ø	+	Ø	Ø	+	Ø	+
JA	Ø	+	Ø	Ø	Ø	Ø	Ø	?	Ø	Ø
mal	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
nur	Ø	Ø	+	Ø	Ø	Ø	Ø	?	Ø	Ø
schon	Ø	Ø	Ø	Ø	Ø	?	Ø	+	Ø	Ø

+ = acceptable combination; ? = dubious acceptability; Ø = unacceptable combination

Figure 2. Possible combinations of modal particles in imperative forms (the survey is not complete with respect to stressed occurrences of MPs)

- (24) a. *Komm **halt eben** mit zu meiner Oma!*

come MP<sub>1</sub> MP<sub>2</sub> along to my grandma's!

- b. *Komm **eben halt** mit zu meiner Oma!*

come MP<sub>2</sub> MP<sub>1</sub> along to my grandma's!

Let us now try to delimit the occurrence of pairs of MPs in imperatives with varying relative order.

- (25) *Komm **aber auch/bloß/JA/mal** pünktlich, wenn du mit zum Fußballspiel willst!*

come MP on time if you want to come along for the soccer game

- (26) *\***Laß aber doch** das Licht nicht brennen!*

let MP<sub>1</sub> MP<sub>2</sub> the light not burn

- (27) *\***Man läßt aber doch** das Licht nicht brennen, wenn man aus dem Haus geht!*

you do MP<sub>1</sub> MP<sub>2</sub> not leave the lights burning when leaving the house

- (28) ***Nimm auch bloß/JA** den Haustürschlüssel mit beim Weggehen!*

take MP<sub>1</sub> MP<sub>2</sub> along the key when leaving

- (29) *Laß die Katze **auch mal** nach draußen!*  
'Let the cat out once!'
- (30) *Nimm **bloß auch** den Haustürschlüssel mit!*  
'Take the key along for God's sake!'
- (31) *Guck dir **bloß mal** die Schweinerei hier an!*  
'Take a look at this mess!'
- (32) *Nun seid **doch aber/bloß/mal**? **nur/schon** endlich still!*  
'Now, be quiet for a change!'
- (33) *Schreib **eben**? **auch/halt/mal** besonders leserlich!*  
'Do write particularly legibly for a change!'
- (34) *Schreib **halt**? **auch/eben/mal/schon** besonders leserlich!*  
'Do write particularly legibly for a change!'
- (35) *Komm **JA auch**? **mal** pünktlich zum Fußballspiel!*  
'Do come on time for the soccer game!'
- (36) *Laß die Katze **nur bloß**? **mal** in Ruhe fressen!*  
'Let the cat eat in peace!'
- (37) *\*Nun komm **schon halt** mit zum Tischtennis!*  
'Now, do come along for table tennis!'
- (38) *Laß **schon mal** den Motor an!*  
'Do start the engine!'

One basic criterion for pair combinability of MPs is that they occur in the identical clausal type. Another basic restriction is that MPs occurring in different illocutionary contexts cannot combine. The same holds for identical MP lexemes where only one occurrence is focused, while the other is unfocused.

- (39) *\*Iß **nur NUR** noch ein Stück Kuchen!*  
'Do eat only one more piece of cake!'



Generally, it holds that MP allonyms with identical illocutionary functions can co-occur. The yield is an enforced illocutionary status. We notice an exception, though, for the combination of *bloß* and *nur* in this linear order. However, *nur* preceding *bloß* is grammatical. No explanation is offered at this point. See (40a) and the inversion of the particles in (40b).

- (40) a. *Komm **nur bloß** nicht zu spät zum Essen!*  
 come MP<sub>1</sub> MP<sub>2</sub> not too late to dinner
- b. *\*Komm **bloß nur** nicht zu spät zum Essen!*  
 MP<sub>2</sub> MP<sub>1</sub>

An MP which refers to a prior utterance cannot be combined with an MP referring to a presently made utterance. See the following ungrammatical example containing *aber* together with *eben* and *halt*. *aber* usually refers to a situation with present situative import, while *eben* and *halt* create a causal connection to a previous proposition.

- (41) *\*Guck dir **aber eben/halt** diese Schweinerei hier an!*  
 'See MP<sub>1</sub> MP<sub>2</sub> this mess here!'

It is relevant for the present context that in MP combinations those MPs deriving from subordinating conjunctions occupy the first linear position.

- (42) a. *Komm **aber bloß** pünktlich!*  
 'Do come MP<sub>1</sub> MP<sub>2</sub> on time!'
- b. *Komm **bloß aber** pünktlich!*  
 MP<sub>2</sub> MP<sub>1</sub>
- (43) a. *Laß **auch bloß** die Tür offen!*  
 'Do leave MP<sub>1</sub> MP<sub>2</sub> the door open!'
- b. *\*Laß **bloß auch** die Tür offen!*  
 MP<sub>2</sub> MP<sub>1</sub>
- (44) a. *Sing **doch mal** ein bißchen lauter!*  
 'Sing MP<sub>1</sub> MP<sub>2</sub> a little louder!'
- b. *\*Sing **mal doch** ein bißchen lauter!*  
 MP<sub>2</sub> MP<sub>1</sub>

On the other hand, MPs such as *mal* and *schon*, whose homonyms are adverbs, are exclusively in the later position.

All this boils down to the generalisation that the linear sequence of MPs is co-determined by the category status of their lexical, pre-MP homonyms.

## 5.2. General constraints—“grammaticalisation legacy”

Unlike adjectives and adverbs, MPs do not co-ordinate. See (45)–(46).

- (45) \**Das Kleid im Schaufenster ist doch und schon schön.*  
the dress in the window is MP<sub>1</sub> and MP<sub>2</sub> beautiful

- (46) \**Das Kleid im Schaufenster ist doch, schon schön.*  
the dress in the window is MP<sub>1</sub>, MP<sub>2</sub> beautiful

However, certain MPs do combine under direct subadjacency. Others clearly do not.<sup>5</sup>

- (47) *Das Kleid im Schaufenster ist doch schon schön.*  
the dress in the window is MP<sub>1</sub> MP<sub>2</sub> beautiful

- (48) \**Mach eben aber die Tür zu!*  
do MP<sub>1</sub> MP<sub>2</sub> the door closed

What we have to exclude furthermore are positions in which the MP lexeme does not have MP status. Compare (49a–b) (FP = focus particle).

- (49) a. ?*Was wolltest du eigentlich denn mit deinem Einwand erreichen?*  
possibly not acceptable
- b. *Was wolltest du denn eigentlich mit deinem Einwand erreichen?*  
MP sequence  
‘What exactly did you want to achieve by your critical remark?’
- c. *Was eigentlich wolltest du denn mit deinem Einwand erreichen?*  
FP—MP

We have to conclude that it is not a matter of the relative linear distance that plays a role (*contra* Dahl 1988: 146). Rather, as delineated in detail in Abraham (1991: 142), MPs fall into three distributional classes. See Figure 3.



## 6. Summary and generalisation: principles of category shift and category inheritance in grammaticalising processes

### 6.1. Results so far

This is what the last section has yielded. Combinations of MPs are found frequently both in written and in spoken German in general as well as in imperatives and adhortatives (cf., most notably, Thurmaier 1989, as well as Abraham 1995b). Such co-occurrences are restricted in the following terms:

1. MPs can be combined only if they occur in identical clause type contexts;
2. the speaker thereby reinforces his illocutionary intention;
3. the point of reference of an MP is of importance: MPs referring to a presently actual situation cannot co-occur with an MP which refers back to a previous point of time;
4. the allo-categorical forms of MP lexical elements (their “homonyms”) influence the linear behaviour of MPs.

For purposes of a diachronic investigation, one might ask how the historical development from lexically full adverbs, conjunctions, co-ordinators and focus particles to the far vaguer modal particles could be envisioned stepwise. To channel this search let us repeat Ijbema’s suggestion (1997), where the following distinct types of grammaticalisation in the area of verbal affixation were sorted out (cf. (i)–(iii) in section 1):

- (i) one type of grammaticalisation where a lexical element becomes a functional (= inflective) element, an affix, which is generated structurally in a *functional head* (such as the future tense affix in French, *-ai-*);
- (ii) another type of grammaticalisation involving a lexical element becoming a functional (inflective) element and structurally a head, but not an *affix* (such as the English “infinitival preposition” *to*); and
- (iii) yet another type of grammaticalisation where a lexical element becomes functional (inflective) and an affix, but does not end up structurally as a *functional head*, as illustrated by the “infinitival preposition” *zu/te* in German/Dutch as well as prefixes such as German/Dutch *be-*, *ver-* (which have emerged from prior adverbial status).

Now recall (50), specifying three distinct syntactic positions of MP at LF: C1–COORD, C2–ADV, and C3–FP. We found this supported by the linear restrictions on MP combinations; cf. section 5.1 above. Consider again (50) above, which

projects the specific categorial origins on the distribution of C1–C3. There are MPs oscillating in function between C1 und C3 (*weil* ‘because’, *obwohl* ‘although’, *übrigens* ‘moreover’, *wohlverstandenenerweise* ‘mark you’ among others). We conclude from the position in V2 that these original conjunctions such as *weil* or *obwohl* raise to C1, thereby emptying C3 (= CP, the position for subordinating positions, thereby allowing V to move into V2 of the main clause structure in CP). We take the prosodic break as an infallible indication of this empty position C2.

## 6.2. Two methodological null hypotheses

To allow the derivation of MPs from their original full lexical homonyms the following two hypotheses need to be assumed (cf. Abraham 1997).

### A Specified syntactic Null Hypothesis:

Modal particles come in three positional classes subdividing TopP: C1, C2, and C3.

What makes this hypothesis amenable? To answer this question let us formulate another hypothesis. See B.

### B Classification of an MP in C1, C2 or C3 depends on the syntactic selectional properties of the MP homonyms as a legacy which has remained untouched throughout the diachronic grammaticalising steps.<sup>6</sup>

Let us spell out somewhat more concretely our empirical arguments in favour of these two assumptions. Take C3, which is the position for the sentential object conjunction *daß* derived diachronically from demonstrative *das*. Both the article and the demonstrative restrict their referential force to deixis. This rather content-vague denotation places C3 in immediate adjacency to the subordinated subject or object clause. Notice, furthermore, that in German C3 carries verbal features of agreement inflection of number and person. In Abraham (1995a: 590–592) it was argued that *daß* has an overwhelming affinity to the (finite) predicate in terms of verbal argumenthood. Apart from *daß*, C3 hosts MPs that derive from focus particles. What focus particles do, in general, is measure out a local, direct scope of predicate properties much akin to deictic *das*.

C2, in turn, is characteristic of *wh*-question contexts, thus, more precisely in syntactic terms, of *wh*-constituents. It attracts both the finite predicate and *wh*-words. Where the Specifier of C3 hosts topicalising projections, what we have in Spec of C2 are *wh*-constituents. *wh*-words basically represent clausal parts of speech such as

subjects, objects, and adverbials. To all appearances, all MPs classified in C2 can be used as adverbs as well.

Finally, C1 is the most straightforward to classify. The MPs resorting to this position derive from co-ordinating adverbs throughout. They contain in their scope comparative conjunctions, which have shown to belong to C2, or the verb-argumental content conjunction *daß*. See (51).

(51) a. *wh*-question context

*Und/denn/aber WIE hat er das gesehen?*

'In which way is it that he has seen that?'

b. *wh*-emphatic context

*Und/denn/aber WIE daß er sie gesehen hat!*

'No doubt, he has seen them!'

## 7. Conclusion

The main tenet of this investigation into the behaviour of the typologically rare pseudo-category of modal particles in German was that, parallel to their semantics, MPs demonstrate a weakening of their syntactic inheritance of the homonymic lexical element in pre-derived categorial status in terms of the range of selection properties. This proved to be the case to the extent that what were originally semantically scalar focus particles, extended their selection to V, which is not a category lending its denotation to scalar and polarity ranking. We are, thus, confronted with a syntactic process of grammaticalisation not only much akin to semantic shifts so often claimed for grammaticalisation, but, what is more, a possible and plausible source of the resulting semantic changes of intensional bleaching. This has been held to be in principle the case also in the diachronic development of auxiliaries (Abraham 1995a). Given the fundamentally semantic horizon extended by researchers of sundry aspects of grammaticalisation, this is a parsimonious methodological stance worth investigating further.

## Notes

1. There is a massive literature on all kinds of aspects of the behaviour and occurrence of MPs in German and their equivalents in other languages which will not be referred to here—not least because this literature is in German and will be of no avail to the English speaking linguistic world.
2. In the tradition of the syntax of German, the notion of pre-existing syntactic clausal slots (the so-called “field topology”) antedates that of transformational grammar by several decades. There are, however, a number of crucial differences which make the clause-syntactic description of generative grammar preferable and methodologically more powerful. Cf. Abraham (1995a) for a comparison.
3. I have claimed elsewhere (Abraham 1991) that the structural characteristic of simultaneous V2 and Vlast (i.e. in the same clause) and the subsequent opening of the wide structural space (the so-called “middle field”) between these two central positions allows for scrambling under refocusing. This accounts for discourse-motivated rearrangement of clausal elements in terms of themes and rhemes without topicalisation and clefting (as is usually the only possibility in the purely V2- or V3-languages such as English, the Scandinavian and the Romance languages). It is in this light that German (as well as Dutch, Frisian, and Yiddish) may legitimately be called “discourse prominent”. Modal particles are rheme-initiators both syntactically (they are the inceptive elements in the rhematic chain extending from their middle field position to the right, leaving all rhematic material to their left) and semantically in that they introduce a specific speech act, or text cohesion quality. Notice that the “middle field” is not identical to VP. It covers the whole VP (as the structural place of rhematic material) and extends further to the left up to V2 (which, in syntactic terms, is in the INFL(ECTION) node or the COMP(LEMENTISER) node). For a more detailed comparison see Abraham (1995a: chapter 14).
4. It is to be noted that from this follows immediately that the occurrence of the MP is in no way triggered by the verb raising to AgrS or TP, since in the German dependent clause the finite verb stays in Vlast. In other words, under Minimalist assumptions, there must also be functional AgrSP- and TP-nodes lower than VP. See Abraham 1997 for such an extended discussion.
5. It is often difficult to decide on the status as MP. See (1)–(3) below.
  - (1) *Komm auch mit in die Kirche!*  
‘Do come MP<sub>1</sub> along to church!’
  - (2) *Komm bloß mit in die Kirche!*  
‘Do come MP<sub>2</sub> along to church!’
  - (3) *”Komm bloß auch mit in die Kirche!*  
‘Do come MP<sub>1</sub> MP<sub>2</sub> along to church!’
6. This generalisation relates to Bybee’s (1992) observation that the auxiliary *shall* still differs from *will* in some ways characterised by the full verbs in earlier stages of English. Thus, the original meaning difference still “shines through” despite the heavy

bleaching effect under the mechanisms of grammaticalisation. This was pointed out to me by Bernard Comrie.

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# The Tongan category of preverbials

Jürgen Broschart

## 1. Introduction

There are many publications on the question whether a given language has or does not have a particular category known from traditional grammar. Far less work has been done on the question what other categories languages may have in addition to or in contrast with traditional categories.<sup>1</sup> This situation is not surprising, since the latter type of inquiry seems to be open-ended. As is well known, all languages somehow differ from others, and it is hard to draw a clear dividing line between subcategories of known categories or clearly distinct categories.

However, occasionally linguists have realised the need to postulate new categories. Classifiers, for instance, are now recognised as a category separate from the traditional ones (cf. Craig 1986), even though this category is not completely distinct from the categories of Indo-European: Classifiers are words which share the function of “nominal classification” with gender inflection (cf. Seiler 1986: 97, 111), but they differ from gender not only in terms of the affixation of the latter (classifiers typically isolate units of the current discourse (e.g. topic NPs, cf. Becker 1986), while gender classifies inherently topic-worthy lexical items (“nouns”, cf. Hopper—Thompson 1984)).

In the following I shall be postulating a new category which again is not totally distinct from the known ones, but which is sufficiently distinct in form and function to be treated as separate. This fairly grammaticalised category of words preceding a lexical nucleus mainly in translational equivalents of verb phrases will be called “preverbials” and exemplified with respect to Tongan (Polynesia). Some of the closest functional parallels of these words comprise adverbs like ‘already’, (superordinate) predicates like ‘to be/have finished’, tense/aspect/mood (TAM) markers like “perfective aspect”, as well as classical preverbs (preposition-related verb particles and morphological derivational affixes of various functions, cf. Brugmann—Delbrück 1911: 764–770, 1893: 643–734). Note, however, that Tongan also has a separate category of lexical adverbs and grammatical TAM markers, that only a subset of the Tongan preverbials can also function as superordinate lexical predi-

cates, and that most direct counterparts of classical preverbs are expressed differently in Tongan (see below). Quite interestingly, the postulated preverbal category occupies a structural position in the so-called “verbal construction” which is very similar to the position of classifiers in the so-called “nominal construction”, and some items can be used in both functions (this semantic-formal correlation will be described below). The category of preverbials also generally displays a fairly coherent semantic behaviour, which ranges from aspectual, temporal, and modal meanings to manner of action and “aktionsart”; as such the preverbials typically support and qualify distinctions specified in the most grammaticalised TAM markers of Tongan.

## 2. The syntactic “slots” of Tongan

Tongan is a stem-isolating language which presents many difficulties with respect to traditional lexical word class distinctions (cf. Tchekhoff 1984; Broschart 1997a). Thus, lexical words of very different kinds may occur in similar constructions. On the other hand, Tongan syntax provides a number of distinct slots differentiating various uses of the lexical items in question. So-called “nominal” constructions usually contain case prepositions and articles (specific vs. unspecific<sup>2</sup>), while so-called “verbal” constructions are introduced by TAM markers. So-called “nominal” predications with referential (article-marked) predicates are typically introduced by the “presentative” or “essive” preposition *ko*. Compare (1) and (2):<sup>3</sup>

- (1)        *Ko*        *e*                *tangata*.  
              ESS     ART.SP        man  
              ‘(It is) a man.’
- (2)        ‘*Oku*        ‘*uha*.  
              PRES        rain  
              ‘It is raining.’

Both the essive preposition used in a “presentative” function<sup>4</sup> as well as the Tongan TAM markers are “copulative” items in the sense of Lehmann (1982: 28) as they are metalinguistic predicates relating the semantic predicate to the spatio-temporal setting of the speech act (‘there/now (is) X’); for details see Broschart 1994.

An intermediate type of predication between the “nominal” and the “verbal” construction contains a prepositional phrase as a predicate introduced by a TAM marker. Such constructions are typical for locative expressions as in (3):

- (3)        *'Oku        'i        he<sup>s</sup>        tēpilé.*  
              PRES        LOC        ART.SP       table:DEF  
              ‘It is at/on the table.’

The general sequence of slots in Tongan syntax is illustrated in (4) and (5):

- (4)        *Na'e    kei    kata    'a        e            ongo    ki'i    ta'ahine    faka'ofa'ofá.*  
              PAST   still   laugh   ABS       ART.SP   DU       CL       girl           beautiful:DEF  
              ‘The two little girls were still laughing.’
- (5)        *Na'á        na        kei        kata.*  
              PAST       3DU       still       laugh  
              ‘They were still laughing.’

In (4) the so-called “verbal” predication starts with a TAM marker *na'e* (PAST), (with the allomorph *na'a* before pronouns as in (5)), followed by a member from the paradigm of the category which we have called the category of “preverbials” to be described below. These preverbials are usually translated as adverbs (or occasionally as superordinate predicates) and often express “phasal” (Van der Auwera 1998) concepts such as *kei* ‘still’ etc. The preverbial slot is followed by a lexical nucleus figuring as a non-referential predicate (which is typical for translational equivalents of verbs). The predicate phrase is followed by one or more referential argument phrases, usually introduced by a case preposition to be followed by articles or possessives, number markers, classifiers, and a lexical nucleus. Classifiers like *ki'i* ‘little object’ are distinct from lexical translational equivalents of adjectives (e.g. *faka'ofa'ofa* ‘beautiful’ in (4)) in terms of position and discourse function (cf. Broschart 1997b). A phrase like *e ki'i pēpē si'i-si'i* [ART.SP CL baby little-little] ‘a little baby’ or a phrase like *e ki'i tama-si'i* [ART.SP CL person-little] (cf. (8)) ‘a little boy’ contain a(n optional) classifier for small objects as well as postposed or affixed lexical modifiers expressing smallness. However, only the classifier indicates a certain degree of discourse prominence of the phrase<sup>6</sup>; apart from that, if the item *si'i* were used in the classifier slot instead of *ki'i*, it would also imply an emotional component in the sense of ‘the poor little’. If the phrase is definite, it will be marked by a shift of accent on the last syllable of the phrase. If the participant expression is

pronominal (as in (5)), agents can figure as preposed pronouns between the TAM marker and the preverbal.

It is extraordinarily simple to turn predications such as (4) and (5) into “nominalised” expressions, which are often used in subordinated constructions. The “nominalisations” simply transform the former absolutive phrase into a possessor, the construction is always compatible with an article, and there are no TAM markers; otherwise the construction does not change as compared to ordinary “verbal” constructions. Even the absolutive preposition *'a* (which is optional except before proper names) of the non-“nominalised” proposition is similar in form to the alienable genitive *'a*, though there are certain differences like the facultative glottal in the absolutive, etc.:<sup>7</sup>

- (6)      *Na'e      kei      kata      ('a      e      tangatá.*  
          PAST      still      laugh      (“ABS”)      ART.SP      man:DEF  
          ‘The man was still laughing.’

- (7)      *Na'á      ne      fanongo      ki      he      kei      kata*  
          PAST      3SG      hear      ALL      ART.SP      still      laugh  
          *'a      e      tangatá.*  
          GEN.AL      ART.SP      man:DEF

‘He heard that the man was still laughing.’ (literally: “He heard/listened to the man’s still laughing.”)

### 3. The category of preverbials

We have just seen that the “preverbials” are a category which is used immediately before the lexical nucleus of a tensed construction (the predicate of a “verbal” construction) or before the lexical nucleus of the corresponding event-denoting referential phrase (“nominalisation”). Because of the intimate similarity of so-called “verbal” constructions and so-called “nominalised” constructions, there is occasionally no clear indication whether a form like *ki'i*, which functions as a classifier in (8), functions as a classifier in “nominalised” constructions like (10) or as a preverbal of a “nominalised” construction, which corresponds to the preverbal function of *ki'i* (‘for a little time’) in (9):

- (8)      ... *e*              *ki'i*              *tamasi'i*  
             ART.SP          CL.little      boy:DEF  
             'the little boy'
- (9)      *Te*          *u*              *ki'i*              *'alu.*  
             FUT          1SG          little          go  
             'I will go for a little walk.'
- (10)     ... *e*              *ki'i*              *'alú*  
             ART.SP          little          go:DEF  
             'the fact of walking a little', 'the little walk'

However, this kind of double function is comparatively rare, and the "normal" context for preverbials is a "verbal" predication where they can hardly be interpreted as classifiers.<sup>8</sup> One is more likely to confuse members from the preverbal paradigm with full predicates. Thus, apart from translating as 'already', *'osi* (cf. (13)–(15)) is also a plain predicate 'to be finished', and *toe* 'again' also means 'to remain'. But at least in some contexts it is easy to demonstrate the separate structural status of the preverbials as opposed to superordinate predicates. For instance, *'osi* as a plain lexical predicate 'to be finished' (cf. (11)) is strictly intransitive and only occurs in intransitive constructions; as a preverbal 'already' it enters transitive constructions, too, because as a preverbal it figures structurally as an adverb-like element, which does not influence the case frame of the main predicate as in (13) vs. (12):

- (11)      *Kuo*          *'osi*              *'eku*              *ngāué.*  
             PERF          be.finished      POSS.AL.SP.1SG      work:DEF  
             'My work is over.'
- (12)      \**Kuó*          *u*              *'osi*              *'eku*              *ngāué.*  
             PERF          1SG          be.finished      POSS.AL.SP.1SG      work:DEF  
             \*'I have completed my work.'
- (13)      *Kuó*          *u*              *'osi*          *fai*          *'eku*              *ngāué.*  
             PERF          1SG          already      do          POSS.AL.SP.1SG      work:DEF  
             'I have already done my work.', 'I have done my work with completion.'

Still, for many forms it is unclear whether the item functions as a preverbal or a superordinate predicate. For instance, in (14) and (15) the same item *kamata* or *'osi* can be used with or without a subjunctive or article, respectively. In the latter case

the words fulfil the structural requirements of preverbials, but in the former case they are predicates over a subordinate proposition:

- (14) 'E kamata (ke) 'uha.  
FUT start SBJNCT rain  
'It will start to rain.'

- (15) Kuo 'osi (e) 'uha.  
PERF already/be.finished (ART.SP) rain  
'It has already rained'

Another type of double function is exemplified by the item *ta'e*, which can either be used as a preverbial ('not'), or a prefix ('un-') or a preposition or conjunction ('without') (see (16)–(19)):

- (16) 'Oku ta'e mahino ho'o fakamatalá.  
PRES not clear POSS.AL.SP.2SG explanation:DEF  
'Your explanation is not clear.' (cf. Churchward 1959: 473)

- (17) 'Oku ta'e-mahino ho'o fakamatalá.  
PRES un-clear POSS.AL.SP.2SG explanation:DEF  
'Your explanation is unclear.' (cf. Churchward 1959: 473)

- (18) Na'á ku feinga ke u fai ia ta'e  
PAST 1SG try SBJNCT 1SG do 3SG without  
ha maumau 'e hoko ki he falé.  
ART.USP damage FUT happen ALL ART.SP house:DEF  
'I tried to do it without injury to the house.' (Churchward 1953: 59)

- (19) Na'á ne langa ha fale 'i he funga  
PAST 3SG build ART.USP house LOC ART.SP surface  
kelekelé, ta'e te ne keli hano tu'unga.  
ground:DEF without FUT 3SG dig POSS.IN.USP.3SG foundation  
'He built a house on top of the ground, without digging.' (literally: "... without that he dug a foundation.") (Churchward 1953: 60)

While *ta'e* in (19) can be readily identified as a conjunction (before a clause introduced by a subjunctive and a personal pronoun), it could either be a conjunction or a preverbial in (20):

- (20) *Te ne ako ta'e totongi.*  
 FUT 3SG teach without/not pay  
 'He will be educated free/he will learn not paying.' (cf. Churchward 1953: 59)

In (21), however, it must be a preverbial in a "nominalised" construction. Here *ta'e* follows a determiner or possessive pronoun, respectively. In these specific constructions *ta'e* translates as 'not having':<sup>9</sup>

- (21) *mo ha'anau ta'e fai ha ngāue*  
 COM USP.POSS.AL.3PL not.having do ART.USP work  
 'with their not having done any work'

Also the word *'uluaki* can be used in various senses, namely as a preverbial ('first') (cf. (22)), as an ordinal in the slot otherwise reserved for classifiers (cf. (23)) or as a free lexical nucleus of a tense marked or an article marked referential phrase ((24) vs. (25)):

- (22) *Te u 'uluaki 'alu ki 'api, peá u*  
 FUT 1SG first go ALL home CONJ 1SG  
*toki ha'u.*  
 then come  
 'I will first go home, and then I will come.'
- (23) *'i he ngaahi 'uluaki ta'u 'o 'ene pulé*  
 LOC ART.SP PL first year GEN.IN POSS.AL.SP.3SG rule.DEF  
 'in the first years of his rule' (Churchward 1953: 174)
- (24) *Na'e 'uluaki 'i he sivi huí.*  
 PAST first LOC ART.SP exam enter:DEF  
 'He was first (i.e. he won) in the entrance examination.'
- (25) *Ko e 'uluaki 'a Pita.*  
 ESS ART.SP first:DEF ABS Pita  
 'Pita is the first one.'

While some sort of double function is frequent for the members from the paradigm of preverbials, there are also some items which always function as preverbials.



Thus, the word *kei* 'still' will always be a preverbal. Table 1 presents a survey of the most common members of the paradigm:

Table 1. The paradigm of preverbials

a.	just preverbials	<i>kei</i> 'still' <i>toki</i> 'then (after that)', 'eventually'
b.	also prefixes	<i>ta'e</i> 'not' cf. 'un-' <i>fie</i> 'wanting to', cf. desiderative prefix
c.	also prepositions/adverbs	<i>ta'e</i> 'un-' cf. 'without' <i>mei</i> 'almost' (perhaps related to <i>mei</i> 'from' and <i>mai</i> 'hither')
d.	also classifiers	<i>fu'u</i> 'much' cf. 'big object (tree)' <i>fo'i</i> 'in a conspicuous way' cf. 'round object (fruit)' <i>ki'i</i> 'a little' cf. 'little object'
e.	also lexical nuclei	<i>'osi</i> 'already' cf. 'to be finished' <i>kamata</i> 'starting to', 'gradually' cf. 'to start' <i>ngali</i> 'apparently' cf. 'to appear' <i>lava</i> 'possibly' cf. 'to be able' <i>toe</i> 'again' cf. 'to remain' <i>fua</i> 'first' cf. 'to carry (on)' <i>te'eki</i> 'not yet' cf. 'to be not yet the case' <i>'uluaki</i> 'first' cf. '(to be) (the) first' <i>'ikai</i> 'not' cf. 'to be not (there)' (rare as preverbal)

Eventually, in spite of the variety of double functions, it is possible to identify a fairly clear formal and semantic core of the category pertaining to essentially four groups of meanings. The formal properties have been illustrated above (they occupy the position immediately prior to the lexical nucleus of a "verbal" (TAM) construction or its "nominalised" counterparts). As for the four groups of meanings, the first group is "phasal" (supporting aspect and aktionsart), the second one is temporal, the third is modal, and the last one involves manner of action ('in such a way'). This is illustrated in Table 2.

In other words, the meaning of preverbials is a mixture of the signalling of aspectual, temporal and modal notions as well as "manner of action" in a very general sense. The manner-meaning ('sort of', 'in a ... way') explains their translational relationship with manner adverbs in Indo-European, but it also explains the structural relationship with classifiers in Tongan: The classifiers specify "kinds" of objects, while the preverbials specify "manners" of actions. It is also very obvious from the semantics of the preverbials that they will show some semantic interaction with the grammaticalised TAM markers of Tongan (see (42) and (43)); however, the TAM

markers of Tongan are grammaticalised copula-like metalinguistic predicates (see above), while the Tongan preverbials are relatively semanticised, tend to be used adverbially, and are not obligatory.<sup>10</sup>

Table 2. Preverbial meanings

a.	“phasal” (supporting aspect and aktionsart)	‘still, almost, already, eventually, starting to’
b.	temporal	‘first, then’
c.	modal	‘wanting to, not’
d.	manner	‘much, in a ... way’

The semantics of preverbials in connection with aspect, tense, and mood also explains their semantic affinity with certain grammaticalisations of so-called “preverbs” in Indo-European (Brugmann—Delbrück 1911: 764–770, 1893: 643–734) which have occasionally become aspect markers (as in Russian or Serbo-Croatian (cf. Bybee 1985: 145)). A cover term of preverbs and the like is the category of “syndetica” (cf. Günther 1993a, 1993b) or “directiva”, typically including prepositional directionals as in German *steigen auf* ... (‘to climb on ...’), as well as lexical derivations such as *auf-steigen* (‘to rise’) and *be-steigen* (‘to mount’); Bybee—Perkins—Pagliuca (1994: 87) also mention the Oceanic language Mokilese as exhibiting this path of grammaticalisation of ‘up’ in ‘eat up’ etc. to aspectual domains. However, there are fairly clear differences between the Tongan preverbials and the preverbs. Note that the Tongan preverbials do not include the preposition-related meanings, which in Tongan would be expressed by morphological suffixes (cf. *‘ofa-‘i e tangatá* [love-TR ART.SP man:DEF] ‘have a desire for the man’ (German *den Mann be-gehren*) vs. *‘ofa ‘i he tangatá* [love LOC ART.SP man:DEF] ‘to love the man’, literally “love at the man”).

Except for the items which figure as proper TAM markers, virtually all possible candidates for the semantic domain in question figure as preverbials in Tongan. The only other exceptions are *‘aupito* (‘very’) and *leva* (‘finally’), which function as plain adverbs (for illustration of a contrast with similar preverbials see (26a vs. b) and (27a vs. b)):

- (26) a. *‘Oku lahi ‘aupito.*  
           PRES   big    very  
           ‘It is very much/big.’

cf.

- b. 'Oku fu'u lahi.  
 PRES very/too big  
 'It is too much.'

- (27) a. Na'e ha'u leva 'a e ki'i tamasi'i.  
 PAST come finally ABS ART.SP little boy  
 'Finally, a little boy came.'

cf.

- b. Te u 'alu, peá u toki ha'u.  
 FUT 1SG go CONJ 1SG then come  
 'I will go, and then (no sooner) I will come back.'

Because of their function to either denote the manner of events or place events in a situational setting it is natural for the preverbials to combine with lexical items denoting events. However, this need not be the case (cf. (28)–(30)):

- (28) 'Oku kei tamasi'i.  
 PRES still boy  
 'He is still a boy.'

Note that the word *tamasi'i* in (28) literally means 'little person', and in spite of its "nominal" translation it still combines with *kei*. Also note that at least the preverbal *ta'e* hardly ever combines with translational equivalents of "verbs", unless we are dealing with "nominalisations" as in (29):

- (29) Na'e fuoloa 'eku ta'e sio kia koe.  
 PAST long POSS.AL.SP.1SG not.having see ALL 2SG  
 'I have not seen you for a long time.' (literally: "My not having seen you has been long.")

- (30) 'Oku ta'e hoa.  
 PRES not.having partner  
 'She is without partner/unmarried.'

For regular negation of "verbal" predicates as in (31a), *'ikai* must be used. The preverbal *ta'e* would be impossible (cf. (31b)), though *ta'e* works in the context of translational equivalents of adjectives (cf. 32):

- (31) a. *Na'e        'ikai   ke        u        sio        kia        koe.*  
 PAST        not        SBJNCT        1SG        see        all        2SG  
 'I did not see you.'

vs.

- b. *\*Na'á   ku        ta'e        sio        kia        koe.*  
 PAST        1SG        not        see        ALL        2SG  
 '\*I did not see you.'

- (32) *Na'á        ku        ta'e(-)lata.*  
 PAST        1SG        un-happy  
 'I was unhappy/not happy.'

In other words, though the construction in which the preverbials occur always denote events, the predicate need not be an event expression. This means that the preverbials modify or relate to the proposition and not a lexical item.

The choice of preverbials is occasionally determined by the scope of items such as *'ikai* vs. *ta'e* as in (33)–(35):

- (33) *'Oku        kei        lata.*  
 PRES        still        happy  
 'He is still happy.'

- (34) *'Oku        'ikai        (ke)        toe        lata.*  
 PRES        not        SBJNCT        still/again        happy  
 'He is not happy anymore.'

- (35) *'Oku        kei        ta'e(-)lata.*  
 PRES        still        un-happy  
 'He is still unhappy/not happy'.

However, combinations of preverbial-like elements as in (35) are very rare. Another example is (36):

- (36) *Te        u        toe        ki'i        'alu.*  
 FUT        1SG        again        little        go  
 'I will go again for a little walk'.

In no way do these items allow the great freedom of combination of manner adverbs in Indo-European. This is again a criterion distinguishing the Tongan preverbials from semantically similar categories.

Some combined uses of Tongan TAM markers with specific preverbials are already highly regular. In most cases the perfective marker *kuo* combines with the preverbial *'osi* as in (37) vs. (38):

- (37)     *Kuo*     *'osi*     *mate*.  
           PERF    already   die  
           'He is already dead.'

- (38)     *Kuo*     *mate*.  
           PERF    die  
           'He has reached the stage of dying.', 'His life has come to an end.'

#### 4. The history and typology of preverbials

The development of preverbs and related categories seem to take the paths illustrated in Figure 1.

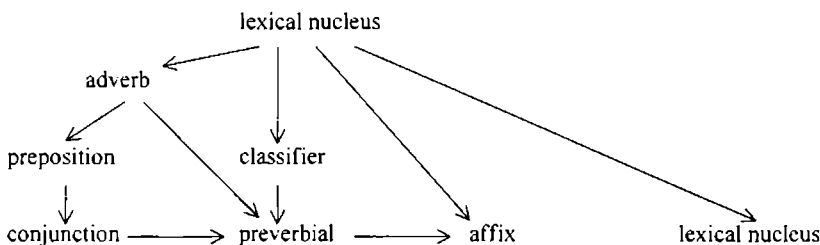


Figure 1. Development of preverbs and related categories

Most preverbials are clearly related to lexical nuclei (e.g. *'osi* 'already' vs. *'osi* 'to be finished'), but the syntax of the former is distinctly adverb-like. This suggests that some of the preverbials may have developed into adverbs first, before they became preverbials. (Perhaps another case in point is *mei* 'almost', which does not figure as a full predicate, and which might be related to the (adverbial) preposition *mei* 'coming from', which historically goes back to the pronominal adverb *mai* 'hither' and the reconstructed predicate *\*mai* 'to come' (cf. Clark 1976: 42). Prepo-

sitions like *ta'e* 'without' will probably have had to become conjunctions (*ta'e* 'without that ...') before they became preverbials (*ta'e* 'not', 'un-') (cf. examples (18)–(20)). Apart from that, certain lexical items will probably have developed into classifiers (reconstructed *\*fua'i* 'fruit of' > *fo'i* 'round object') before they became preverbials: It is still rare to find *fo'i* in the preverbial slot, where it means 'in a conspicuous or strange way' (see Table 1 and Note 11<sup>11</sup>), but the item *fu'u*, which is a typical classifier for big objects (cf. *e fu'u 'akau* [ART.SP CL.big plant] 'a tree' vs. *e fo'i 'akau* [ART.SP CL.round plant] 'a fruit', 'a pill'), is already used frequently as an intensifier 'very' (*na'e fu'u 'ohovale* [PAST PREV surprised] 'he was very surprised'), just like the classifier *ki'i* for small objects can frequently occur in the preverbial slot in the meaning 'do something for a little time' as in *te u ki'i 'alu peá u toki ha'u* [FUT 1SG PREV go and 1SG PREV come] 'I will go away for a little time, and then I will be right back' (also see (9)).

Some preverbials in turn tend to become prefixed to remaining lexical nuclei (e.g. *fie*(-) 'desiderative'). To summarise, some of the preverbials develop directly from lexical items usually denoting activities and states, and others may develop indirectly via structurally similar items like conjunctions, prepositions and classifiers. Eventually, all preverbials may become prefixes. The prefixes clearly originating from preverbials like *fie*- (desiderative prefix) will then be members of a paradigm of older prefixes expressing "aktionsart", "verb class" and notions similar to "genus verbi". Of these older prefixes, there is an item *ma*- which can be interpreted as an ingressive or an intransitiviser/stativiser, even though this interpretation is not fully regularised (cf. *sike* 'to sit on the heels', *ma-sike* 'to rise slightly as if to get up', *huo* 'to hoe', *ma-huo* 'hoed', *tapuni* 'to close', *ma-puni* 'closed'). It is the older prefixes which show the greatest semantic and formal affinity with the preverbs of classical Indo-European. For the latter it is clear that they mainly come from prepositions and adverbs. Whether the old prefixes of Tongan also come from prepositions apart from preverbials is uncertain.<sup>12</sup>

As for the functional parallelism between categories in the "nominal" and the "verbal" construction, this includes the complementary relationship between preposition—conjunction, article—tense, possessive—person, as well as classifier—preverbial (for number see Note 13):

PREP	ART	POSS	NUMBER <sup>13</sup>	CLASS	NUCLEUS
CONJ	TAM	PERS		PREV	NUCLEUS

Figure 2. Parallelism in Tongan syntax

Conversely, there is a clear syntactic difference between the copulative TAM markers and the adverb-like preverbials, in spite of their similar meaning.

From a typological, cross-linguistic point of view, Figure 2 illustrates the position of preverbials as follows:

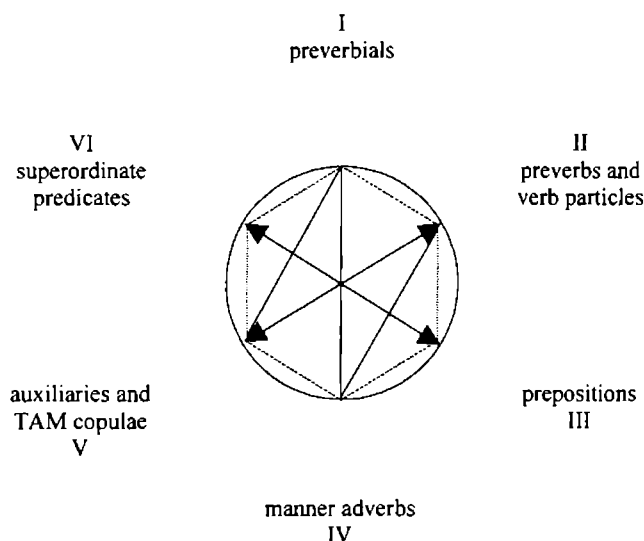


Figure 3. The typological position of Tongan

According to this diagram, there are direct functional relationships between preverbials (position I) and superordinate predicates (position VI), preverbials and auxiliaries or TAM copulae (position V), preverbials and manner adverbs (position IV) and preverbs and verb particles (position II). There is no direct functional relationship between preverbials (position I) and “case” prepositions (position III), but prepositions (position III) are functionally related to classical preverbs (position II) and manner adverbs (position IV). The strongest structural and functional opposition in this system exists between superordinate predicates governing clauses (position VI) and prepositions modifying a verbal predicate (position III). An equally strong opposition holds between the TAM copulae (position V) and the classical preverbs (position II) by the fact that only the former are non-modifying meta-predicates (see above). While classical preverbs (position II) are more on the side of prepositions (position III), Tongan preverbials (position I) are more on the side of superordinate predicates (position VI). Also compared to manner adverbs (position IV), the preverbials show some greater affinity to superordinate predicates (position VI) rather than to prepositions (position III).

## 5. Conclusion

Preverbials are a comparatively semanticised category of adverb-like function words which typically develop from superordinate predicates. They support highly grammaticalised TAM markers in determining aspectual, temporal and modal characteristics of the event and specify the “manner of action” in a generalised way. In spite of their semantic load they are not lexical adverbs or full predicates, which differ in their syntax and combinatorial characteristics. Still, many preverbials allow double functions. As for similar categories, the preverbials are not as grammaticalised as the basic copula-like TAM markers of Tongan, but they occupy a fixed slot right in front of the lexical nucleus and allow little combinatorial variation. There are also some points of semantic contact with classical preverbs, yet while classical preverbs are dominantly related to prepositions, many preverbials tend to be similar to superordinate predicates. Like the preverbs they tend to become morphologised as indicators of “manner of action”, including aspectual and modal connotations, but unlike classical preverbs the preverbials do not include directionals. Syntactically, the preverbs are virtually in complementary distribution with Tongan classifiers which semantically classify kinds of objects, while the preverbials typically specify manners of actions.

Our typological comparison (see Figure 2) made us place the preverbials right between superordinate lexical predicates (their historical source) and the classical preverbs (which like the preverbials often develop into aspectual markers etc.). But as we mentioned above, unlike the classical preverbs the preverbials are not directly related to prepositions, and unlike superordinate lexical predicates they figure as adverbial modifiers and they cannot govern full clauses. In terms of general meaning, the preverbials form a separate functional component of various structural means for the expression of aspect, tense and mood and manner of action in a very comprehensive sense of the word (including morphological affixes expressing ‘aktionsart’, ‘verb class’, ‘genus verbi’ etc.).

To summarise, the preverbials are characterised by the following criteria:

1. Their semanticised nature accounts for their “word” status (vs. affixes).
2. Their grammaticalised status makes them appear in a fixed slot with lexical nuclei.
3. Their adverbial syntax makes them a special class of adverbs.
4. Their meaning associates them with TAM markers and manner adverbs.
5. Their history most frequently associates them with superordinate predicates.



The preverbials are distinct from structurally or semantically similar categories (in Tongan or cross-linguistically) through the following criteria:

1. Unlike full superordinate predicates they must be followed by a lexical nucleus, not a clause or phrase.
2. Unlike auxiliaries and TAM copulae they are essentially modifiers.
3. Unlike fully grammaticalised TAM particles they are not obligatory.<sup>14</sup>
4. Unlike TAM morphemes they are not affixed.
5. Unlike classical preverbs they do not involve syntactic “case” relations.
6. Unlike lexical manner adverbs they do not readily allow free combinations and positions.
7. Unlike classifiers they do not signal properties and kinds of things.
8. Unlike prepositions and conjunctions they cannot govern referential arguments or clauses, respectively.

Given these properties, it is reasonable to assign a separate status to the category of “preverbials”. Similar word classes can be found in many languages of the Pacific, and maybe elsewhere, too.

## Notes

1. For a methodological introduction to the issue see Plank (1984). For a general survey of word class characteristics from a cross-linguistic point of view see Broschart (forthcoming a).
2. The difference between specific and unspecific articles shows in *e puha* ‘a certain box’ vs. *ha puha* ‘some box (I do not care which one)’. The specific article is also used to distinguish a certain concept from something else (as in a nominal predication like ‘it is a man (not a woman)’ as in (1)). Definiteness is expressed by the combination of a specific article plus a shift of accentuation to the last syllable of the syntagm (see below).
3. Note that both *tangata* and *'uha* can also figure in the opposite construction with respect to (1) and (2). Compare *'oku tangata* ‘it is male’ and *ko e 'uhá* ‘it is the rain’. For details see Broschart (1997a).
4. There are also non-presentative functions of the essive *ko* in Tongan as in *na'e 'iloa ko e Tonga Kid* [PAST known ESS ART.SP Tonga Kid] ‘he was known as the Tonga Kid’, where *ko* simply means ‘as’.
5. *he* is the oblique form of the specific article used with locatives and the ergative. Otherwise the form is always *e*.
6. In a story by Pesi Fonua (n.d.: 43–60) about a little boy who is the hero of the story (*Ko e Fa'ahi Kehe*), all references to the boy contain *ki'i*.

7. Another difference between “verbal” and “nominal” syntax is that the third person singular is *ne* in “verbal” constructions like *na 'á ne kata* [PAST 3SG laugh] ‘he laughed’, while the possessor form is *'ene* as in *'ene katá* [POSS.AL.SP.3SG laugh:DEF] ‘his laughing’. Nevertheless, the similarity between the “verbal” and the “nominal” construction is conspicuous; for details see Broschart (1994) and (1997a).
8. There are only very few contexts where classifier-marked “NPs” figure as predicates in tense-marked predication. A case in point is *'oku fu'u fo'i 'ulu lanu pulū 'a e kakaá* ‘the parrot has a big round blue-colored head’, where *fu'u* (big.(object)) and *fo'i* (round.(object)) function as classifiers of *'ulu* ‘head’ (see Broschart 1997a).
9. For details see Broschart (forthcoming b).
10. It is true that Tongan TAM markers can often be left out, but if so, the construction is either an imperative (cf. *tau lotu!* [1PL.INCL pray] ‘let us pray’, but also *ke tau lotu!* [SBJUNCT 1PL.INCL pray] ‘let us pray’), or it is a situational comment like *sai!* ‘good!’, but also *'oku sai* [PRES good] ‘it is good’.
11. An example would be *na'e fo'i tangutu faka-pālangi* [PAST sort-of sit ADVL-European] ‘he sat in the strange way that Europeans do (with legs bent)’ (LH94).
12. Theoretically, the prefix *ma-* may actually be related to a preposition. Cf. the comitative *mo* ‘with’, which comes from the reconstructed form *\*ma*, just like the very old stative prefix *ma-*.
13. The preverbal *'uluaki* ‘first (in time)’ may be considered relatively parallel to the “nominal” number category (dual, plural), inasmuch as numbers of objects have usually to be counted in sequences of ones, adding one to another one.
14. See Note 10.

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# Identifying substantival and adjectival pronouns: A case study on German

Monika Budde

## 1. Aims and method

In identifying word classes we have to presuppose the identification of their elements. On the other hand, the assignment of a particular word class to a word's occurrence may be a major justification in identifying the word. For example, we may want to argue that the word *this*<sup>w</sup> belongs to the pronouns of English since *this house* consists of the occurrences of an (English) adjectival pronoun and an (English) noun,<sup>1</sup> or, in other words, since *this* in *this house* is associated with the set of the adjectival pronouns of English by the structure of *this house*, and *house* with the set of the nouns of English.

More precisely, identifying word classes like the set of adjectival pronouns presupposes at least the identification of those lexical words which the respective word class consists of. And appropriate definitions of the corresponding word class notions presuppose a definition of "lexical word".<sup>2</sup> The identification of words and word classes may, but need not match the definition of the respective notion. For example, we will always find some identification for the entities we assume to be lexical words, as long as we abide by certain general principles that are easy to fulfil. This follows from Lieb (1992b). Therefore, the main problem is to *justify* which entities we should choose, i.e. to justify the respective empirical hypotheses: Such a hypothesis is only partly determined by the (logically) presupposed general theory of language and the presupposed parts of the applied theory to which the hypothesis is intended to be added (as an axiom or as a theorem).<sup>3</sup> On the other hand, such decisions may have consequences in the non-presupposed part of the applied theory. These consequences may be used to evaluate alternative hypotheses.

In this paper, I will deal mainly with pronouns, i.e. non-auxiliary nominal function words. Pronouns may belong to the substantival words (e.g., German *ich*<sup>w</sup> 'I') or to the adjectival ones (e.g. English *my*<sup>w</sup> or German *dieser/ies*<sup>w</sup> 'this').<sup>4</sup> Substantival pronouns (pronouns in a narrow sense) may be used like some nouns. In contrast, adjectival pronouns may be used in a way comparable to the attributive use of adjectives. Hence there are two classes of nominal content words, i.e. nouns and

adjectives, and two classes of non-auxiliary nominal function words, i.e. substantival and adjectival pronouns. As a fifth class of nominal words, we may distinguish the articles, i.e. the auxiliary nominal function words.<sup>5</sup> Finally, uniting the adjectival pronouns and the articles yields the adjectival function words.

Both function words, like pronouns and articles, as well as content words, like nouns and adjectives, are assumed to be paradigm-meaning-pairs  $\langle P, b \rangle$ , but only content words have descriptive meanings in a narrow sense.<sup>6</sup> In a way, the lexical meaning of a function word is more abstract and, possibly, empty, i.e. the empty concept  $b^0$ .<sup>7</sup> But, in fact, most function words have non-empty meanings (for examples cf. below, section 3.2).

With respect to a lexical word  $\langle P, b \rangle$ , both the identification of its paradigm as well as that of its lexical meaning may need some justification, especially in case  $\langle P, b \rangle$  is a function word: It is not easy to determine whether certain occurrences of a function word's form are occurrences of the same lexical word or not, and as a rule, such a decision seems to be more difficult than it is for the occurrences of a content word's form. For example, in (1) one and the same *dies*-word might be used in two different ways (the received view) or two different *dies*-words might be used each in its own characteristic way (Zifonun—Hoffmann—Strecker 1997: 37, 41):<sup>8</sup>

- (1) a. *Er hat dieses Buch gelesen.*  
       he has this book read  
       'He has read this book.'
- b. *Dieses hat er gelesen, aber jenes hat er nicht gelesen.*  
       this has he read but that has he not read  
       'He has read this one, but he hasn't read that one.'

At first glance, the received view seems to be quite reasonable: There is no morphological evidence for a difference in lexical meaning that might be correlated with the different uses (adjectival vs. substantival). But this is only one side of the coin: There are other pronouns that show such a correlation, for example, the possessive pronouns (cf. the data in section 3.1, below). With respect to these words, both positions have been adopted, maybe with a preference now for the latter one, i.e. for assuming at least two different pronouns, an adjectival one and at least one substantival one (Zifonun—Hoffmann—Strecker 1997: 35, 40; Eisenberg 1994: 160, 201).<sup>9</sup> In fact, there is strong morphosyntactic evidence for assuming different paradigms. On the other hand, we cannot determine the paradigms of these words appropriately, if we are unable to identify different lexical meanings (cf. sections 2.2 and 3.2). In the end, the analysis of the possessive pronouns will support a revision of the received view on *dies*-words as well as a revision of Zifonun's.

In general, it is occurrences of a word's form that provide the main basis for justifying the identification of a particular word: It is sentences and not just words that are used in communicating. Therefore we may reconstruct lexical words by investigating sentences and their uses. Distributional facts and correlated sentence semantic properties can be used as evidence for or against a hypothesis on lexical words. When a word is not properly identified, the occurrences of its forms cannot be dealt with appropriately. Thus, the major aim of this paper is to sketch out a systematic way for justifying empirical hypotheses on pairs  $\langle P, b \rangle$  that are assumed to be lexical words: How can we recognise and distinguish lexical words which we may then want to identify according to the general principles of identification?

For the sake of concreteness, this paper mainly consists of a case study of German pronouns: The analysis of the *mein*-word occurrences (section 3) will be used as a starting point for discussing other pronouns of German (section 4).<sup>10</sup> Going beyond that lexical items of arbitrary languages can be analysed in a comparable way (section 5). Since any case study presupposes a theoretical framework that provides the relevant notions, I will briefly characterise the basic assumptions adopted here first: assumptions concerning the problem of intra- and interlanguage variability (section 2.1) and assumptions concerning lexical words in general (section 2.2).

## 2. Basic assumptions

### 2.1. Accounting for intra- and interlanguage variability

From a logical point of view, notions like "pronoun" are used in two different ways, cf. the statements in (A) that both should be true as well as systematically related for intuitive reasons:

- A
1. *ich*<sup>w</sup> is a pronoun.
  2. *ich*<sup>w</sup> is a pronoun of (Modern Standard) German.

None of the well known puzzles arises, if the use in (A2) is taken as the basic one, in which case "pronoun" is taken as denoting a relation between lexical words and language-like entities—and not just a set of lexical words. In this case, (A1) can be understood as an elliptic version of (B1) or of (B2) respectively ((B2) is a more precise version of (A2)):

- B
1. *ich*<sup>w</sup> is an element of the domain of PRONOUN.
  2. *ich*<sup>w</sup> is an element of PRONOUN-of-German.



The domain of PRONOUN is the set of lexical words  $\langle P, b \rangle$  for which there is some language-like entity such that the pair consisting of  $\langle P, b \rangle$  and this entity is an element of PRONOUN. And PRONOUN-of-German—for short: PRON(–, German)—is the set of lexical words  $\langle P, b \rangle$  such that  $\langle \langle P, b \rangle, \text{German} \rangle$  is an element of PRONOUN.<sup>11</sup> Whereas “PRONOUN” may be a basic or a defined notion, “the domain of PRONOUN” as well as “PRONOUN-of-German” are non-atomic expressions, and hence, they cannot be defined at all.<sup>12</sup>

In a word, what is common to all pronouns is their relation to the respective language-like entities which they belong to. This relation can be characterised in a general way by reference to the grammatical functions (and some other functional properties of pronouns).<sup>13</sup> On the other hand, pronouns can also be identified without reference to the respective language-like entity or to these functions. But, as a rule, these identifications are more or less language specific. Moreover, they may be subject to language internal variation as well.

For reasons of space, let us take the Integrational Linguistics (IL) point of view without further discussion.<sup>14</sup> In IL, relations like PRONOUN are construed as relations between entities  $\langle P, b \rangle$  and *idiolect systems*  $S$ . An idiolect system  $S$  is a system of an *idiolect*  $C$ , i.e. an individual means of communication for some person  $V$ . Each idiolect  $C$  consists of (is a set of) abstract texts. Such a text is a form-meaning-pair whose first component is an abstract phonetic sentence  $w$  (or a corresponding entity of type  $w$  if  $C$  is a written or signed idiolect) and whose second component is a complete syntactic meaning  $u$ . A text represents certain properties of concrete utterances  $V_i$  which a language user  $V$  may produce or perceive. Thus, an abstract text may be realised by concrete utterances.

Idiolect systems  $S$  are related to *languages* and *language varieties*  $D$  via the idiolects they determine: Languages like German and language varieties like Standard New High German or a particular person's total share of a language (a personal variety) are sets of idiolects.<sup>15</sup> Starting from systems  $S$  of the idiolects that belong to a language or a language variety  $D$ , we may construct more abstract systems  $\Sigma$  that are systems for  $D$ .<sup>16</sup> Whereas each idiolect is determined by its systems  $S$  (there may be more than one), languages and language varieties may or may not be determined by their systems  $\Sigma$ . A person (a language user) has command of idiolect systems  $S$ , but not of language or variety systems  $\Sigma$ . These interrelations are illustrated in Figure 1 (“ $\in$ ” reads “is an element of”).

It is idiolects that are homogeneous with respect to possible inter- and intra-language variation. Thus, idiolect systems  $S$  and not language systems  $\Sigma$  play a key role in both the general theory of language and its application to particular languages: Most, if not all, traditional grammatical notions can be reconstructed in the general theory of language by defined notions if they are relativised to idiolect systems in the way illustrated for “pronoun”. And in applying the general theory of

language to particular languages, the identification of at least one idiolect system per idiolect logically precedes the identification of the idiolects of the language and, hence, the identification of the language itself, its varieties and their systems.

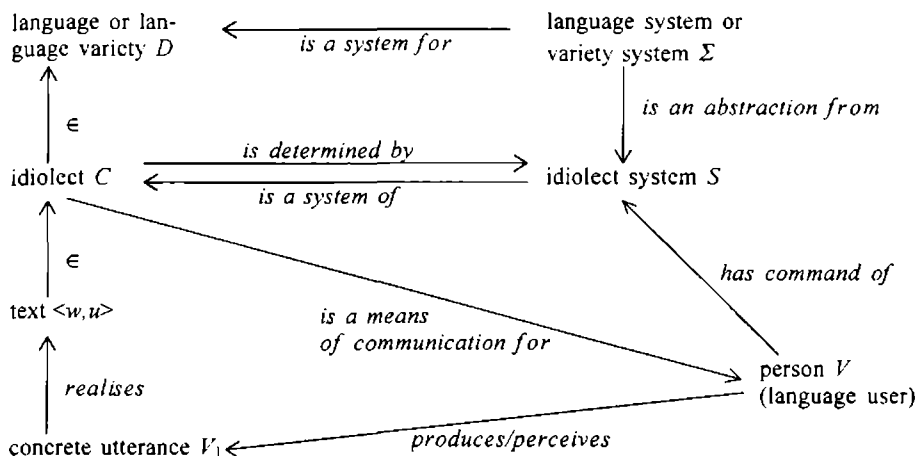


Figure 1. Languages and idiolects

To sum up, there are at least two ways in which we have access to a particular pronoun  $\langle P, b \rangle$  and to sets like PRONOUN-of- $S$ . One way is determined by logic and the introduction of "PRONOUN" in the general theory of language, and the other way is more or less language specific. The first way provides the basis for comparison, and the second one allows us to account for inter- and intralanguage variability. Actually, the interaction of these two ways of determining sets like PRONOUN-of- $S$  is crucial for (re)constructing both the general theory of language and theories (grammars) of particular languages as axiomatic theories (for details cf. Falkenberg 1996: 185–226).

Of course, we can develop these theories only step by step. Hence, we may want to restrict the possible extensions to some few appropriate ones by metatheoretical (methodological) principles. These are the principles I want to look at in the main part of this paper (sections 3–5). And since I am interested in principles concerning the lexical words of idiolect systems  $S$ , I will now characterise the corresponding part of the general theory of language.

## 2.2. Lexical words as paradigm-meaning pairs

The lexical words of an idiolect system  $S$  are the paradigm-meaning-pairs  $\langle P, b \rangle$  where  $P$  is a largest syntactic paradigm of  $S$  such that  $b$  is a lexical meaning of any

form  $f$  of  $P$  in  $S$  relative to any categorisation  $J$  of  $f$  in  $P$  (Lieb 1992b: 43, in preparation).<sup>17</sup> The paradigm  $P$ —a set of pairs  $\langle f, J \rangle$ —may be denoted by a table of the well known type (for an example, cf. section 3.1). As a borderline case, the table may consist of just one inner field or position, i.e. there may be only one  $J$  that is a categorisation of some form  $f$  of  $P$ . This is the case, for example, for any paradigm of adjectival words like *green*<sup>W</sup>( $S$ ) in English, and for most, if not all paradigms of particles (in the broad sense), cf. *on*<sup>W</sup>( $S$ ), for short: *on*<sup>W</sup> (“Pf(–,  $S$ )” reads “particle form-of- $S$ ”).<sup>18</sup>

C  $on^W = \langle on^P, *on^* \rangle = \langle \langle on, \{Pf(-, S)\} \rangle, *on^* \rangle$ .

The definition of “syntactic paradigm” also allows for:

1. alternative forms (double entries) for a given categorisation, cf. the indefinite article *a/an*<sup>W</sup> of English idiolect systems or Latin *e/ex*<sup>W</sup>, *a/ab*<sup>W</sup> etc.,<sup>19</sup>
2. syncretism, cf., for example, the multiple occurrences of *mein* in the table for *mein*-/e/-<sup>P</sup> (section 3.1),
3. defectivity, cf. German *man*<sup>W</sup> =  $\langle \langle man, \{NOM(-, S), SG_{Nr}(-, S), \dots \} \rangle, *man^* \rangle$  ‘person (non-particular)’,<sup>20</sup>
4. suppletion, cf. words like *be*<sup>W</sup> in English,
5. simple and complex word forms like *is* and *has been* in English, hence, synthetic as well as analytic word form formation,
6. neutralisation of functional distinctions like the neutralisation of any nominal distinctions for English adjectival words,<sup>21</sup>
7. paradigms of idioms like *kick-the-bucket*<sup>W</sup> (cf. Lieb 1983: 108).

In requiring a “largest” paradigm, certain incompatibilities between meanings and paradigms are taken into account. In German, for example, there are two verbs *donnern*<sub>1</sub><sup>W</sup> ‘to thunder (impersonal)’ with a defective 3.SG<sub>Vf</sub>-paradigm and *donnern*<sub>2</sub><sup>W</sup> ‘to thump somebody’ with a non-defective paradigm. The defective paradigm is a proper subset of the non-defective one, but it is not a largest paradigm so that ‘to thump somebody’ is a meaning of its forms. Hence, the defective paradigm together with this meaning is not a lexical word of the respective idiolect systems. And this is just the result we want to get.

The notion of “syntactic paradigm” itself can be defined by a set theoretically defined notion of “paradigm (relative to a paradigm basis)” (for details, cf. Lieb 1992b, in preparation). Thus, when the syntactic paradigm bases of an idiolect system  $S$  are identified, the syntactic paradigms of  $S$  will be, too. More precisely, the syntactic paradigm bases provide the basis for (D1) the proper assignment of categorisations  $J$  to the words’ forms  $f$  and (D2) for the formal as well as (D3) the semantic compatibility of the paradigms’ elements:<sup>22</sup>

D *Theorem* (of the general theory of language)

The syntactic paradigms of any idiolect system  $S$  are the largest non-empty sets  $P$  of pairs  $\langle f, J \rangle$  so that the following conditions are met:

1. for any element  $\langle f, J \rangle$  of  $P$ ,  $J$  is assigned to  $f$  by virtue of a specific function  $R$  that is a component of the syntactic part of  $S$ ,
2. the main parts of any two forms  $f_1$  and  $f_2$  of  $P$  are related to the same stem paradigm in  $S$ ,
3. there is some  $b$  such that for any element  $\langle f, J \rangle$  of  $P$ ,  $b$  is a lexical meaning of  $f$  in  $S$  relative to  $J$ .

The function  $R$  selects the right sets  $J$  out of the possible ones, e.g. *geht* 'go' must be combined with both,  $J_1 = \{3(-, S), \text{SG}_{\text{Nr}}(-, S), \text{PRES}(-, S), \dots\}$  and  $J_2 = \{2(-, S), \text{PL}_{\text{Nr}}(-, S), \text{PRES}(-, S), \dots\}$ , but  $J_3 = \{2(-, S), \text{SG}_{\text{Nr}}(-, S), \text{PRES}(-, S), \dots\}$ , a formally possible categorisation of *geht* in a German idiolect system  $S$ , must not be assigned to *geht* in any paradigm of  $S$ .

According to the second condition, syntactic paradigms are based on morphological paradigms  $P$ , i.e. sets of pairs  $\langle f, J \rangle$  where  $f$  is a lexeme form (for example, a stem form like *geh*) and  $J$  a morphological categorisation of  $f$ . Hence, the formal aspects of stem variation—whether regular or not—are primarily accounted for in morphology, but their functions—e.g., the indication of tense categories like  $\text{PRES}(-, S)$  vs.  $\text{PAST}(-, S)$ —are accounted for in syntax (as it is to be desired for syntactic and sentence semantic reasons).

Finally, the third condition allows us to delimit a paradigm properly even if its forms are also forms of another paradigm (cf. the discussion on the two *donnern*-words, above). On the other hand, the semantic condition without the morphological condition may not be sufficient to delimit the paradigms of two synonymous words. Therefore both formal and semantic compatibility of the paradigms' elements must be required independently. According to condition (D3), there is a lexical meaning  $b$  for any syntactic paradigm  $P$  of  $S$  such that  $\langle P, b \rangle$  is a lexical word of  $S$  (the initial sentence of this section may be re-read as a definition of "lexical word").

To sum up, if we start from word form occurrences like *geht*, then there are two ways to construct more abstract lexical items: First, we may look for other word forms to combine them as a whole, together with their syntactic categorisations and their lexical meaning, to form a lexical word  $\langle P, b \rangle$ . Second, we may look for a stem lexeme  $\langle P_1, b_1 \rangle$  related to the word form by its morphological structure, thus, abstracting it from any of its inflectional properties. If we adopt the IL point of view, then for most, if not all idiolect systems, the intersection of lexical words and lexemes will be empty for reasons of fact. Hence, there will be two different lexical items  $\langle P, b \rangle$  and  $\langle P_1, b_1 \rangle$  for any word form, a syntactic one and a morphological one, and neither of them can be abandoned in favour of the other one.

On the other hand, an occurrence of a word form *f* in some sequence of syntactic base forms may be associated with the *f*-part of a lexical word which *f* belongs to. These word form parts of lexical words are part of the syntactic structure of the base form sequence. Via the syntactic structures and an assignment of the respective lexical meanings to the base form sequences *f*, lexical words determine the meaning of *f*. Therefore, we may reconstruct both the lexical meaning and the paradigm of a lexical word by analysing occurrences of the word's forms, evaluating alternative hypotheses by their respective consequences on the sentences' structures and meanings. This methodological consequence of the IL theory of language will be used now in analysing the *mein*-words of (Standard New High) German idiolect systems.

### 3. Sample analysis (I): *mein*-words

#### 3.1. Distribution and potential paradigms of *mein*-words

The following examples illustrate the distribution of *mein*-word forms:<sup>23</sup>

- (2) a. *mein Buch*/\**meines Buch*/\**meins Buch*/\**das meine Buch* [ist rot]  
'my book [is red]'
- b. \**mein/meines/meins/das meine*/\**meine* [ist rot]  
'my one [is red]'
- c. [*wegen*] *meines Buches*/\**meins Buches*  
'[because of] my book'
- d. [*wegen*] \**meines*/\**meins/des meinen*  
'[because of] my one'

There are *mein*-word forms that may occur attributively, but not without a noun in structural positions comparable to each other, and conversely (compare (2a) to (2b)). Attributively used, the *mein*-word forms do not combine with the definite article in Modern German, but if used without a noun, they may combine with the article (2b) or even have to (2d).<sup>24</sup> If a *mein*-word form occurs with an article in some structural position, the article usually cannot be omitted without changing the sentence's meaning (2b): the word form formation follows the adjectival pattern with strong and weak variants depending on the syntactic context.<sup>25</sup> And finally, *meines* may be replaced by *meins* only if it is used non-attributively (2b–c).

These distributional facts lead us to assume at least two different syntactic paradigms, an adjectival one as in Table 1 and at least one substantival one.<sup>26</sup>

Table 1. Hypothesis on the adjectival *mein*-paradigm of German idiolect systems *S*

<i>mein</i> -/e/- <sup>P</sup> ( <i>S</i> )	SG <sub>Nf</sub> (-, <i>S</i> )			PL <sub>Nf</sub> (-, <i>S</i> )
	MASC(-, <i>S</i> )	FEM(-, <i>S</i> )	NEUT(-, <i>S</i> )	UNMG(-, <i>S</i> )
NOM(-, <i>S</i> )	<i>mein</i>	<i>meine</i>	<i>mein</i>	<i>meine</i>
GEN(-, <i>S</i> )	<i>meines</i>	<i>meiner</i>	<i>meines</i>	<i>meiner</i>
DAT(-, <i>S</i> )	<i>meinem</i>	<i>meiner</i>	<i>meinem</i>	<i>meinen</i>
ACC(-, <i>S</i> )	<i>meinen</i>	<i>meine</i>	<i>mein</i>	<i>meine</i>

Except for *mein*, the same forms occur in the substantival *mein*-paradigm(s), and except the GEN-SG<sub>Nf</sub>-categorisations, they occur with the same categorisations as in *mein*-/e/-<sup>P</sup>(*S*). But additionally,

1. *meiner* is associated with {NOM(-,*S*), SG<sub>Nf</sub>(-,*S*), MASC(-,*S*), ...},
2. *meines* is associated with {NOM(-,*S*), SG<sub>Nf</sub>(-,*S*), NEUT(-,*S*), ...} and {ACC(-,*S*), SG<sub>Nf</sub>(-,*S*), NEUT(-,*S*), ...},
3. the pure-substantival forms *meins*, *das meine*, *des meinen* etc. occur with their respective categorisations, and
4. *meine* and *meinen* are associated with the categorisations that are characteristic for the weak variants of adjectival forms (to account for their occurrences with an article).<sup>27</sup>

If the definite article occurs in a *mein*-word form, the form's categorisation contains DEF[INITE FORM](-,*S*). Otherwise, its categorisation contains UNMG(-,*S*) (cf. below, Table 2; subscript "D" reads "Definiteness"). Hence, *mein*-/e/-<sup>P</sup>(*S*) and the substantival *mein*-paradigms partly overlap. Thus, their proper delimitation requires that there are different lexical meanings, an adjectival meaning \**mein*-/e/-<sup>\*</sup>(*S*) and at least one substantival *mein*-meaning (cf. the *donnern*-example in section 2.2). Moreover, we cannot determine the substantival *mein*-paradigm(s) finally, unless we know which substantival *mein*-meanings we may want to assume for semantic reasons.

### 3.2. Lexical meanings of *mein*-words: Determining the paradigms

Lexical meanings *b* are determined by their intension (<sup>i</sup>*b*), i.e. by the set of attributes of real world entities *x* that is a subset of the content of any perception or conception *z* that has *b*: Lexical meanings are concepts in the sense of Lieb, i.e. properties of perceptions or conceptions *z* that concern the content of *z*. This allows us to

define names for particular meanings schematically: First, we define a name for the attributes that belong to their intension (usually just one that consists of several components). And then we apply a definitional schema that corresponds to the key condition in the definition of "concept" (cf. Lieb 1992a: 167). Thus, we may derive, by reference to the definitions, that the defined concept name indeed denotes a concept.

An attribute may consist of several components, i.e. partial conditions that the entities the attribute applies to must meet. Let us assume, first, that sortal restrictions are dealt with by such components. Since they seem to be partly language specific, the attributes we are looking for are construed as values of functions whose arguments are idiolect systems  $S$ . For my present purposes, it will not be necessary to specify the sortal restrictions for the *mein*-words in detail.

Second, the deictic places of an attribute are assumed to be its last places. The first two deictic places correspond to the respective speaker and his utterance.<sup>28</sup> Obviously, *mein*-words are deictic words, hence, there are deictic places of the respective attributes. The first non-deictic place of an attribute is the centre place that may be followed by one or more complement places. Due to the centre place the word may be used, e.g., as modifier or as predicate or as nucleus of a referential expression or as being modified or co-ordinated or complemented. Let us assume that *mein*-words take no complements, hence, there is only one non-deictic place of the respective attributes.<sup>29</sup>

Finally, the semantic component specific to the *mein*-words in contrast to the other possessive pronouns is the condition that there is some relation between the entities at the centre place and the speaker relative to the speaker and his utterance. This relation may, but need not be a relation of possession (cf. Richter 1988: 242–243).<sup>30</sup> Taken as a definition we get:

E *Definition*: Let  $S$  be an idiolect system.

MEIN-/E/-( $S$ ) = the attribute of being an  $\langle x, x_1, x_2, x_3 \rangle$  such that:

1. [sortal restrictions on  $x$  relative to  $S$ ],
2.  $x_1$  produces  $x_2$  by linguistic means,
3.  $x_3$  is a relation that relates  $x$  and  $x_1$  relative to  $x_1$  and  $x_2$ .

The corresponding concept  $\text{'mein-/e/-'}(S)$  may be introduced now by defining a functional notion  $\text{'*mein-/e/-'*}$ :

F *Definition*: Let  $S$  be an idiolect system.

$\text{'*mein-/e/-'*}(S)$  = the property of being a perception or conception  $z$  such that  $\{\text{MEIN-/E/-}(S)\}$  is a subset ( $\subseteq$ ) of the content of  $z$ .

In meaning composition,  $\text{'*mein-/e/-'*}(S)$  works exactly like the meaning of, say, *roter/ele*<sup>w</sup> 'red' except the projection of the deictic places. For example, the exten-

sion of the complex concept \*mein Buch\*(S) 'my book' that may be associated with an occurrence of *mein Buch* is the set of  $\langle x, x_1, x_2, x_3 \rangle$  where any attribute in "Buch\*(S) applies to  $x$  and any attribute in "mein-/e/-\*(S) to  $\langle x, x_1, x_2, x_3 \rangle$ .

Let us assume that \*mein-/e/-\*(S) is the lexical meaning of *mein-/e/-<sup>P</sup>*(S). In this case, appropriate substantival meanings may be construed by adding a meaning component like "x may be denoted by a substantive of S", i.e. a component that also occurs in the meaning of personal pronouns (cf. Wiese 1983). More precisely, we need four different components for dealing with the data in (3) and (4):<sup>31</sup>

- (3) [Wir haben uns über unsere Ferienerlebnisse unterhalten.]  
'We talked about the experiences we had during our holidays.'
- a. *Meine/Die meinen*      *waren*      *sehr*      *lehrreich*.  
my ones/the my ones      were      very      instructive  
'My ones were very instructive.'
- b. *Meines/Das meine*      *war*      *sehr*      *lehrreich*.  
my one/the my one      was      very      instructive  
'My one was very instructive.'
- c. \**Meiner/* \**Der meine/* \**Meine/* \**Die meine*      *war*      *sehr*      *lehrreich*.  
my/the my one/my/the my one      was      very      instructive  
'My one was very instructive.'
- (4) [Wir haben uns über unsere Ferien unterhalten.]  
'We talked about our holidays.'
- a. *Meine/Die meinen*      *waren*      *sehr*      *lehrreich*.  
my/the my ones      were      very      instructive  
'My ones were very instructive.'
- b. \**Meiner/* \**Der meine/* \**Meine/* \**Die meine/* \**Meines/* \**Das meine*      *war*  
my/the my one/my/the my one/my/the my one      was  
*sehr*      *lehrreich*.  
very      instructive  
'My one was very instructive.'

A plural nominal containing a count noun (cf. *unsere Ferienerlebnisse* in (3)) may be the antecedent of a PL<sub>NF</sub>- as well as of a SG<sub>NF</sub>-form of a substantival pronoun (3a–b), but only if the SG<sub>NF</sub>-form belongs to the right gender category (3b–c). Let us assume that it is the same *mein*-pronoun that occurs in both (3a) and (3b). Then we



Table 2. Hypotheses on the substantival *mein*-paradigms of German idiolect systems *S*

<i>meiner</i> <sup>P</sup> ( <i>S</i> )	SG <sub>Nf</sub> (-, <i>S</i> )			PL <sub>Nf</sub> (-, <i>S</i> )		
	MASC(-, <i>S</i> )			UNMG(-, <i>S</i> )		
	UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )		UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )	
NOM(-, <i>S</i> )	<i>meiner</i>	<i>meine</i>	<i>der meine</i>	<i>meine</i>	<i>meinen</i>	<i>die meinen</i>
GEN(-, <i>S</i> )	–	<i>meinen</i>	<i>des meinen</i>	<i>meiner</i>	<i>meinen</i>	<i>der meinen</i>
DAT(-, <i>S</i> )	<i>meinem</i>	<i>meinen</i>	<i>dem meinen</i>	<i>meinen</i>	<i>den meinen</i>	
ACC(-, <i>S</i> )	<i>meinen</i>	<i>den meinen</i>		<i>meine</i>	<i>meinen</i>	<i>die meinen</i>

<i>meine</i> <sub>Fem</sub> <sup>P</sup> ( <i>S</i> )	SG <sub>Nf</sub> (-, <i>S</i> )			PL <sub>Nf</sub> (-, <i>S</i> )		
	FEM(-, <i>S</i> )			UNMG(-, <i>S</i> )		
	UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )		UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )	
NOM(-, <i>S</i> )	<i>meine</i>	<i>die meine</i>		<i>meine</i>	<i>meinen</i>	<i>die meinen</i>
GEN(-, <i>S</i> )	–	<i>meinen</i>	<i>der meinen</i>	<i>meiner</i>	<i>meinen</i>	<i>der meinen</i>
DAT(-, <i>S</i> )	<i>meiner</i>	<i>meinen</i>	<i>der meinen</i>	<i>meinen</i>	<i>den meinen</i>	
ACC(-, <i>S</i> )	<i>meine</i>	<i>die meine</i>		<i>meine</i>	<i>meinen</i>	<i>die meinen</i>

<i>meines</i> <sup>P</sup> ( <i>S</i> )	SG <sub>Nf</sub> (-, <i>S</i> )			PL <sub>Nf</sub> (-, <i>S</i> )		
	NEUT(-, <i>S</i> )			UNMG(-, <i>S</i> )		
	UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )		UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )	
NOM(-, <i>S</i> )	<i>meines/meins</i>	<i>meine</i>	<i>das meine</i>	<i>meine</i>	<i>meinen</i>	<i>die meinen</i>
GEN(-, <i>S</i> )	–	<i>meinen</i>	<i>des meinen</i>	<i>meiner</i>	<i>meinen</i>	<i>der meinen</i>
DAT(-, <i>S</i> )	<i>meinem</i>	<i>meinen</i>	<i>dem meinen</i>	<i>meinen</i>	<i>den meinen</i>	
ACC(-, <i>S</i> )	<i>meines/meins</i>	<i>meine</i>	<i>das meine</i>	<i>meine</i>	<i>meinen</i>	<i>die meinen</i>

<i>meine</i> <sub>Pl</sub> <sup>P</sup> ( <i>S</i> )	PL <sub>Nf</sub> (-, <i>S</i> )		
	UNMG(-, <i>S</i> )		
	UNMD(-, <i>S</i> )	DEF(-, <i>S</i> )	
NOM(-, <i>S</i> )	<i>meine</i>	<i>meinen</i>	<i>die meinen</i>
GEN(-, <i>S</i> )	<i>meiner</i>	<i>meinen</i>	<i>der meinen</i>
DAT(-, <i>S</i> )	<i>meinen</i>	<i>den meinen</i>	
ACC(-, <i>S</i> )	<i>meine</i>	<i>meinen</i>	<i>die meinen</i>

may explain the data given in (3c) by assuming that there are three gender-specific *mein*-pronouns that have both different paradigms and different meanings: the additional meaning components do not refer to the substantives of *S* altogether but to certain subsets of this word class, i.e. the masculine, the feminine and the neuter substantives of *S* respectively. Analogically, we may explain the data given in (3c) by assuming that there are three gender-specific *mein*-pronouns that have both different paradigms and different meanings: the additional meaning components do not refer to the substantives of *S* altogether but to certain subsets of this word class, i.e. the masculine, the feminine and the neuter substantives of *S* respectively. Analogically, we may explain the data in (4) by assuming a fourth *mein*-pronoun related semantically to the pluralia tantum substantives of *S* and being itself a pluralia tantum pronoun. Hence, the data support the hypotheses on substantival *mein*-paradigms represented in Table 2. They all have the same plural part, i.e. *meine*<sub>PL(S)</sub> itself. If there is a strong and a weak variant for a given categorisation, the weak one is on the right side (strong UNM<sub>D</sub>-GEN-SG<sub>NR</sub>-variants do not occur in the syntactic units of *S* and, thus, are not assumed in the paradigms).

On the whole, the paradigms have a structure that is characteristic for substantival paradigms (the lack of indefinite forms can be explained semantically). And like any de-adjectival substantive of a certain type (cf. *Abgeordneter*<sup>w</sup> 'elected representative, esp. member of parliament') the substantival *mein*-pronouns have strong and weak variants for some categorisations (as a matter of fact, the corresponding adjectival pronoun has lost this variation). Finally, the other possessive pronouns and the non-auxiliary *ein*- and *kein*-words ('one' and 'no' respectively) show the same kind of distribution as the *mein*-words.<sup>32</sup> Therefore, we have reason to assume that the syntactic part of a German idiolect system determines systematically four formally and semantically related *mein*-words etc.

In the next section, I will briefly discuss the remaining pronouns of German.

#### 4. Sample analysis (II): Other pronouns of German

Beside the possessive, the *ein*- and the *kein*-pronouns, there are three types of pronouns that may be distinguished with respect to word and word form formation. First, there are adjectival and substantival *d*-pronouns (*der/die/das*<sub>pr</sub><sup>w</sup>, *der*<sup>w</sup>, etc.) that differ in the GEN-forms (adjectival *des*, *der* vs. substantival *dessen*, *deren*, *derer*) and in the DAT-PL<sub>NR</sub>-forms (adjectival *den* vs. substantival *denen*) (cf. Lühr 1991; Curme [1977]: 154–158).<sup>33</sup> The adjectival *d*-pronoun has a (non-empty) deictic meaning ('neutral distance to the speaker') and its forms may occur with a syntactic

accent. Since in IL, the potential for a syntactic accent is represented in a word form's lexical intonation structure, the adjectival *d*-pronoun and the definite article *der/die/das*<sub>Art</sub><sup>W</sup> differ both in their paradigms and in their meanings: Forms of the definite article cannot occur with a syntactic accent,<sup>34</sup> and their lexical meaning is *b*<sup>0</sup> (the empty concept).<sup>35</sup> The substantival *d*-meanings are related to '*der/die/das*' like the corresponding *mein*-meanings to '*mein/-e/-*'.<sup>36</sup> The substantival *d*-pronouns may occur independently (like any other demonstrative) or introducing a relative clause.<sup>37</sup>

The distribution of the substantival forms may be explained functionally: (a) The substantival *d*-pronouns may be used as a presubstantival genitive attribute (cf. *deren häuser* 'whose houses'/'their houses') and the formal difference excludes an ambiguity in genitive positions:

- (5) a. [*wegen*]            *deren*    *Häuser*  
          '[because of]    their    houses'
- b. [*wegen*]            *der*      *Häuser*  
          '[because of]    the      houses'

(b) The substantival DAT-PL<sub>Nr</sub>-form (*denen*) differs from the ACC-SG<sub>Nr</sub>-MASC-form (*den*), thus avoiding ambiguities that, as a rule, cannot occur in combination with a noun: Since nouns, as a rule, are unambiguously marked for number in German, *den* + noun-constructions can be understood immediately. But without a noun, the relevant number category of *den*-occurrences were to be reconstructed from the respective case requirements if substantival *den* were not restricted to ACC-SG<sub>Nr</sub>-positions.

*Second*, as for English idiolect systems there are substantival pronouns without corresponding adjectival ones, e.g. the personal pronouns. The first and second person pronouns are singularia tantum and pluralia tantum respectively: The semantic relation between corresponding pronoun forms like English *I* and *we* differs from the relation between, say, *house* and *houses* in some crucial respects (by *we*, for example, a speaker does not refer to a plurality of entities (persons) he individually may refer to by *I*). The system of third person pronouns is more complicated but the details need not be dealt with here: In principle, we may proceed as in section 3.2.

*Third*, there are pronouns like the *dies*- and *jen*-pronouns ('this' and 'that'). Their forms may be used like the corresponding forms of the *mein*- and the *d*-pronouns but there is no formal difference between the adjectival and the substantival forms. More specifically, there are three ways of analysing occurrences of *dies*-pronouns like in (1), repeated here as (6):

- (6) a. *Er*    *hat*    *dieses*    *Buch*    *gelesen.*  
      he    has    this      book    read  
          'He has read this book.'

- b. *Dieses hat er gelesen, aber jenes hat er nicht gelesen.*  
 this has he read but that has he not read.  
 'He has read this one, but he hasn't read that one.'

First, we might assume that there is only one *dies*-word (subcase 1) or at least that there is only one *dies*-paradigm (subcase 2) that may occur both attributively and non-attributively. These are the two common positions. Both the assumptions imply that *dies*-pronouns differ from *mein*-pronouns syntactically and semantically. Furthermore, if we assume only one *dies*-word (subcase 1), this word cannot belong to the adjectival words only since it may occur as a nucleus of a referential expression.<sup>38</sup> Hence, *dieses Buch* in (6a) can be analysed in one of the following two ways: (a) We might assume that substantival and adjectival words do not overlap (this should not follow from the definitions, cf. Budde, forthcoming, in preparation). As a consequence we have to assume that the construction in (6a) is an SV-SV-construction—contrary to common assumptions (cf., for example, Curme [1977]: 153; "SV" reads "substantival word"). (b) We might assume that the *dies*-word in question belongs to both, the adjectival and the substantival words. In this case the construction in (6a) may be analysed as an AV-SV-construction, as desired ("AV" reads "adjectival word"). But it is to be analysed as an SV-SV-construction as well since the *dies*-word belongs to both parts of speech. Hence, we have to block this second analysis or at least the interpretation of (6a) in case *dieses Buch* is assigned its alternative SV-SV-structure. And we are obliged to assume substantival words with paradigm structures characteristic for adjectival words. If we assume, on the other hand, that there are different *dies*-words that differ in meaning only (subcase 2),<sup>39</sup> then we have to assume exceptional substantival paradigms with an adjectival structure as in (b) of subcase 1. Neither of these consequences are compatible with well motivated hypotheses on German as well as on nominal words in general.

Some of these consequences can be avoided if we adopt an analysis of the *second* type: We might assume that (6b) is an elliptic version of some sentence with an attributively used *dies*-pronoun. Thus there would only be one *dies*-pronoun, a regular adjectival pronoun, and neither a substantival *dies*-pronoun nor substantival uses of the adjectival *dies*-pronoun were to be assumed. Such an analyses would also apply to corresponding occurrences of adjectives. Let us assume, for the sake of illustration, that such an analysis meets the relevant semantic requirements. Then there are more functional similarities of the *dies*-pronoun to adjectives than to the other pronouns. From a functional point of view, we may want to avoid this consequence.

On the other hand, there is no convincing reason not to adopt the *third* position: We might assume adjectival and substantival *dies*-pronouns in analogy to the corresponding *mein*-pronouns. The adjectival and substantival *dies*-paradigms might be

related just as the corresponding *mein*-paradigms are. In fact, such an assumption is compatible with common principles of economy, both with respect to the theory's subject and with respect to its axiomatic (re)construction. According to the IL point of view, a paradigm is not assumed to be immediately represented in a speaker's memory (cf. Note 26). Instead, paradigms—as any linguistic entities—are assumed to be extra-mental entities which a speaker has access to. In other words: Linguistics is not reduced to psycholinguistics. Hence, there is no problematic inflation of words as long as they may be determined in an economic way. Actually, the definition of "lexical word" itself provides such a way: If we compare the axioms of a grammar of German that will lead to the third analysis with those yielding the other ones, we cannot find any significant difference. Moreover, it is not the total number of words but at most the number of patterns that may be compared. Hence, the natural class argument is the most important one: from a functional point of view, it is more likely that *dies*-pronouns resemble the other pronouns than that they resemble the adjectives.<sup>40</sup>

To sum up, it is an analysis of the third type that fits best to the properties of the other nominal words of German both for language specific as well as for general reasons. Thus, we have reason to assume four kinds of pronouns in German ("AV" reads "adjectival", and "SV" reads "substantival"):

Table 3. Hypothesis on the pronouns of German

	correlated AV- and SV- pronouns	forms belonging to a pure substantival form-categorisation-pair
personal pronouns (and others)	–	all
possessive pronouns, <i>ein-</i> and <i>kein-</i> pronouns	+	NOM-MASC- and NOM/ACC-NEUT-forms (+ DEF-forms and weak variants)
<i>d-</i> pronouns	+	GEN-forms and DAT-PL-forms
<i>dies-</i> and <i>jen-</i> pronouns (and others)	+	none

Since we know now which pronouns are to be identified, i.e. which statements should be derivable from the identificational statements on the paradigm bases of German idiolect systems, we may evaluate alternative identificational statements by looking for the respective proof. If there is one, we may provisionally add the statement to the already justified part of the theory.

For developing such statements, the most efficient heuristics is the traditional method of generalising individual paradigm tables, representing the crucial formal properties instead of individual word forms in each field of the table. When there are

still several equivalent possibilities, we may look for some further criteria (since we should fix the system of word form categories first, we actually will not need more than some few such criteria if any at all).

In general, we may proceed by four steps that will be characterised next.

## 5. Generalisation

In justifying the pronoun paradigms of German idiolect systems *S*, I presupposed a system of word form categories of *S* that provides the (possible) categorisations of each nominal word form. This system may be justified in the traditional way, i.e. by looking for functional oppositions between word forms. If necessary, inter- and intra-language variation can be dealt with as indicated in section 2.1. But since the major communicative needs do not differ from one language community to the other, we may expect comparable types of functional oppositions however they may be indicated formally. As a rule, the justification is based on hypotheses concerning the meaning of sample sentences and some part of their syntactic structure. Such hypotheses are statements we want to derive from the theory, but cannot derive yet. Hence, they are used for orientation in developing the theory in a way so that they can be derived at the end.

The details of this preparatory step have not been addressed in this paper. In section 3, I started the discussion by a distributional analysis—strictly speaking, the second step. Such an analysis is based on hypotheses concerning the assignment of parts of speech and, possibly, of word form categories to word form occurrences. This yields hypotheses on potential paradigms that must be checked by a semantic analysis (third step). Thus, in section 3.2, I looked for appropriate (components of) lexical meanings that allow us to derive the relevant sentence meanings in a systematic way. Of course, the results partly depend on hypotheses concerning both general and language specific aspects of meaning composition. But, as a rule, we may restrict the assumptions to some commonly accepted ones that are stated in a way not specific to a particular approach on representing syntactic meanings. In a word, by the third step we select the paradigms that meet the semantic requirements from the syntactically possible ones.

Finally, the adequacy of the analyses is to be checked by looking for regularities involving functionally comparable words (fourth step). Presupposing an assignment of parts of speech to word form occurrences, we may compare (a) the paradigm structure, (b) the lexical meaning and (c) the relevant structural positions of the words in question to functionally similar and to functionally different words (cf. the discussion on *dies*-words in section 4). For example, we expect systematic gender varia-

tion for adjectival words (if possible), but gender constancy for substantival words. And we expect similar paradigm structures, similar lexical meanings and similar structural positions for functionally equivalent words, and conversely. Of course, exceptions are not excluded in general, but they need some explanation, whether a synchronic or a diachronic one, whether a structural or a functional one, etc. In practice, this final step may be intertwined with the second and the third step. And depending on the respective state of the art, we may have to calculate the results for varying starting hypotheses until we have found the most convincing ones.

Since the application of these four steps neither depends on the particular word class nor on the specific properties of German, we may apply this heuristic on arbitrary words and languages. And as it is a heuristic for justifying identificational statements, there will not be any danger of circularity: Both the definitions in the general linguistic theory as well as the identificational statements in the particular language's grammars will meet the requirements on introductory sentences of axiomatic theories. This holds, at least in Integrational Linguistics, for independent reasons (cf. section 2.1). And if we justify a particular extension of the theory that concerns some word  $\langle P, b \rangle$  by reference to a hypothesis on some word  $\langle P_1, b_1 \rangle$ , and conversely, we can always replace the hypotheses involved by joining them so that the extensions are justified simultaneously. Thus, in justifying identificational statements circularity cannot occur at all.

Hence, it is the systematic distinction between defining the notions, identifying their extensions and justifying such identificational statements that allows us to reconstruct common and traditional linguistic reasoning in a systematic way. The particular steps of both the method used in section 3 and 4 and its generalisation are well established in linguistics. Thus, the main results of the discussion are threefold: *First*, we found a solution to a certain problem of German grammar, the identification of substantival and adjectival pronouns. *Second*, we found a general way for justifying whether some  $\langle P, b \rangle$  is a lexical word or not. *Third*, distinguishing between justification on the one hand and definition and identification on the other hand may be expected to play a key role in reconstructing traditional insights within modern linguistics, far beyond the theory of lexicon focused on in the present paper.

## Notes

1. Superscript "W" is used to denote lexical words, thus the name of a lexical word always differs from the name of its citation form.

2. Only notions may be defined (in the strict sense of "definition", cf. Suppes 1957: 151–173). In contrast, their extensions may be determined, identified or characterised. Whether the word class notions are defined ones or not depends on the respective axiomatisation (for an axiomatisation that allows one to define these word class notions, cf. Budde (forthcoming, in preparation), for a definition of "lexical word", cf. below, section 2.2). The theory as a whole must provide at least one systematic way of identifying the extension of any notion introduced into the theory, whether it is a defined one or not. As a rule, this holds true due to the semantic part of the theory's language and to the overall structure of the theory. For the most important prerequisites, cf. below, section 2.1.
3. As a rule, the applied theory is a grammar of the language under discussion.
4. The slash notation indicates the gender variation of adjectival words in German, thus, the name of a German substantival word always differs from the name of a related adjectival one.
5. For articles as auxiliary words—like verbal auxiliaries—cf. Moskal'skaja (1975: 182–184) and Lieb (1983: 385–389, 1993b: 446). A full discussion on the syntactic and semantic consequences of this important insight independently developed by Moskal'skaja and Lieb still remains to be published. For the present purposes, it is sufficient to assume that there is always a way to determine the articles systematically.
6. In this paper, the range of a variable will be specified in an informal way only, namely by using it with appropriate predicates. For example, the range of "*b*", "*b*<sub>1</sub>", etc. consists of entities of the ontological type of lexical meanings, whether they are lexical meanings or not. For a more explicit specification, cf. the lists in Lieb (1993b: 442–443). As a rule, the different letters are used to indicate the different ontological types, and subscripts are used to distinguish different individuals of the same type, if necessary.
7. For a definition of "*b*<sup>0</sup>" cf., for example, (13.5.c) in Lieb (1983: 208).
8. A *dies*-word is a lexical word whose stem (stem lexeme) contains *dies* as a stem form.
9. For the alternative position, cf., for example, Curme ([1977]: 164–169).
10. Section 3 is the summary of a more detailed discussion in Budde (in preparation).
11. How to derive sets from relations by abstracting over some places of the relation by hyphenating functions like the one denoted by "*-(,)*" has been explained in detail by Lieb (1993a: 135–145), for the basic idea cf. already Carnap (1958: 134–135). Note that  $\text{PRON}(-, \text{German}) = \emptyset$  ["the empty set"] if German were a language without pronouns: The empty set as a value of the hyphenating functions is a borderline case that obviously should be allowed for the sake of language comparison.
12. From an axiomatic point of view, sets like  $\text{PRON-of-German}$  and the domain of  $\text{PRON}$  are basic to the corresponding properties that might be relevant in psycholinguistics. These properties or "features" may be introduced schematically, for example:
  - (i) the  $\text{PRON-of-German}$ -property =<sub>df</sub> the property of being a lexical word that belongs to  $\text{PRON-of-German}$ .



Such a property determines just the set of words that is referred to in the definition of the respective notion. For example, we may derive by applying standard logical rules:

- (ii)  $\langle P, b \rangle$  is an element of PRON-of-German iff [if, and only if]  $\langle P, b \rangle$  has the PRON-of-German-property.

However, in this paper I will adopt the IL point of view without further discussion: "IL [Integrational Linguistics—MB] does not extend the notion of feature beyond the study of the sound system to morphology and syntax." (Lieb 1992a: 147).

13. For details cf. Budde (in preparation).
14. For details cf. Lieb (1992a, 1993a) and the papers cited there.
15. A language is the union of its varieties, cf. Lieb (1993a: 45–50).
16. Note the difference between "system of" and "system for".
17. Note that there may be more than one largest paradigm such that  $b$  is a lexical meaning of any form  $f$  of  $P$  in  $S$ : Such a situation is not ruled out by the theory of language, but, possibly, it does not occur for reasons of fact.
18. The following conventions are used: *First*, as in the preceding sections, reference to the respective idiolect system  $S$  is omitted in denoting lexical words, paradigms, word forms etc. just by its more or less conventional citation form and, possibly, sub- and superscripts: Strictly speaking, " $on^w$ " etc. denote functions whose arguments are idiolect systems  $S$  and whose values are the respective entities (words, paradigms etc.)—otherwise, the sample identity statement would be ill-formed and hence, senseless. (As usual, initial universal quantifiers and introductory conditions like "Let  $S$  be an (English) idiolect system." are omitted in such statements.) *Second*, word forms may be denoted by the name(s) of the syntactic base forms they consist of (i.e. the phonological, graphemic or cheremic words), preserving the order of the base forms' occurrences. Strictly speaking, the only form of  $on^w$  is  $on^1 = \{ \langle 1, on \rangle \}$  = the unit sequence of the syntactic base form  $on$ . Hence, " $on$ " has to be disambiguated by context. *Third*, in IL, raised dots are used to denote (a) concepts in the sense of Lieb (e.g. 1983: 204–214), i.e. entities that may qualify as a lexical meaning of some idiolect system  $S$ ; (b) functions whose arguments are idiolect systems  $S$  and whose values are such concepts. Since we have reason to assume that sortal restrictions are partly language specific, most lexical meanings will be denoted by such a functional term (case (b)).
19. The variation may be free or determined by the phonological or by the syntactic context. An example of the latter type of variation is the variation between strong and weak adjectival forms in German depending on the preceding determiner.
20. Subscripts like "Nf" in "SG<sub>Nf</sub>" are used to indicate whether the nominal or the verbal categories of number are referred to ("Nf" is to recall "nominal word form"). Most of the categories that may occur in a word form's categorisation correspond to the inflectional categories traditionally assumed. Therefore, I will use the common abbreviations without further explanation. The dots "..." indicate that there might be some more elements left unspecified.

21. Note that neutralisation is a synchronic concept: There may be a corresponding diachronic process, or not. For example, pronoun forms like *ich* 'I' etc. are unmarked for gender in German, contrary to the corresponding third person forms, but there is no reason to assume that this is the result of a diachronic process corresponding to the loss of any nominal distinction for the English adjectival words.
22. For the proof of this theorem within a slightly corrected version of Lieb's theory of paradigms based on Lieb (1992b: 34–35, esp. (48) and (51)), cf. Budde (in preparation). Strictly speaking, the condition (D2) in the version given here only takes care of non-idiom paradigms (as Lieb 1992b): For idioms, the main parts of its forms must be compared base form by base form. This may be neglected for the present purposes.
23. *Buch*<sup>w</sup> 'book' is a neuter substantive. The context in (2a–b) requires a nominative form, the context in (2c–d) requires a genitive form (as illustrated) or a dative form (not illustrated). Raised "\*" reads "ungrammatical in the context given in square brackets", and raised "#" reads "grammatical in the context given in square brackets, but no relevant reading (here: with respect to the other examples in (2))".
24. According to the common view, the GEN-SG<sub>NF</sub>-forms "may be formed, but actually, they are not used attributively or as a complement" (Zifonun—Hoffmann—Strecker 1997: 41; my translation). In fact, these forms cannot be used this way at all. For an explanation of this distributional gap, cf. Eisenberg (1994: 201).
25. This variation is preserved in nominalisation, cf. de-adjectival nouns like *Abgeordneter*<sup>w</sup> 'elected representative, esp. member of parliament' with *ein Abgeordneter* (the NOM-SG<sub>NF</sub>-INDEF-form) and *der Abgeordnete* (the NOM-SG<sub>NF</sub>-DEF-form) etc.
26. "UNMG" reads "Unmarked for gender". In German, the gender distinction is neutralised in the plural: PL<sub>NF</sub>(–,S) is a (proper) subset of UNMG(–,S). Implicational relations between categories may be dealt with by statements on the paradigms' structures, but they should not be dealt with by omitting the implied categories for reasons I cannot discuss here. Hence, Wunderlich–Fabri (1995) and Wurzel (1987), for example, may be re-read as investigations of the paradigms' structures, although the respective notions of "paradigm" differ from the traditional one in some crucial respects. Paradigm structures play an important role in psycholinguistics: For obvious reasons, most of the paradigms cannot be assumed to be stored in the memory, but their structures (the "rules" for their formation) may well be. That words may differ in their psycholinguistic properties can be taken for granted (cf. traditional explanations for the preserving of irregular paradigms as well as the regularisation by analogy; experimental evidence has been documented, e.g., by Clahsen (1997)).
27. If word form internal syntactic structures are assumed, these categorisations cannot be abandoned. And even if they are not assumed (as Lieb since (1983: 100–102) does), these categorisations may be useful for describing complex word forms by reference to the categorisations of its parts (the traditional method) instead by reference to the correlated form categories like 'word form with ending -e' (–,S) etc. Contrary to Lieb, I prefer the first position since there are alternative solutions to the problems he solved by abandoning word form internal syntactic structures.

28. For details on deictic lexical meanings cf. Richter (1988: 227–260, and *passim*).
29. For the correlation between the number of non-deictic places and the word's valency (number of possible complements) cf. Lieb (1993b: 448–451) on the General Valency Hypotheses.
30. Two provisos should be mentioned here: (a) According to Richter (1988: 244, 324–326) “*x<sub>3</sub>*” is bound by an existential quantifier in the course of the syntactic meaning composition. This might be debatable but is irrelevant for our present purposes. (b) Presumably, the definiteness effect of *mein*-words can be dealt with best by a lexical meaning component, but I cannot discuss this point here.
31. The details are discussed in Budde (in preparation). *Ferienenerlebnisse* is a *PL<sub>NF</sub>*-form of *Ferienenerlebnis*<sup>w</sup>, a neuter count noun. For the *mein*-forms cf. the *NOM*-entries in Table 2.
32. The lack of definite *kein*-forms and, as a consequence, the lack of weak variants can be explained semantically.
33. The auxiliary notion “*d*-pronoun” is not intended to indicate a specific morphological analysis of *d*-pronoun forms. Actually, the disyllabic forms indicate that the stem forms are *der*, *die*, *das* etc. as a whole.
34. Since the definite article may well be “stressed” under certain circumstances, we have to be careful in explicating “syntactic accent”.
35. *b*<sup>0</sup> is the lexical meaning of any auxiliary word.
36. Actually, the semantics is more complicated, but we may neglect these complications here.
37. There is no convincing reason for assuming relative *d*-pronouns different from the demonstrative ones, e.g. with the empty meaning instead of the deictic one. Actually, such an assumption has some rather strange consequences within the framework of Lieb (1992b), e.g. doubling of the nominal word form categories. But note that pure relative pronouns are not excluded in general, in fact, there are some in German, namely the personal relative pronouns like *der ich*<sup>w</sup>, literally ‘who I’.
38. Of course, this consequence can be avoided if we give up defining the part-of-speech notions, but this solution cannot be adopted seriously (cf. Budde forthcoming, in preparation).
39. This is the view tacitly adopted in Zifonun—Hoffmann—Strecker Zifonun—Hoffmann—Strecker (1997) (Zifonun, personal communication).
40. For the sake of the argument I have been assuming that there are occurrences of adjectives that can be analysed as ellipsis. Actually, I do not know of any advantage such an analysis might have in the syntax and semantics of adjectives. Hence, we might want to analyse these occurrences of adjectival forms in analogy to the pronominal forms, i.e. as occurrences of substantives that result from nominalisation (this is the traditional position).

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# **Noun and verb in Iroquoian languages: Multicategorisation from multiple criteria**

Marianne Mithun

## **1. Introduction**

Recent typologies of lexical categories have pointed to the Iroquoian languages as counter-examples to the universality of the noun-verb distinction. In fact the distinction is particularly robust in these languages. The languages do, however, show us the importance of considering a full range of criteria in categorisation.

Several kinds of criteria are typically considered in the identification of lexical categories. Often judgements are first made on the basis of meaning: words for objects are classified as nouns, and words for actions are classified as verbs. Next may be morphological structure: words containing markers of number, gender, and/or case are identified as nouns, while those containing markers of tense and/or aspect are identified as verbs. Finally, syntactic function may be taken into account. Words used as nominals to refer are often classified as nouns, and those used to predicate are classified as verbs. The three criteria may not be equally diagnostic for a particular language, since details of morphological and syntactic structure vary so widely from one language to the next. Furthermore, all criteria may not yield the same classification for a given language. What might be identified as a verb on formal morphological grounds, for example, might function semantically or syntactically as a nominal to designate an object. The Iroquoian languages show just this situation.

## **2. The Iroquoian language family**

The Iroquoian family covers a wide area in eastern North America. The lone attested representative of the Southern branch, Cherokee, is now spoken primarily in North Carolina and Oklahoma. The Northern languages are centred in the Northeast, primarily present Ontario, New York State, and Quebec. Oneida is spoken in Wisconsin as well, and Wyandot was spoken until recently in Oklahoma. Additional Iro-



quoian languages have disappeared. Relations among the modern Iroquoian languages are schematised in Figure 1.

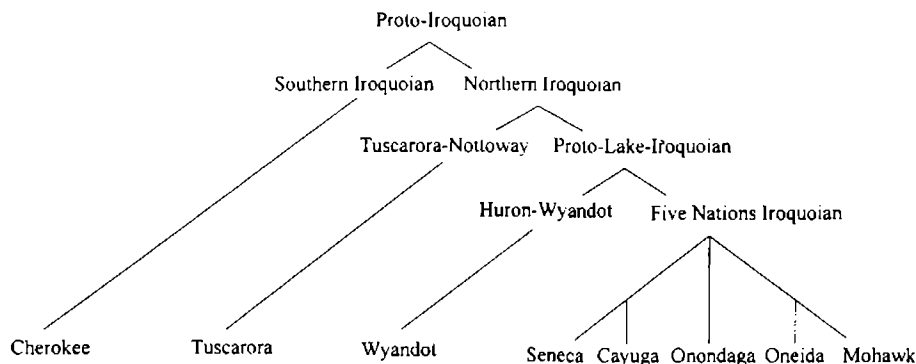


Figure 1. The Iroquoian family

Lexical categories are distinguished in all of the languages in essentially the same ways. In what follows, each of the usual formal and functional criteria for identifying lexical classes will be considered in turn. It will be seen that all yield clear categorial distinctions.

### 3. Morphological structure

Three kinds of words can be distinguished in the Iroquoian languages on the basis of their internal structure: particles, nouns, and verbs.

Particles by definition have no internal structure, though they may be compounded. Examples of Cayuga particles include *ó:nēh* 'now' and *ki?* 'just'.

Nouns have the basic structure shown in Figure 2.

PREFIX	NOUN.STEM	NOUN.SUFFIX
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Figure 2. The noun

Examples of nouns can be seen in the Cayuga examples in (1). Cayuga material cited here comes from the speech of Reginald Henry, Jimmy Sky, Marge Henry, Jake Skye, Lizzie Skye, and Alfred Key, all of Six Nations, Ontario.

## (1) Sample nouns: Cayuga

- |   |  |
|---|--|
| <p>a. <i>ohna?</i><br/> <i>o-hn-a?</i><br/>         NEUTER-fat-NOUN.SUFFIX<br/>         'grease, lard, fat'</p> | <p>b. <i>ohnyǫhsa?</i><br/> <i>o-hnyǫhs-a?</i><br/>         NEUTER-squash-NOUN.SUFFIX<br/>         'squash, melon, cucumber'</p> |
|---|--|

The noun prefix specifies gender. Terms for inanimate objects, which constitute the overwhelming majority of nouns in the lexicon, carry neuter prefixes. The neuter prefixes do not distinguish number. On possessed nouns, the prefix specifies the possessor, distinguishing person, number, gender, and alienability.

## (2) Possessive prefixes: Cayuga

- a. *akhnyǫhsa?*  
*ak-hnyǫhs-a?*  
 1SG.ALIENABLE-squash-NOUN.SUFFIX  
 'my squash'
- b. *sahnyǫhsa?*  
*sa-hnyǫhs-a?*  
 2SG.ALIENABLE-squash-NOUN.SUFFIX  
 'your squash'

The internal structure of verbs is considerably more complex than that of nouns. It is schematised in Figure 3. Only the pronominal prefix, verb root, and aspect suffix (perfective, imperfective, or stative) are obligatory. Some sample verbs can be seen in (3).

## (3) Sample verbs: Cayuga

- a. *hahatkw?ɛtɛhɛ:wi?*  
*ha-ha-tkw?ɛt-ɛhɛwi-?*  
 TRANSLOC-MASC.SG.AGENT-suitcase-carry-IMPERF  
 'he's carrying the suitcase away'
- b. *tsha?kyakyatá:tkɛ?*  
*tsh-a?-t-yaky-atat-kɛ-?*  
 COINC-FACTUAL-DUPL-1EXCL.DUAL.AGENT-REFL-see-PERF  
 'when we met'

CONTRAST	TRANSLOC	FACTUAL	DUPLIC	FUTURE		CISLOCAT	→
COINC				OPTATIVE			
PART							
NEGATIVE						REPETITIVE	

→	PRON.PREF	REFLEXIVE/ MIDDLE	NOUN.STEM	VERB.ROOT	INCHOAT	CAUSATIVE	→
					REVERSIVE		

→	INSTRUMENTAL	BENEFACTIVE	DISTRIBUT	FACILIT	PURPOSIVE	PERF	PAST
				EVENT		IMPERF	CONTIN
				INTENS		STAT	PROGR

Figure 3. The verb

Nouns and verbs differ not only on the word level but also on the root level. Noun and verb roots in Iroquoian languages are strictly distinguished for lexical category, and neither can appear in the position of the other within the morphology. Noun stems may consist of a noun root alone, or they can be derived from a verb root plus overt nominalising suffix. Only noun stems can serve as the basis of nouns and fill the positions specified in Figures 2 and 3 for noun stems; only verb roots can serve as the basis of verbs and appear in the verb root position in Figure 3. Thus one could not, for example, combine the Cayuga noun root *-nhe?i-* 'porcupine' with the verbal pronominal prefix *k-* 'I' to yield a verb meaning 'I am a porcupine'. A full sentence with a separate verb and/or grammatical particles would be used instead. Although most speakers are not conscious of the internal structure of words, their unconscious knowledge of the noun and verb structures is clear from the ways in which they manipulate them to create new words.

With such robust differences in the structures of nouns and verbs, it might be wondered how there could be any confusion between them. In a 1988 article entitled "Der irokesische Sprachtyp", Hans-Jürgen Sasse first proposed that the Iroquoian languages, more specifically the Northern Iroquoian languages, contain no noun

category: all words are either particles or verbs. Those words customarily recognised as nouns would be classified as verbs. The proposal has been reiterated in several additional publications (Sasse 1991, 1993a, 1993b). In his first paper Sasse (1988: 176–177) explained how he had been led to his hypothesis. In reading Lounsbury's 1953 *Oneida verb morphology*, he was struck by the fact that Oneida words such as *ohkwali* 'bear (the animal)' contain a prefix *o-* that is somewhat similar in shape to a prefix *yo-* that appears on verbs. Because of the similarity, he identified the prefix as a transitive pronoun representing an indefinite subject plus neuter object. Thus *ohkwali* would be literally 'es/sie (impersonal) bärt ihn (den Bären)' ['it/she bears it', with 'bear' understood in the sense of 'animal']. The Cayuga noun *o-hna?* 'oil, grease, gravy, gas, fat' seen in (1), with a cognate prefix, was analysed as 'es fettet es' ['it fats it'] (Sasse 1988: 182). As further evidence for his hypothesis, Sasse asserted that words traditionally classified as nouns carry aspectual markers, and identified the suffixes on both the Oneida noun *kana:kál-e?* 'pole' and the verb *kaʔnikhu-he?* 'she sews' as punctual aspect. Thus traditional nouns were analysed as containing a portion of the internal structure of verbs, that is, a pronominal prefix, stem, and aspect suffix. Both the prefix and suffix analyses are unfortunately problematic.

### 3.1. The prefix

The prefixes that appear on nouns do show intriguing similarities to those on verbs. They also show systematic differences in both form and function.

For verbs, three paradigms of pronominal prefixes can be identified, two intransitive sets and one transitive set. The prefixes identify the core arguments of the clause and follow a semantically-based agent/patient pattern. Participants who instigate and control events are generally represented by agent pronouns, while those who are not in control but are affected are usually represented by patient pronouns. In (4), the dog is represented by an agent pronoun *ka-* 'it' (Set I) when barking, but by a patient pronoun *yo-* 'it' (Set II) when sleeping. The Oneida forms cited here come from the speech of Mercy Duxtater, and from Lounsbury 1953, Abbott—Christjohn—Hinton 1996, and Karin Michelson, who has provided helpful discussion as well.

#### (4) Intransitive pronominal prefixes on verbs: Oneida

##### a. Set I: Agents

*kahnyányuhe?*

*ka-hnyanyu-he?*

NEUTER.AGENT-bark-IMP

##### b. Set II: Patients

*yo:tá:s*

*yo-ita?-s*

NEUTER.PATIENT-sleep-IMP

The agent/patient case distinction is categorial and lexicalised, though a semantic motivation can usually be discerned (Mithun 1991). Speakers do not select cases as they speak: some verbs are simply lexicalised with Set I (agent) pronouns and others with Set II (patient) pronouns, and speakers learn the appropriate forms when they learn the verbs. Participants in inherent states are usually represented by agent pronouns (*ka-naskwáksa* 'it is a bad animal'), while those affected by resultant states are represented by patient pronouns (*yo-haháksa* 'it is a bad road'). Intransitive perfects are classified as resultant states, so their participants are categorised grammatically as patients (*te-ká:lís* 'it breaks', *te-yo-hlíu* 'it has broken').

The pronominal prefixes on transitive verbs represent two parties.

(5) Transitive pronominal prefixes on verbs: Oneida

*khekétskwás*

*khe-ketskw-as*

1SG.AGENT.FEMININE.INDEFINITE.PATIENT-raise-IMPERF

'I get **her** up (in the morning)'

First, second, and third persons are distinguished in the pronouns; singular, dual, and plural number; inclusive and exclusive first person; and neuter-zoic, feminine-indefinite, and masculine genders in third person.

Not all categories are distinguished in every combination. Importantly, neuters are not represented within the pronominal prefix complex unless no other participant is present. Thus the same agent prefix *k-* 'I' is used in the verbs 'I am running', 'I am pounding (it)', and 'I see (it)'. There is no overt mention of the 'it'. The same patient prefix *wak-* is used in 'I'm sleeping' and '(it) bites **me**'.

(6) Oneida pronouns without overt neuter markers

a. *ktákhe?*

*k-takhe-?*

1SG.AGENT-run-IMP

'I'm running'

a'. *kaŋá:eks*

*k-aŋaʔek-s*

1SG.AGENT-pound-IMP

'I am pounding (it)'

b. *waki:tá:s*

*wak-itaʔ-s*

1SG.PATIENT-sleep-IMP

'I'm sleeping'

b'. *wakkályas*

*wak-kaly-as*

1SG.PATIENT-bite-IMP

'(it) bites **me**'

If both arguments of a clause are neuter, it is the agent that is represented. Thus in (7), the carrier is specified by the agent pronoun *ka-*, but the object carried is not overtly mentioned.

- (7) Oneida neuter agent  
*kaha:wí:*  
*ka-hawi-?*  
 NEUTER.AGENT-carry-IMPERF  
 'it's carrying (it)'

The system is essentially the same in all of the Northern Iroquoian languages.

The prefixes on nouns differ in both form and function from those on verbs. Their shapes are similar but not identical. The vast majority of nouns in the lexicon are neuter-zoic, referring to objects and animals. The Oneida neuter-zoic prefixes for verbs and nouns are compared in (8).

- (8) Neuter-zoic prefixes: Oneida
- |    |                            |                 |                                |
|----|----------------------------|-----------------|--------------------------------|
| a. | Verbs<br>Set I (agents)    | Nouns<br>Set I  |                                |
|    | <i>w-</i>                  | —               | before <i>a, e, ʌ</i>          |
|    | <i>y-</i>                  | —               | before <i>o, u</i>             |
|    | <i>ka-</i>                 | <i>ka-</i>      | before consonants, <i>i</i>    |
| b. | Verbs<br>Set II (patients) | Nouns<br>Set II |                                |
|    | <i>yaw-</i>                | <i>aw-</i>      | before <i>e, ʌ</i>             |
|    | <i>ya-</i>                 | —               | before <i>o, u</i>             |
|    | <i>yo-</i>                 | <i>o-</i>       | before consonants, <i>a, i</i> |

As can be seen, the prefix on *o-hkwali* 'bear' is a simple neuter-zoic noun prefix, different in form from that which appears in verbs like *yo-tá:s* 'it is sleeping'. There is little reason to posit that either the verb prefix *yo-* or the noun prefix *o-* is transitive, as Sasse has proposed; there is no evidence of a second party in their meanings and, as seen in (8), a combination of neuter agent plus neuter patient would be represented by an intransitive agent prefix (*w-, y-, ka-*). Sasse's analysis of the Set II prefixes, including *o-*, as transitive ('it bears it', 'it fats it') may have been prompted by English translations of sentences like '(it) bites me' in (6b'). The Iroquoian prefix represents only one party, though the English translation must mention two.

As noted earlier, noun prefixes in Iroquoian languages are also used to specify possessors. Inalienable possession is marked with Set I prefixes similar to those used for grammatical agents in verbs, and alienable possession with Set II prefixes similar to those used for grammatical patients. (Terms for body parts with external surfaces always include a locative enclitic, here =*ke*.)

## (9) Possession: Oneida

## a. Inalienable: Set I

*ke-whya<sup>h</sup>kalá:ke* '(on) my thumb'*ka-wya<sup>h</sup>atsá:ke* '(on) its wing(s)'

## b. Alienable: Set II

*ake-hsi:sáht* 'my pestle'*ao-tsi<sup>h</sup>náhkwa?* 'its nest'

Though the possessive prefixes are similar in form to the pronominal prefixes on verbs, they are not identical, as can be seen by comparing the prefixes in (10).

## (10) Some additional verb and noun prefixes: Oneida

a. Set II	Verbs Patients	Nouns Alienable	
1SINGULAR	<i>wak-</i> <i>wake-</i> <i>wak-</i>	<i>akw-</i> <i>ake-</i> <i>ak-</i>	before <i>a</i> before consonant clusters or ? elsewhere
1DUAL	<i>yuky-</i> <i>yukn-</i> <i>yukni-</i>	<i>uky-</i> <i>ukn-</i> <i>ukni-</i>	before <i>a</i> before other vowels before consonants
1PLURAL	<i>yakwa-</i> <i>yaky-</i> <i>yakw-</i>	<i>akwa-</i> <i>aky-</i> <i>akw-</i>	before consonants, <i>i</i> before <i>o</i> , <i>u</i> before other vowels
MASC.SG	<i>lo-</i> <i>law-</i> <i>la-</i>	<i>lao-</i> <i>law-</i> <i>la-</i>	before consonants, <i>i</i> , <i>a</i> before <i>e</i> , <i>ɛ</i> before <i>o</i> , <i>u</i>
FEM.INDEF	<i>yako-</i> <i>yakaw-</i> <i>yaka-</i>	<i>ako-</i> <i>akaw-</i> <i>aka-</i>	before consonants, <i>i</i> , <i>a</i> before <i>e</i> , <i>ɛ</i> before <i>o</i> , <i>u</i>
b. Set I	Verbs Agents	Nouns Inalienable	
1EXCL.DUAL	<i>yaky-</i> <i>yakn-</i> <i>yakni-</i>	<i>aky-</i> <i>akn-</i> <i>akni-</i>	before <i>a</i> before other vowels before consonants
1EXCL.PL	<i>yakwa-</i> <i>yaky-</i> <i>yakw-</i>	<i>akwa-</i> <i>aky-</i> <i>akw-</i>	before consonants, <i>i</i> before <i>o</i> , <i>u</i> before other vowels
FEM.INDEF	<i>yak-</i> <i>yu-</i> <i>ye-</i>	<i>ak-</i> <i>u-</i> <i>e-</i>	before <i>e</i> , <i>ɛ</i> , <i>o</i> before [a] which is then lost before consonants, <i>i</i>

Differences can be appreciated by comparing the words in (11).

(11) Some verb-noun comparisons: Oneida

- |     |                      |                |
|-----|----------------------|----------------|
| a.  | <i>wak-atolishΛ?</i> | 'I'm resting'  |
| a'. | <i>akw-āhta?</i>     | 'my shoe'      |
| b.  | <i>laó-hta?</i>      | 'his shoe'     |
| b'. | <i>lo-tolishΛ?</i>   | 'he's resting' |

There is further differentiation between the verb and noun prefixes within the neuter-zoic category. In verbs, zoic prefixes, used for animals (and in Oneida, Mohawk, and Onondaga for some women) distinguish number, but in nouns, they do not. (There are special plural forms of the zoic possessive prefixes, singular *ao-*, plural *aoti-/aon-*, but these are not used on basic nouns for animals: *ohkwa:lí* 'bear/bears'.)

(12) Zoic plural prefixes: Oneida

a. Set I

	Verbs	Nouns	
ZOIC.DUAL	<i>kni-</i>	<i>ka-</i>	before consonants, <i>i</i>
	<i>ky-</i>	—	before <i>a</i>
	<i>kn-</i>	—	before other vowels
ZOIC.PL	<i>kuti-</i>	<i>ka-</i>	before consonants
	<i>ku-</i>	—	before [a] which is then lost
	<i>kun-</i>	—	before other vowels

b. Set II

	Verbs	Nouns	
ZOIC.PL	<i>yoti-</i>	<i>o-</i>	before consonants
	<i>yon-</i>	<i>o-</i>	before <i>a</i>
	<i>yon-</i>	—	before other vowels

The differences between noun and verb are easily reconstructible for Proto-Northern Iroquoian. Tuscarora, the most divergent of the Northern languages, shows them as well. The Tuscarora verb *yu-turaṁnihrəh* 'it has a husk', for example, shows the neuter prefix *yu-*, but the noun *u-tù:ræh* 'husk' shows the regular noun prefix *u-*.

With such pervasive differences in shape, it might be wondered how the verb and noun prefixes could be confused. Certain phonological developments in some of the



Five Nations languages may have been a factor. After his discussion of the Oneida material drawn from Lounsbury (1953), Sasse (1988) turns to Cayuga, basing his hypotheses on material from the grammar in Mithun—Henry (1982). Cayuga and its neighbours have undergone a loss of word-initial glides which has affected both the factual prefix *\*waʔ-* and some of the pronominal prefixes. As a result, certain verb prefixes now resemble noun prefixes, but only word-initially.

(13) Cayuga loss of initial glides

- a. *hewa:khre:ʔ*  
*he-wak-hre-:ʔ*  
 TRANSLOC-1SG.PATIENT-set-STATIVE  
 'I've set it way up there'
- a'. *akhre:ʔ*  
*wak-hre-:ʔ*  
 1SG.PATIENT-set-STATIVE  
 'I've set it up there'
- b. *ɛyostáɔtiʔ*  
*ɛ-yo-star-ɔti-ʔ*  
 FUTURE-NEUTER.PATIENT-drop-fall-PERF  
 'it will rain'
- b'. *ostáɔkyp:*  
*yo-star-ɔti-ɔ:*  
 NEUTER.PATIENT-drop-fall-STATIVE  
 'it's raining'

The verbs in (13a, b) show the basic shapes of the pronominal prefixes, and those in (13a', b') show the word-initial innovations.

Two other distinctive forms in the Set II possessive paradigm have also been regularised in these western languages. The first person singular prefix (Oneida *akw-*) now matches the patient pronoun *ak-* on Cayuga verbs, and the masculine singular (Oneida *lao-*) now matches the patient pronoun *ho-*. The loss has not eliminated all differences between the noun and verb prefixes, however, even in word-initial position. The Set I neuter prefix (before *a*, *e*, *ɛ*) remains *w-* on verbs but zero on nouns, and both Set I and Set II verb prefixes still distinguish number for zoics, but noun prefixes do not.

## (14) Cayuga neuters and zoics on verbs

- a. *wakyé:səh*  
*w-atyes-ə*  
 NEUTER.AGENT.I-easy-STATIVE  
 'it is easy'
- a'. *ahtáhkwa*  
 (Ø-)ahtahkwa  
 (NEUTER.I)-shoe  
 'shoe(s)'
- b. *katitaksénokyeʔs*  
*kati-takse-nə-kyeʔ-s*  
 ZOIC.PLURAL.AGENT.I-run-STATIVE-PROGR-DISTR  
 'they (rabbits) run around'
- b'. *kʔanóhsaʔ*  
*ka-ʔmohs-aʔ*  
 ZOIC.I-clam-NOUN.SUFFIX  
 'clam(s)'
- c. a: *kənátʔenyé:təʔ*  
 a: *-kən-ateʔnyetə-ʔ*  
 OPTATIVE-ZOIC.PLURAL.AGENT.I-try-PERF  
 'they (birds) should try ...'
- c'. *awəʔheʔkó:wa*  
 (Ø-)awəʔheʔ=kowa  
 (ZOIC.I)-eagle=AUGMENTATIVE  
 'eagle(s)'
- d. *həyotiyéngha:k*  
*h-ə-yoti-yəna-hak*  
 TRANSLOC-FUTURE-ZOIC.PL.PATIENT.II-catch-STATIVE.CONTIN  
 'they (rabbits) will be caught there'
- d'. *oʔmó:ksaʔ*  
*o-ʔmoks-aʔ*  
 ZOIC.II-sunfish-NOUN.SUFFIX  
 'sunfish(es)'
- e. *onatkʔatéʔəh*  
*on-atkaʔt-eʔ=ə*  
 ZOIC.PLURAL.PATIENT.II-be.numerous-STATIVE=INFERENTIAL  
 'they (rabbits) are numerous'
- e'. *(o)tráʔyihstaʔ*  
*o-atraʔwiht-aʔ*  
 ZOIC.II-bat-NOUN.SUFFIX  
 'bat(s)'

The noun prefixes also differ from the verb prefixes in function. As noted above, the prefixes on verbs are pronouns identifying the core arguments of the clause. Set I prefixes represent grammatical agents, and Set II patients. The prefixes on possessed nouns can identify possessors. But what of the prefixes on unpossessed nouns? They do not distinguish the semantic or syntactic roles of participants, as can be seen in (15). The noun prefixes remain the same whether the nouns represent grammatical agents of clauses or grammatical patients.

(15) Not syntactic case: Oneida

- |    |  |                    |
|----|--|--------------------|
| a. | <i>yo:tá:s</i>   | <i>ohkwa:li</i>    |
|    | <i>yo-ita?-s</i>   | <i>o-ahkwali</i>   |
|    | NEUTER.SET.II-sleep-IMPERF                                       | NEUTER.SET.II-bear |
|    | 'the bear is sleeping'   |                    |
| b. | <i>katákhe?</i>  | <i>ohkwa:li</i>    |
|    | <i>ka-takhe-?</i>  | <i>o-ahkwali</i>   |
|    | NEUTER.SET.I-run-IMPERF  | NEUTER.SET.II-bear |
|    | 'the bear is running'  |                    |
| c. | <i>kaha:wí:</i>  | <i>ohkwa:li</i>    |
|    | <i>ka-hawi-?</i>   | <i>o-ahkwali</i>   |
|    | NEUTER.SET.I-carry-IMPERF  | NEUTER.SET.II-bear |
|    | 'the bear is carrying it around'/'it's carrying the bear around' |                    |

Neither is any distinction of agency obvious within the inherent meanings of the nouns themselves. A few examples of typical nouns in each class are in (16).

(16) Five Nations Iroquois noun classes

- a. Some typical Set I (*ka-*) Iroquois nouns  
bag, door, cloth, cradleboard, bottle, bow, arrow, rope, petticoat, head-dress, drum, mortar, pestle, bucket, tray, bed, pillow, dish, basket, ladder, bread, pipe, sock, hoe, axe, knife, spear, blanket, house, wall, floor, rafter, boat, town, etc.
- b. Some typical Set II (*o-*) Iroquois nouns  
head, feather, tail, water, ice, air, liquid, current, ice, snow, spark, flame, ash, coal, smoke, earth, sand, mud, gravel, stone, cloud, star, root, grass, leaf, egg, flower, potato, meat, milk, bulrush, pine, insect, chipmunk, rust, colour, etc.

The system is the same across the Five Nations Iroquoian languages, but not all languages show the same choice of prefix, even on cognate terms.

(17) Cross-linguistic lexical differences

Oneida	<i>ká-tsi</i>	'fish'	( <i>ka + i &gt; kɛ</i> )
Cayuga	<i>o-tsóʔtaʔ</i>	'fish'	(common root <i>*-itsy-</i> )
Oneida	<i>o-nhé:taʔ</i>	'porcupine'	
Cayuga	<i>ka-nhéʔtaʔ</i>	'porcupine'	(common root <i>*-nheʔt-</i> )

Prefix choice is largely due to the individual histories of the words, many of which are idiosyncratic. The Oneida and Cayuga terms for 'bread', for example, *ka-ná:talok*, and *o-náʔtaʔ* respectively, are based on cognate roots, descended from the Proto-Northern Iroquoian *\*-naʔtar-* 'bread'. The Oneida term originated as a descriptive verb, however, based on the verb root 'be in water', because the bread was boiled. The verb root determined the choice of prefix.

The argument proposed by Sasse for the elimination of the noun category could actually be made for French just as well. There is a similarity between the definite articles that precede nouns and the pronominal clitics that precede verbs.

(18) French

a.	<i>il la voit</i>	'it sees it'	b.	<i>la porte</i>	'it doors it'
	<i>il le voit</i>	'it sees it'		<i>le poteau</i>	'it poles it'
	<i>il l'a vu</i>	'it saw it'		<i>l'ours</i>	'it bears it'
	<i>il les a vues</i>	'it saw them'		<i>les portes</i>	'it doors them'

The evidence is in fact stronger for French than for Oneida, because the forms in the noun phrase are exactly the same as those in the verb phrase. The formal similarity is no accident; we know that there is a diachronic connection between the two. We also know that though their functions are related, they are not the same. The similarity has not led us to posit a period in the history of French or Latin during which there was no noun category.

### 3.2. The suffix

The second point cited by Sasse as support for the elimination of the noun category from Iroquoian is his hypothesis that words traditionally classified as nouns contain aspect suffixes. The examples cited as evidence in his 1988 article are the Oneida *kana:kál-eʔ* 'pole' and *kaʔnikhu-heʔ* 'she sews' (Sasse 1988: 176). Both are said to

contain a punctual (perfective) aspect suffix. In fact neither of these words contains a perfective suffix, and the similarity between the two suffixes is less than it appears. The suffix on the noun *kana:kál-e?* is actually only a glottal stop *-ʔ*. By regular rule in Oneida, an epenthetic *-e-* is inserted between a word-final glottal stop and a preceding consonant. The suffix on the verb is actually the imperfective aspect *-he?*. The case for identifying the noun suffix *-ʔ* and the imperfective suffix *-he?* as the same morpheme is even less compelling when the small size of the consonant inventory is noted: *t, k, s, ts, n, w, l, y, h, ʔ*. The likelihood of chance similarity, involving only the phonetically unmarked *ʔ*, is high.

Turning to Cayuga, Sasse identifies the suffixes on nouns as aspect markers here as well, or as a verb 'be' plus aspect suffix. (There are no copular verbs in these languages.) The Cayuga noun suffixes show a variety of forms, but the most common by far, as in most of the other Five Nations languages, is *-aʔ*. *ohónʔat-aʔ* 'potato', *onóʔkw-aʔ* 'milk', *onráht-aʔ* 'leaf'. It does not match any of the regular Cayuga aspect suffixes in shape. The Northern Iroquoian languages distinguish three basic aspectual categories: an imperfective (also termed habitual or serial), a perfective (also termed punctual), and a stative. The Cayuga noun suffix has apparently been likened most often by Sasse to the stative aspect. Statives show extensive allomorphy, but the most common forms are *-ɛ*, *-ɛ:*, *-ɔ*, *-ɔʔ*, *-e?*, *-e:ʔ*, *-i*, *-ʔ*, vowel length, and zero. The sequence *-ɛʔ* sometimes appears as a noun suffix, but it is a result of vowel harmony. The noun for 'corn', for example, alternates between *onéhaʔ* and *onéheʔ*. The sequence *-e?* does appear in both nouns and verbs. Sasse concludes that nouns and verbs share an aspect suffix of the shape *-Vʔ*, that is, some vowel followed by glottal stop.

Given the vagueness of the match in both form and function, evidence for identifying the noun suffixes as aspect markers seems weak. A stronger case along these lines could actually be made for English or German. In English we find a suffix *-s* on both nouns and verbs: *cat-s*, *walk-s*. Both even mark a number distinction, plural on the first, singular on the second. Evidence is still stronger in German, where a suffix *-en* appears on both nouns and verbs: *Frau-en* 'women', *mach-en* [make-PL]. Both mark plural number. Yet so far no one has suggested that the distinction between nouns and verbs be abolished for either language.

In sum, when the morphological structures of verbs and nouns are examined both overall and in detail, there is ample formal evidence of a robust distinction between nouns and verbs.

## 4. Function

Other criteria commonly employed for distinguishing lexical categories are semantic, syntactic, and pragmatic: the meanings of items and their uses. The Iroquoian languages are of special interest in this regard.

Iroquoian words traditionally identified as nouns on morphological grounds form a tightly coherent class on semantic grounds as well. They name entities, usually objects or abstract ideas or persons: *otkóʔaʔ* 'wampum', *onqhsotá:ʔ* 'disease', *oi-hwaʔ* 'matter, affair', *owí:yaʔ* 'baby'.

Syntactically nouns always function as nominals, identifying arguments.

### (19) Cayuga nouns as syntactic nominals: Reg Henry, speaker

<i>Ne:ʔ</i>	<i>seʔ</i>	<i>hó:niʔ</i>	<i>onqʔa:ʔké</i>	<i>ɛhsí:ʔa:k</i>
<i>ne:ʔ</i>	<i>seʔ</i>	<i>hó:niʔ</i>	<i>o-nqʔ-aʔ=ke</i>	<i>ɛ-hs-iʔak</i>
it's	that	reason	NEUT.II-head-NOUN.SUF=LOC	FUT-2SG.AGENT-shoot

'You will shoot it in the head

<i>thɛʔ</i>	<i>tha:hsrétkɛht</i>	<i>oʔwáhɔʔ.</i>
<i>thɛʔ</i>	<i>th-a:-hs-retkɛ-ht</i>	<i>o-ʔwah-ɔʔ</i>
not	CONTR-OPT-2SG.AGT-spoiled-CAUS.PERF	NEUT.II-meat-NOUN.SUF

so that you will not ruin the meat.'

Perhaps because of his analysis of the prefixes, Sasse assumed that Iroquoian nouns can have a predicating function in themselves. This is actually not the case. Walking into a room, pointing, and uttering the word *Kanhóhaʔ* 'door' has the same effect on a Cayuga speaker as saying *Door!* would have on an English speaker in the same context, or *Tür!* on a German speaker. In Cayuga, as in all of the Northern Iroquoian languages, the predication of identity is accomplished with various additional particles and/or a verb. A common identifying particle in Cayuga is *ne:ʔ*, translated by speakers as 'it's'.

### (20) Cayuga identification: Marge Henry, speaker

<i>Ne:ʔ</i>	<i>ohnaʔ.</i>
<i>ne:ʔ</i>	<i>o-hn-aʔ</i>
it's	NEUTER.II-lard-NOUN.SUFFIX

'It's lard.'

The contrastive *hne:ʔ* also appears frequently in identification. Hearing a rustling in the woods, a speaker made the remark in (21).

(21) Identifying predication in Cayuga: Alfred Key, speaker

<i>Tsino:wé:</i>	<i>kye:ʔ</i>	<i>hné:ʔ</i>	<i>tshq:ʔ</i>
<i>o-tsinow-é:</i>	<i>kye:ʔ</i>	<i>hne:ʔ</i>	<i>tshq:ʔ</i>
NEUTER.II-mouse-NOUN.SUFFIX	guess	CONTRAST.PRED	only

‘It’s just a mouse (not something to worry about).’

In several hundred hours of taped spontaneous speech in the various Northern languages, predominantly conversation, the use of a noun alone as a predication has never come up, though there have been numerous occasions on which objects were identified and described. When questioned directly about the possibility of predicative use of a noun in isolation, speakers of each of the languages have had similar reactions: first incredulity at the question, then amusement, and finally comments about “Pidgin Indian”.

A striking feature of natural speech in Iroquoian languages, however, is the relative rarity of nouns. It can be attributed in part to noun incorporation, as in ‘he suitcase-carried’ (cf. (3)). More important are the functions that verbs can serve.

Iroquoian verbs can function semantically just like verbs of other languages to express events and states, as seen in the examples above about carrying, running, pounding, biting, meeting, shooting, barking, sleeping, getting up, raining, resting, and being easy. Syntactically they can predicate, as also seen in those examples. Because they contain pronouns identifying their core arguments, they can also serve as complete sentences in themselves.

Verbs can and often do serve another function as well. They can be used as descriptive labels for entities (objects, animals, people) and even proper names.

(22) Morphological verbs as lexical nominals: Cayuga

- a. *qtekhonyáʔtha?*  
*ye-ate-khw-qni-a-ʔ-ha?*  
 INDEF.AGENT-REFL-meal-make-INSTRUMENTAL-IMPERFECTIVE  
 “one makes a meal with it” = ‘restaurant’
- b. *kaqtanéhkwi*  
*ka-rqt-a-nehkwi*  
 NEUTER.AGENT-log-EPENTHETIC-haul-IMPERFECTIVE  
 “it hauls logs” = ‘horse’

In this capacity, they can function syntactically as nominals.

## (23) Cayuga verbal nominals: Reginald Henry, speaker

<i>kaqtanehkwi</i>	<i>hni?</i>
<i>ka-rot-a-nehkwi</i>	<i>hni?</i>
NEUTER.AGT-log-EPENTHETIC-haul:IMPERF	too
<i>tka:kq:t</i>	<i>ɛyakwanqéhq:?</i>
<i>t-ka-kq:t</i>	<i>ɛ-yakwa-note-hq:-?</i>
CISI.OC-NEUTER.AGT-necessary:STAT	FUT-1 EXCL.PL-feed-DISTR-PERF
<i>ɛkɛnate:khq.ni?</i>	<i>hɛ?</i> <i>hne:?</i>
<i>ɛ-kɛn-ate-khw-qni-?</i>	<i>hɛ?</i> <i>hne:?</i>
FUT-ZOIC.PL-REFL-meal-make-PERF	PART      CONTR

'We have to feed the horses too. They'll eat [while we eat].'

If asked the meaning of *kaqtanehkwi*, Cayuga speakers normally respond 'horse'. Though it has the morphological structure of a verb, it has been lexicalised as a nominal. The literal meanings of many verbal nominals are still accessible to speakers, but the origins of others have faded, and speakers express surprise at discovering them. Similarly, when asked "What would you like for breakfast?", most English speakers do not think about breaking their night-time fast, though they can usually be made aware of the literal meaning of *breakfast*.

Words like *qtekhonyáʔtha?* 'restaurant' and *kaqtanehkwi* 'horse' qualify as verbs on formal morphological grounds, but they function as nominals semantically and syntactically. Both classifications have grammatical implications.

Their morphological class remains crucial for their entry into certain further morphological formations. An important one is noun incorporation. Only morphological noun stems can be incorporated. The word *kaqtanehkwi* 'horse' is thus never incorporated. The Northern Iroquoian languages contain a number of terms for 'animal': Cayuga *kanyo:?* 'wild animal', *katshé:nɛ?* 'domestic animal', and *kanáh-skwa?* 'domestic animal'. Only the last can be incorporated because the first two are morphological verbs, literally "it is killed" and "it is tame".

## (24) Noun incorporation: Cayuga

<i>kanahskwi:yo:</i>
<i>ka-nahskw-iy-o:</i>
NEUTER.I-domestic.animal-be.good-STATIVE
'it is animal-good' = 'it is a good animal'

A derived noun stem may be incorporated, but a nominalising suffix must be present. (The languages differ as to whether the nominaliser always appears in free derived nouns. The term for 'table', for example, is a morphological verb 'food is



set on it'. The Cayuga *atekhwaháhsra?* and Oneida *atekhwahlákhwa?* contain overt nominalisers (*-hsr-*, *-khw-*), but the Mohawk *atekhwà:ra* does not.)

(25) Incorporation of nominalised verb: Cayuga

- a. *kakyaʔtawiʔthró:nih*  
*k-at-yaʔt-awi-ʔt-hr-ɔni*  
 1SG.AGT-REFL-body-be.in.tube-CAUS-NOMINALIS-make:IMPERF  
 'I'm making clothes'

Compare:

- (25) b. *haʔsá:wiʔt*  
*haʔ-s-awi-ʔt*  
 TRANSLOC-2SG.AGENT-be.in.tube-CAUSATIVE  
 'put it in!'

At the same time, morphological verbs that are used syntactically as nominals also show formal evidence of their syntactic function. For one thing, they take on the prefixes used with nouns. Recall that in Cayuga, one of the Set I neuter prefixes is *w-* in verbs, but zero in nouns. Both words in (26a–b) are morphological verbs, but the first is used syntactically as a predicate, the second as a nominal.

(26) Verb as predicate and as nominal: Cayuga

- a. *watekhwahahsrowá:nɛh*  
*w-ate-khw-a-ha-hsr-owan-ɛ*  
 NEUT.I-REFL-food-EPENTHETIC-set-NOMINALISER-be.big-STAT  
 'it's a big table' = 'the table is big'
- b. *atekhwahahsrowá:nɛh*  
*Ø-ate-khw-a-ha-hsr-owanɛ*  
 NEUT.I-REFL-food-EPENTHETIC-set-NOMINALISER-be.big-STAT  
 'a nice table'

It may be recalled that the zoic prefixes on verbs distinguish number, but the corresponding prefixes on nouns do not. Thus the zoic verb prefix *kati-* 'they' in (27) is plural, but the zoic noun prefix *o-* shows no number distinction.

(27) Zoic plural in verbs only: Cayuga

<i>Katikqhi:yó:</i>	<i>seʔ</i>	<i>otsóʔtaʔ.</i>
<i>kati-kahr-iyo-:</i>	<i>seʔ</i>	<i>o-itsyóʔt-aʔ</i>
ZOIC.PL.AGT-eye-be.good-STAT	after.all	ZOIC.PATIENT-fish-NOUN.SUF
'They're sharp-eyed, those fish.'		

When a morphological verb is used syntactically as a nominal to refer to animals, it shows the neuter-zoic prefix forms appropriate for nominals, with no number distinctions. In (23) above, 'We have to feed the horses; they'll eat while we eat', the predicate 'they'll eat' has a zoic plural prefix *kən-*: *ε-kən-ate:khq:ni?*. The prefix *ka-* on the nominal, *ka-otanéhkwih* 'horse' does not distinguish number.

Syntactic function is also reflected in co-occurrence with enclitics. The enclitics may be attached to any word that is functioning semantically and syntactically as a nominal, regardless of its internal morphological structure. They include a locative, augmentative, characteriser ('in the style of'), typicaliser ('prototypical'), residentials ('people of'), distributive, and decessive ('the late ...', 'the former ...'). The locative enclitic =*ke* 'at/on/in' can be seen in (28). The words 'rock' and 'my elbow' are morphological nouns and 'longhouse' and 'doctor', are morphological verbs ('it is house-long', 'he cures'), but all are nominal in function.

(28) Locative enclitic =*ke* on syntactic nominals: Cayuga

Morphological nouns	Morphological verbs
a. <i>kʔaskwá:ʔkeh</i> <i>ka-ʔaskwar-aʔ=ke</i> NEUT.I-rock-NOUN.SUFFIX=LOC 'on the rock'	b. <i>kanǫhseskeh</i> <i>ka-nǫhs-es=ke</i> NEUT.I-house-be.long:STATIVE=LOC 'at the longhouse'
a'. <i>khyusáʔkeh</i> <i>k-hyus-aʔ=ke</i> 1SG.I-elbow-NOUN.SUFFIX=LOC 'on my elbow'	b'. <i>hatétsʔeskeh</i> <i>ha-atetsʔ-s=ke</i> MASC.SG.I-cure-IMPERF=LOC 'at the doctor's'

Similar patterns can be seen with the other enclitics.

Distributive morphology reflects both morphological structure and syntactic function. There is one set of distributive suffixes that appear only on verbs and distribute events over space ('here and there'). There is also a distributive enclitic that appears on words of any morphological structure so long as they function as nominals. The enclitic distributes entities over types ('various'). In (29) below, the verb *teyehtawényehǫh* 'people are hoeing' ('one is stirring the dirt **here and there**') is functioning as a predicate and has the verbal distributive suffix *-hǫ*. The verb *aseʔshǫ:ʔǫh* 'vegetables' ('it/they are new') is functioning syntactically as a nominal and shows the nominal distributive enclitic =*shǫʔǫ* 'various'.

- (29) Cayuga distributives reflecting syntactic function: Reg Henry, speaker

<i>Haʔne:yo:</i>	<i>kiʔ</i>	<i>aseʔsho:ʔoh</i>
<i>haʔne:yo:</i>	<i>kiʔ</i>	<i>Ø-as-eʔ=shoʔo</i>
many.things	just	NEUTER.I-be.new-STATE=DISTRIBUTIVE

<i>ne:ʔ</i>	<i>tho:kyɛ</i>	<i>teyehehtawényehoh.</i>
<i>ne:ʔ</i>	<i>thó:kyɛ</i>	<i>te-ye-heht-awenye-ho-h</i>
it.is	that	DUPL.-INDEF.AGT.I-soil-stir-DISTRIBUTIVE-IMPERF

‘They are hoeing various vegetables.’

Similar patterning can be seen with the past tense suffixes that appear only on morphological verbs and the decessive enclitic (‘the late or former’) that appears on any syntactic nominal, whether it be a morphological noun, verb, or particle.

Negative constructions also reflect the syntactic function of the item negated. Clauses are negated with a particle *thɛʔ* plus a verbal prefix *teʔ-* or *th-*.

- (30) Clausal negation on verbs: Cayuga

<i>Thɛʔ</i>	<i>tʔeyó:tekhaʔ.</i>
<i>thɛʔ</i>	<i>teʔ-yo-tek-haʔ</i>
not	NEGATIVE-NEUTER.PATIENT.II-burn-IMPERF

‘It isn’t burning.’

Nouns, which never predicate, cannot be negated with the verbal prefix.

- (31) Impossible construction with nouns: Cayuga

<i>*Thɛʔ</i>	<i>tʔeóhnaʔ.</i>
<i>thɛʔ</i>	<i>teʔ-o-hn-aʔ</i>
not	NEGATIVE-NEUTER.II-lard-NOUN.SUFFIX (meaningless)

A different construction is used to negate nouns.

- (32) Noun negation: Cayuga

<i>Thɛʔ</i>	<i>hne:ʔ</i>	<i>ohnaʔ</i>	<i>tʔeke:</i>
<i>thɛʔ</i>	<i>hne:ʔ</i>	<i>o-hn-aʔ</i>	<i>teʔ-ka-i:</i>
not	CONTR	NEUT.I-lard-NOUN.SUF	NEGATIVE-NEUT.I-x-STAT

‘That’s not lard,

<i>ohonʔatáʔ</i>	<i>hne:ʔ.</i>
<i>o-honaʔ-aʔ</i>	<i>hne:ʔ</i>
NEUTER.II-potato-NOUN.SUFFIX	CONTR

that’s potato.’

The negative construction in (32) is actually not limited to morphological nouns; it is used to negate any word that is functioning syntactically as a nominal. The same morphological verb appears in both (33a) and (33b), for example. In (33a) it is serving as a syntactic predicate, so it is negated with the regular verbal negative prefix *teʔ-*. In (33b) it is serving as a syntactic nominal so it is negated with the special negative construction used for nominals.

(33) Negation of verb as syntactic predicate: Cayuga

- a. *Thɛʔ*     *teʔyakyatɛ:nɔhk*  
*thɛʔ*     *teʔ-yaky-atɛ-nɔhk*  
**not**     NEGATIVE-1EXCL.DUAL.AGT-REFL-be.related:STATIVE  
 'We're **not** related.'
- b. *Thɛʔ*     *hne:ʔ*     *akya:tɛ:nɔhk*     *tʔekɛ:*  
*thɛʔ*     *hne:ʔ*     *aky-atɛ-nɔhk*     *teʔ-ka-i:-*  
**not**     CONTR     1EXCL.DU-REFL-be.related:STAT     NEG-NEUT.1-X-STAT  
 'That's **not** my cousin.'

Identificational constructions are also sensitive to syntactic function. As noted earlier, nouns are not used alone to identify or characterise. They must be accompanied by a verb or particle, such as Cayuga *ne:ʔ* or *hne:ʔ*, as seen in (20) 'it's lard' and in (21) 'it's a mouse'. Morphological verbs functioning as nominals enter into the same constructions.

(34) Predicative identification with verbal nominal: Cayuga

- Né:ʔ*     *akhneʔs*.  
*ne:ʔ*     *yakn-e-ʔs*  
 it's     1EXCLUSIVE.DU.AGENT-go-IMPERFECTIVE-DISTRIBUTIVE  
 it's     we two go around together  
 'This is my steady [girlfriend].'

Many morphological verbs are strongly lexicalised as nominals ('horse'), and some are lexicalised as both predicates and nominals ('we are related'/'my cousin'). Verbs may also be used spontaneously as syntactic nominals. If their function would not otherwise be clear, it is clarified with various particles.

## (35) Spontaneous nominal use of verbs: Reg Henry, speaker

... <i>nɛ:kyɛ</i>	<i>akathrowihakyé?</i>	<i>ne:?</i>	<i>ne:?</i>
<i>nɛ:kyɛ</i>	<i>ak-athrowi-hakye?</i>	<i>ne:?</i>	<i>ne:?</i>
this	1SG.PATIENT-tell-PROGRESSIVE	it.is	it.is

'[and also] this one I am telling about,

<i>nɛ:kyɛ</i>	<i>ne?</i>	<i>kowiyáɬatre?</i>
<i>nɛ:kyɛ</i>	<i>ne?</i>	<i>ko-wiy-ɬt-atr-e?</i>
this	the	FEMININE.PATIENT-child-ANDATIVE-PURPOSIVE

the one who was going to have a baby,

<i>o:nɛ</i>	<i>ki?</i>	<i>to:kɛhs</i>	<i>tho</i>	<i>nheyaw?ɛqh</i>
<i>o:nɛ</i>	<i>ki?</i>	<i>to:kɛhs</i>	<i>tho</i>	<i>n-he-yaw-ɛ?-q</i>
now	just	truly	there	PART-TRANSLOC-NEUT.PAT-happen-STAT

that's just how it happened

<i>to:kɛhs</i>	<i>a?akowiyáɬta?</i>	...
<i>to:kɛhs</i>	<i>a?-ako-wiy-ɬt-a?</i>	
truly	FACTUAL-FEM.PATIENT-child-lay-INCHOATIVE.PERF	
she did have a baby ...'		

In addition to the grammatical and discourse particles like those in (35), there is a set of words that could be classified morphologically as particles because they have no internal structure, but that function semantically and syntactically as nominals. Some are onomatopoeic, like Cayuga *ká?ka:?* 'crow', some are loans like *taku:s* 'cat' (from Dutch *de poes*), and some are old words that were in the language before prefixes were present on all nouns or that are shortened forms of longer words, such as *sá:no:?* 'raccoon' and *tó:tis* 'salamander'. These words, too, show the characteristics of syntactic nominals, appearing with enclitics and entering into the negative and identificational constructions for nominals.

## 5. Conclusion

There is thus a strong noun category in Iroquoian languages after all, by all the standard criteria. Nouns have distinct morphological structure, form a cohesive se-

semantic class designating entities, and always function syntactically as nominals. Confusion over their status seems to have arisen from several facts. First are certain resemblances in form between the prefixes on nouns and verbs. As has been seen, the two sets of prefixes are not actually identical in form, and they serve different functions. What makes the issue more interesting is the fact that in the Iroquoian languages, formal and functional criteria do not always yield the same classifications. Morphological verbs and particles may be used as names for entities and thus function semantically and syntactically as nominals.

It is important to recognise that none of the standard criteria yield vague results. A given verb may be polysemous across its uses, functioning sometimes as a nominal and sometimes as a predicate, like *akya:tɛ:nɔhk* 'we two are related'/'my cousin'. There is no indeterminacy, however. Morphologically it is a verb in each instance, and it is accordingly subject to the special morphological restrictions unique to verbs, such as not being incorporable. Its syntactic function can be identified in context and has formal implications in such areas as pronominal choice, occurrence with enclitics, distributive choice, and participation in negative and identificational constructions.

What may be graded is the degree of lexicalisation of specific forms. Some morphological verbs have been so fully lexicalised as nominals that speakers no longer use them as predicates and may even be unaware of their literal verbal meanings. Others are never used as nominals. Still others have two uses, one as a referential nominal, one as a predicate. Similarly, certain words that would qualify as particles on formal morphological grounds function as nominals semantically and syntactically. As long as classifications based on morphological form are kept distinct from those based on syntactic function, they remain unproblematic. The relationship between form and function is schematised in Figure 4.

	<i>kiʔ</i> 'just'	<i>sá:no:ʔ</i> 'raccoon'	<i>ohnaʔ</i> 'lard'	<i>akya:tɛ:nɔhk</i> 'my cousin'/'we are related'	<i>wakyé:sɛk</i> 'it is easy'
Form	PARTICLES		NOUNS	VERBS	
Function	NOMINALS				PREDICATES

Figure 4. Form and Function

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# Numeratives in Mandarin Chinese

Robin Sackmann

## 1. Introduction\*

The present essay is an attempt to determine the basic syntactic properties of so-called ‘numeratives’ as a specific class of items in the grammar of Mandarin Chinese. Based on the results of Sackmann (forthcoming b), a closely related paper concerned with the fundamental morphosyntactic status of numeratives, I will first examine the syntactic structure of numerative expressions (section 4). Next, I will try to determine the effects that numeratives have on the part-of-speech system of Mandarin Chinese (section 5). Finally, the relationship between an important subset of numeratives, the so-called ‘numeral classifiers’, and certain sets of substantives, the so-called ‘noun classes’, will be scrutinised (section 6).

The investigation that constitutes the main part of the present essay is based on a detailed empirical study of the grammatical behaviour of numeratives in Mandarin Chinese. Due to lack of space, this empirical basis must remain implicit here; only the basic facts about numerative expressions will be presented in section 2 in order to give the reader a general orientation. The examples given there will then be supplemented by additional data in the subsequent sections of the text as the need arises. A comprehensive account of phenomena related to numeratives and their constructions in Mandarin Chinese as well as an in-depth analysis of their syntactic and semantic properties, based on the study mentioned above, can be found in Sackmann (forthcoming a). That volume will also contain a full discussion of the relevant literature, which will be referred to only summarily in the present essay.

After the present Introduction, the essay is organized as follows.

Section 2 (“The problem: A short outline”) informally introduces the distinction between classifiers and measures (2.1), makes some basic terminological points (2.2), and specifies basic problems (2.3).

Section 3 (“A short introduction to Integrational Syntax”) characterises the general theoretical framework adopted in this essay, Integrational Linguistics (3.1), and the general syntactic theory developed in this framework, Integrational Syntax (3.2).



Section 4 (“The syntactic structure of numerative expressions”) discusses the theoretical options for constituent structures of numerative expressions in Mandarin Chinese (4.1), summarises the traditional analysis for numerative expressions in Chinese grammar (4.2), points out four fundamental problems that the traditional analysis encounters (4.3), proposes an alternative analysis (4.4), and investigates the syntactic status of demonstratives in numerative expressions (4.5).

Section 5 (“The part-of-speech status of numeratives and substantives”) introduces numeratives and substantives as separate ‘substantival’ word classes in Mandarin Chinese (5.1), inquires into the subcategories of numeratives and substantives (5.2), defines the terms “NUMERATIVE” (5.3) and “combinable” (5.4), introduces the notion of ‘Noun Class System’ (5.5), and defines key concepts needed for describing numeral classifier languages (5.6 and 5.7), in particular, a concept of numeral classifier language itself.

Section 6 (“The systematic basis of ‘nc-compatibility’”) introduces the notion of ‘noun class compatibility’ as a relation between numeral classifiers and collective nouns (6.1), discusses the question of a semantic basis for this notion (6.2), demonstrates its syntactic basis (6.3), for which two theoretical options can be considered (6.4 and 6.5), one of which is finally selected in (6.6); this subsection also contains a diagram that summarises the overall view of the part-of-speech system of Mandarin Chinese developed in this essay.

Section 7 contains a summary of all major results of this essay and outlines some problems that continue to be open in the study of numeratives and noun classes.

## 2. The problem: A short outline

### 2.1. Classifiers and measures

One of the most eye-catching features of noun groups in Mandarin Chinese—at least for speakers of European languages—is the occurrence of so-called *numeral classifiers* (or *classifiers* for short) in most types of grammatical constructions where expression of quantity is involved. At the same time, classifiers appear to be just one subcase of a wider class of ‘numeratives’,<sup>1</sup> if judged by their general morphosyntactic behaviour.

For a first orientation, compare the following examples of Chinese numeral expressions with their German counterparts:<sup>2</sup>

- (1) a. *yī*            *bēi*            *chá*       —       *eine*            *tasse*            *tee*  
          one            cup            tea                    one            cup            tea  
          ‘one cup of tea’
- b. *sān*            *píng*            *jiǔ*       —       *drei*            *flaschen*       *wein*  
          three           bottle       wine                    three           bottle (Pl.)<sup>3</sup>   wine  
          ‘three bottles of wine’
- c. *èrshí*       *jīn*            *dàmǐ*     —       *zwanzig*       *pfund*            *reis*  
          twenty       pound       rice                    twenty       pound            rice  
          ‘twenty pounds of rice’

At first glance, the examples in (1) seem to suggest a basic structural similarity between the corresponding expressions in Mandarin Chinese and German: they each consist of a numeral, a ‘measurement unit’, and a noun. However, the picture changes as soon as the German expressions feature count nouns instead of mass nouns, as in the following examples:

- (2) a. *yī*            *fēng*            *xìn*       —       *ein*            *brief*  
          one            ???            letter                    one            letter  
          ‘one letter’
- b. *sān*            *běn*            *shū*       —       *drei*            *bücher*  
          three           ???            book                    three           book (Pl.)  
          ‘three books’
- c. *èrshí*       *pǐ*            *mǎ*       —       *zwanzig*       *pferde*  
          twenty       ???            horse                    twenty       horse (Pl.)  
          ‘twenty horses’

Informally speaking, in languages like English and German—and presumably in all European languages—there are basically two types of numeral expressions: ‘two-member’ expressions (as in the German examples in (2)), containing simply a numeral in construction with a noun; and ‘three-member’ expressions (like the German examples in (1)) which contain an additional, interposed element that generally expresses a measurement unit (apart from possible grammatical markers like *of* in English). Two-member constructions are typically used in these languages when count nouns are involved, while mass nouns normally require the three-member type of construction.

In Mandarin Chinese, however, the situation is different: only the three-member type of construction occurs, and numeral expressions contain, as a rule, an additional

element besides the numeral and the noun, regardless of whether the noun itself would be translated into English or German as a count noun or a mass noun. In other words, even those nouns which seem to correspond semantically to count nouns in European languages cannot be directly joined with numerals. Without the interposed items *fēng*, *běn*, and *pǐ*, the Chinese expressions in (2) would be ungrammatical.

What is striking about the examples in (1) and (2) is not only the fact that the Chinese expressions in (2) require an additional item—a *classifier*—which is not present in their German counterparts; the Chinese expressions in (1) and in (2) also seem to have the same syntactic structure, whether they contain mass nouns (as in (1)) or nouns corresponding to German or English count nouns (as in (2)). These grammatical phenomena are closely associated, both in syntactic and semantic respects, with the fact that nouns like *shū* 'book' and *mǎ* 'horse' are collective rather than count nouns in Chinese. While in English and comparable languages there are count nouns (*book*, *horse*) and mass nouns (*tea*, *rice*) but only few collective nouns (*police*, *cattle*) and the main distinction is count vs. mass, there are no count nouns in Chinese<sup>4</sup> at all; here, the main distinction is collective vs. mass.<sup>5</sup>

The three-member type of construction described here is, however, not restricted to numeral expressions: there are several other types of expressions in Mandarin Chinese in which the use of one type of 'numeral' or another is also compulsory, independently of the type of noun being used. In particular, the position immediately in front of the 'numeral' may be occupied by any one of four types of 'determinatives', as Chao (1968) collectively calls these items and of which numerals ("numerical determinatives") are just one subtype. The other three are, according to Chao (1968: 565), "demonstrative", "specifying", and "quantitative determinatives".

Due to lack of space, I can pay attention only to two subtypes of 'determinatives' in the present essay, namely to the numerals and to the demonstratives *zhèi* 'this', *nèi* 'that', and *něi* 'which'.<sup>6</sup> The latter may occur in front of numeratives either alone or together with a numeral, as demonstrated in the following examples:

- |     |    |                              |            |            |             |    |                     |             |            |           |
|-----|----|------------------------------|------------|------------|-------------|----|---------------------|-------------|------------|-----------|
| (3) | a. | <i>zhèi</i>                  | <i>bēi</i> | <i>chá</i> |             | b. | <i>zhèi</i>         | <i>fēng</i> | <i>xìn</i> |           |
|     |    | this                         | cup        | tea        |             |    | this                | ???         | letter     |           |
|     |    | 'this cup of tea'            |            |            |             |    | 'this letter'       |             |            |           |
|     | c. | <i>nèi</i>                   | <i>sān</i> | <i>jīn</i> | <i>dàmǐ</i> | d. | <i>něi</i>          | <i>wǔ</i>   | <i>pǐ</i>  | <i>mǎ</i> |
|     |    | that                         | three      | pound      | rice        |    | which               | five        | ???        | horse     |
|     |    | 'those three pounds of rice' |            |            |             |    | 'which five horses' |             |            |           |

The reader may have noted that there is yet another peculiarity in the Chinese examples in (2), namely the occurrence of *different* classifiers (*fēng*, *běn*, and *pǐ*) without an obvious semantic reason. In Mandarin Chinese, there is at least one 'suitable'

classifier for every collective noun; using a 'wrong' classifier together with a given noun in a classifier expression leads to ungrammaticality. This phenomenon, a manifestation of 'noun classification' in Mandarin Chinese, cannot be described here in detail either. It will, however, be considered in connection with the more theoretical analysis of numeratives which is attempted in sections 4 to 6.

## 2.2. Terminological commitments

While the facts described above for Mandarin Chinese are all well-known, terminology in connection with the interposed items in (1) and (2) and the various expressions in which they occur is a total muddle: ultimately, there seem to be hardly two treatises on this issue which use the same terms for the same entities.

To give a single example, Chao (1968: 585) calls the items in question used in (2) "classifiers" or "individual measures" and uses "measure" (1968: section 7.9 and *passim*) as a cover term for both 'classifiers' and such terms of measurement as the ones occurring in our examples (1). (He does not introduce a general term for those items which are 'measures' but *not* 'classifiers'.) Moreover, Chao uses "D-M compound" as a label for expressions which consist of a numeral or other 'determinative' and a 'measure' (1968: section 7.6), and "D-M N phrase" (1968: 589) or "D-M N construction" (1968: 554) for a "D-M compound" in construction with a noun ("D" stands for "determinative", "M" for "measure", and "N" for "noun").

For the purposes of the present essay, I cannot simply adopt Chao's terminology because it contains theoretical commitments ("D-M compound" etc.) which I do not want to endorse and which are, in particular, irreconcilable with the outcome of my investigation on the ontological status of these items (cf. Sackmann forthcoming b). Instead, I will follow another terminological tradition which is not only ontologically neutral but also much more appropriate to the grammatical *and* semantic properties that the items under scrutiny may be expected to have. This tradition, dating back at least to the mid-sixties, uses the expression "numerative" as the cover term for the interposed elements in (1) and in (2)—which is quite an apt designation because it is obviously the task of these items to make a noun's referent 'numerable' (in a sense that must, of course, be clarified). As far as the two subtypes of 'numeratives' are concerned, the term "classifier" is used as a label for the interposed items in (2); for the items in (1), however, some authors in this tradition choose the term "quantifier" which should be avoided since it is already reserved in linguistics for words such as *all* and *some*. Instead, I will employ the term "measure", which is also quite adequate in regard of the semantic function that these items appear to perform in constructions like those in (1). So I will use "classifier", but not "measure", in the

same sense as Chao. Note, however, that I use the term “classifier” in the sense of “*numeral classifier*” throughout this essay (in fact, there may be other types of classifiers in other languages).

Moreover, I will speak of “*numeration expressions*” when referring to expressions that are composed of a numeral or other ‘*determinative*’, a numeral, and a noun (Chao’s ‘D-M N constructions’). For the sake of convenience, I will also use this term for expressions that deviate from the prototypical ‘D-M N’ pattern but still contain numeratives in a crucial way. It is only in section 4 that the grammatical status of ‘*numeratives*’ and ‘*numeration expressions*’ will be discussed in any detail, and that suggestions for a more appropriate terminology can be made.

Finally, the ambiguous term “noun” will be avoided in the more technical parts of this essay in favour of the term “*substantive*”.

### 2.3. Formulation of basic problems

The present essay aims at finding a consistent answer to two key questions connected with the numeratives in Mandarin Chinese:

1. What are the syntactic structures of numerative constructions?
2. How are the phenomena in connection with numeratives reflected in the parts of speech and their subcategories in Mandarin Chinese?

The two questions are related in the following way. Question (1) refers to the constituent, intonation, and marking structures of numerative expressions, which jointly provide one part of the basis for the syntactic relations (complement, modifier, nucleus, etc.) that hold among the constituents of numerative expressions. The constituent and marking structures crucially depend on syntactic categories, among which part-of-speech categories play a key role (question (2)). Both questions must be answered if a complete *grammatical description* of the expressions under scrutiny is to be achieved.

Moreover, the two questions to be treated in this essay are relevant to understanding *meaning composition* in Mandarin Chinese in general, and the semantic properties of numerative expressions in particular. Any comprehensive and consistent theory of language should include a mechanism of meaning composition that allows the systematic transition from the lexical meanings of primitive constituents of a syntactic unit to syntactic meanings of the unit as a whole. This mechanism should rely essentially on the *syntactic structures* of the unit, the *syntactic relations* which hold among the constituents of the unit, and on the *syntactic categories* to which the constituents are assigned. In Mandarin Chinese, the parts of speech and

their subclasses are the type of syntactic category that is of key importance in this connection.

The treatment of these two questions presupposes an answer to a third question, the question of *morphosyntactic status*. As with many items in the grammar of 'isolating' languages, it is anything but obvious whether the numeratives are to be construed primarily as *words* or primarily as *morphs* (i.e. as components of words), and as what types of morphs or words. In fact, determining the morphosyntactic status of items of various classes has traditionally been one of the main problems in the description of such languages.

On the one hand, it is quite clear how the two central questions formulated above depend on a decision with regard to the word or non-word status of numeratives: any definite answer to the first question certainly requires a dissection of numerative expressions into syntactic components. As far as the second question is concerned, the problem of word form identification clearly takes precedence over the question of part-of-speech assignment: unless the words in a given language can be identified, it hardly makes sense to discuss how they are to be classified.

On the other hand, the very question of morphosyntactic status has never been answered conclusively in Chinese grammar for the numeratives. At least since the publication of Chao's (1968) *Grammar of spoken Chinese* there have been two incompatible approaches to the analysis of numeratives in the grammatical literature, which correspond to the two fundamental possibilities of regarding numeratives either as morphs or as words. Quite apart from the resulting problems for Chinese grammar-writing, the morphosyntactic status of numeratives has to be clarified for *theoretical* reasons: for a proper treatment of the structures of noun groups in Mandarin Chinese, of the central role that numeratives play in these structures, and of the semantics of numeratives and numerative expressions it is indispensable to determine the morphosyntactic status of these items—if only to determine the morphological or syntactic relations into which the numeratives enter, and to clarify how they figure in syntactic meaning composition.

In this sense, the treatment of numeratives in the present essay presupposes the results of Sackmann (forthcoming b), where the main focus is on a careful examination of how the question of 'morphosyntactic status' can be reconstructed in the theoretical framework of Integrational Linguistics. One major result of this investigation is that the view of numeratives as entities on the morphological level is indefensible; rather, forms of numeratives (i.e., forms of classifiers and forms of measures) must be analysed as noun forms.

### 3. A short introduction to Integrational Syntax

#### 3.1. General remarks

The theoretical framework adopted in this essay is that of *Integrational Linguistics*, a general linguistic approach developed mainly by Hans-Heinrich Lieb, starting in the early seventies.<sup>7</sup> While a rather high degree of technicality is characteristic of Integrational Linguistics, I shall present most of my arguments in a rather informal way, taking Integrational Linguistics only as a general background.

No attempt can be made here to give an introduction even to the most central concepts and assumptions of Integrational Linguistics. However, familiarity with the small number of specific theoretical concepts to be explained immediately should be indispensable.<sup>8</sup>

It is a prominent characteristic of the *Integrational Theory of Language*, the general theory of language proposed in Integrational Linguistics, that it is *ontologically explicit and constructive*, which sets it apart from most rival approaches in modern linguistics. I here concentrate on the syntactic part of the theory which is needed in the main parts of the present essay.

#### 3.2. Integrational Syntax

*Integrational Syntax*, the syntactic part of the Integrational Theory of Language, is a *surface syntax* in a strict sense. It is a *syntax as a basis for semantics* in the sense that the meanings of a syntactic unit are constructed from the meanings of its parts (ultimately, its primitive constituents) by means of a semantic interpretation of *syntactic categories* (such as Plural or Perfect) and of *syntactic functions* (modifier, complement, nucleus etc.).

It is a main feature of Integrational Linguistics that linguistic variability is regarded as central to any realistic account of linguistic phenomena. Languages are conceived as sets of *idiolects* (in a specific sense), and for every idiolect there is an *idiolect system* that determines it.

One important consequence of this theoretical position is that all grammatical terms (in particular, terms underlying expressions for categories) are relativised not to entire languages but to idiolect systems *S*. For example, a term like "VERB" is understood as the name not of a syntactic category but of a *relation* ("is-a-verb-of") between lexical words and idiolect systems *S*; a formal statement such as "VERB(*write*<sup>W</sup>, *S\**)" reads "[the lexical word] *write*<sup>W</sup> is a VERB of *S\**", where *S\**

could be a specific English idiolect system. Expressions for syntactic *categories* of specific idiolect systems can be derived from these relational terms: for example, the expression "VERB(-, S)" (read: "verb of S") denotes the *set* of all entities that stand in the relation VERB to [the idiolect system] S, hence, are verbs of S. This conception allows use of terms like "VERB" in exactly the same sense in the description of arbitrary languages.

Therefore, what would be a statement on Mandarin Chinese on a traditional account will in this essay be replaced by an equivalent statement that is true of arbitrary Mandarin Chinese idiolect systems.

### 3.2.1. Basic entities

The following Figure 1 lists some of those types of entities which are assumed for the syntactic part of any idiolect system S of any language and which are relevant for the present essay. The explications given may serve as an example of what it means to say that Integrational Linguistics is "ontologically explicit and constructive". (For reasons of space, the "(-, S)"-part in the expressions for categories is omitted in the figure.)

type of entity	ontological status	notation	examples
phonological word	<b>ordered triple</b> $\langle f^P, k^P, I^P \rangle$ of a sound sequence $f^P$ , a constituent structure $k^P$ of $f^P$ and an intonation structure $I^P$ of $f^P$	orthographic name in italics	$cat = \langle /kæt/, k^P, I^P \rangle$ (second and third components here left unspecified)
syntactic unit	<b>sequence</b> $f$ of phonological words	subscript numbers (optional); raised "1" to mark unit sequence	$cat^1$ ; <i>the tabby cat</i> (= $the_1 tabby_2 cat_3$ )
syntactic word	<b>sequence</b> $f$ of phonological words	subscript numbers (optional); raised "1" to mark unit sequence	$cat^1$ ; <i>the cats</i> (= $the_1 cats_2$ )
syntactic unit category	<b>set</b> of syntactic units $f$	mixed capital and lower case letters	$NGr =$ $\{the_1 tabby_2 cat_3, three_1 little_2 children_3, \dots\}$ $Pl_N = \{the_1 cats_2, children^1, \dots\}$
word paradigm	<b>set of pairs</b> $\langle f, J \rangle$ each consisting of a syntactic word $f$ and a set $J$ of syntactic unit categories	raised "P"; additional subscript numbers if needed	$cat^P =$ $\{ (cat^1, \{Sg, Unm_{Def}\}), (a cat, \{Sg, Indef\}), (the cats, \{Pl, Def\}), \dots \}$



lexical word	<b>ordered pair</b> $\langle P, b \rangle$ of a word paradigm $P$ and a concept $b$	raised "W"; additional subscript numbers if needed	$cat^W = (cat^P, 'cat')$ ; $fly_1^W = (fly_1^P, 'fly'_1)$ ; $fly_2^W = (fly_2^P, 'to fly'_1)$
word category	<b>set</b> of lexical words	capital letters only	COUNT = $\{cat^W, chair^W, \dots\}$

Figure 1. Some types of syntactic entities

(In the examples, "NGr" is "Noun Group", "Pl<sub>N</sub>" is "Plural for Noun forms", and "Unm<sub>Def</sub>" is "Unmarked for Definiteness".) Some further comments are in order.

### 3.2.2. Sequences

The designations of some types of entity in Figure 1 employ the notion of *sequence*. A sequence is a two-place relation between the first  $n$  natural numbers (1, 2, ...,  $n$ ) and arbitrary entities (called the *members* of the sequence). Put differently, a sequence is a *set of ordered pairs* such that the first components of these pairs are the natural numbers 1, 2, ...,  $n$ . Each number in a sequence can occur only once (i.e., can be related only to one entity).

For example,  $\{\langle 1, mary \rangle, \langle 2, fed \rangle, \langle 3, the \rangle, \langle 4, cats \rangle\}$  is a sequence of four phonological words. More conveniently, a sequence may be denoted using subscript numbers, or simply by juxtaposing the members of the sequence. Thus,  $\{\langle 1, mary \rangle, \langle 2, fed \rangle, \langle 3, the \rangle, \langle 4, cats \rangle\} = mary_1 fed_2 the_3 cats_4 = mary fed the cats$ .

On the other hand,  $the_3 cats_4 = \{\langle 3, the \rangle, \langle 4, cats \rangle\}$  is not a sequence (it does not 'start with 1') but is a *part* (a subset) of the sequence  $mary_1 fed_2 the_3 cats_4$ . (Note that subscript notation can be used for parts of sequences as well, but the subscripts may not be omitted:  $the_3 cats_4 \neq the cats$ .)

$mary_3 fed_4 the_7 cats_9$  again is not a sequence but is a *positional variant* of the sequence  $mary_1 fed_2 the_3 cats_4$ . (Roughly, while the members remain, the numbers are changed.)

The sequence  $the_1 cats_2$  occurs in the sequence  $mary_1 fed_2 the_3 cats_4$ : there is a subset of  $mary_1 fed_2 the_3 cats_4$ , namely,  $the_3 cats_4$ , which is a positional variant of  $the_1 cats_2$ . Conversely,  $the_3 cats_4$  is an *occurrence* of  $the_1 cats_2$  in  $mary_1 fed_2 the_3 cats_4$ .

Finally, sequences with just a single member are called "unit sequences". A raised "1" is used to distinguish a unit sequence from its single member. For example,  $mary^1 = mary_1 = \{\langle 1, mary \rangle\}$ ; but  $mary^1 \neq mary$ .

### 3.2.3. Notions of 'word'

In conformity to the requirements of ontological explicitness and constructiveness, three notions of 'word' are clearly distinguished in Integrational Syntax: these are the *phonological* word, the *syntactic* word, and the *lexical* word (see Figure 1).

Phonological words are the *syntactic base forms*. They are not word forms; the word forms are precisely the *syntactic words*. These may well be unit sequences of phonological words. As can be seen from Figure 1, it is the *unit sequence* of the phonological word *cat*, the syntactic word *cat*<sup>1</sup>, that appears as a form in the paradigm *cat*<sup>P</sup> which is the first component of the lexical word *cat*<sup>W</sup>.

Note that Integrational Syntax explicitly allows *improper* paradigms, i.e. paradigms in which all forms are assigned the unit set of one and the same category; such paradigms mostly have a single form. It is a typological feature of 'isolating' languages like Mandarin Chinese that most if not all syntactic paradigms in their idiolect systems are improper.

The reader may have noted that *syntactic words* and *syntactic units* are entities of the same ontological type: syntactic words are those syntactic units that are forms of lexical words. Note that a sharp distinction is drawn between a *lexical word* and its *forms* (syntactic words) which may *occur* in a syntactic unit. For example, the syntactic word *the*<sub>1</sub> *cats*<sub>2</sub>, a form of the lexical word *cat*<sup>W</sup>, occurs in the syntactic unit *mary*<sub>1</sub> *fed*<sub>2</sub> *the*<sub>3</sub> *cats*<sub>4</sub>. The constituent *the*<sub>3</sub> *cats*<sub>4</sub> is an *occurrence* of the word form *the*<sub>1</sub> *cats*<sub>2</sub> in the syntactic unit *mary*<sub>1</sub> *fed*<sub>2</sub> *the*<sub>3</sub> *cats*<sub>4</sub>.

Names of phonological words are generally given in lower-case letters (even deviating from spelling conventions in cases like "mary" in English, or "bücher" in the German examples above). This emphasises the fact that phonological words belong to *spoken* idiolect systems; we are not concerned with their names per se, which are orthographical expressions.

### 3.2.4. Word meanings and valency

The *meaning component* of a lexical word is a *concept* in a psychological sense. Concepts are construed as special properties of (human) perceptions or conceptions.<sup>9</sup> A raised dot notation is used in Integrational Linguistics to form names for concepts; for example, the concept 'cat' is the meaning of the lexical word *cat*<sup>W</sup> (its second component). An important *government property* of lexical words, 'quantitative' valency, is linked to their lexical meanings by the *General Valency Hypothesis* (cf. Lieb 1993a: section 5.6): If  $\langle P, b \rangle$  is a lexical word whose meaning is the concept *b* and *b* is *n*-place, then the valency of  $\langle P, b \rangle$  is *n* - 1 (deictic concepts and the empty

concept are excluded in this abbreviated account). The valency of a lexical word is, basically, the number of complements (including subjects) that certain forms of the word take when occurring in a sentence.

### 3.2.5. Syntactic Unit Ordering and Lexical Word Ordering

In the syntactic part of any idiolect system  $S$ , two classification systems are assumed: (1) the *Syntactic Unit Ordering* (SUO), a classification system on the set of all *syntactic units* of  $S$  which yields the *syntactic unit categories*, among them the *syntactic constituent categories* such as Verb form( $-, S$ ) ( $Vf(-, S)$ ), Noun form( $-, S$ ) ( $Nf(-, S)$ ), Noun Group( $-, S$ ) ( $NGr(-, S)$ ), and categories such as Singular( $-, S$ ) and Accusative( $-, S$ ); and (2) the *Lexical Word Ordering* (LWO), a classification system on  $WORD(-, S)$ , the set of all *lexical words* (paradigm-meaning pairs) of  $S$ , which yields the *word categories*, among which are the *parts of speech* like  $VERB(-, S)$ ,  $ADJECTIVE(-, S)$ , etc., and the *government categories*. The LWO will play an important role in this essay since we are talking about ‘word classes’ or ‘parts of speech’, hence, categories of lexical words.

### 3.2.6. Syntactic structures, functions, and relations

Every syntactic unit  $f$  of an idiolect system  $S$  has at least one *syntactic structure*  $s$ : a triple  $\langle k, m, l \rangle$  consisting of a *constituent structure*  $k$  of  $f$ , a *marking structure*  $m$  of  $f$  relative to  $k$ , and an *intonation structure*  $l$  of  $f$ .<sup>10</sup>

A *sentence* of an idiolect system  $S$  is conceived in Integrational Syntax not simply as a syntactic unit but as a *syntactic triple*  $\langle f, s, e \rangle$ , consisting of a syntactic unit  $f$  of  $S$ , a syntactic structure  $s$  of  $f$  in  $S$ , and a lexical interpretation  $e$  of  $f$  relative to  $s$  and  $S$ , where  $e$  is an assignment of lexical meanings to the primitive constituents of  $f$  relative to  $k$ .

Traditional ‘syntactic relations’ such as subject, predicate, modifier etc. are reconstructed in Integrational Linguistics by means of *syntactic functions*. Most syntactic functions take syntactic quadruples  $\langle f, s, e, S \rangle$  (basically, syntactic triples  $\langle f, s, e \rangle$  plus a suitable idiolect system  $S$ ) as their arguments and assign to them sets of  $n$ -tuples of constituents of  $f$  as their values. Take, for example, the syntactic functions *mod* (modifier) and *nuc* (nucleus) together with a specific syntactic quadruple  $\langle f', s', e', S' \rangle$ , where  $S'$  is an English idiolect system,  $f' = \text{the}_1 \text{ little}_2 \text{ boy}_3 \text{ came}_4 \text{ yesterday}_5$ ,  $s'$  is an appropriate syntactic structure of  $f'$  in  $S'$ , and  $e'$  an appropriate lexical interpretation of  $f'$  relative to  $s'$  and  $S'$ . Then  $\text{mod}(f', s', e', S') = \{ \langle \text{little}_2, \text{the}_1 \text{ boy}_3 \rangle, \langle \text{yesterday}_5, \text{came}_4 \rangle \}$ .

$came_4\}$ :  $little_2$  is a modifier of  $the_1 boy_3$ , and  $yesterday_5$  a modifier of  $came_4$  relative to  $\langle f', s', e', S' \rangle$ . Accordingly,  $nuc(f', s', e', S') = \{\langle the_1 boy_3, the_1 little_2 boy_3 \rangle, \langle came_4, f' \rangle\}$ :  $the_1 boy_3$  is the nucleus of  $the_1 little_2 boy_3$ , and  $came_4$  the nucleus of  $f' = the_1 little_2 boy_3 came_4 yesterday_5$  relative to  $\langle f', s', e', S' \rangle$ .

The values of syntactic functions are called *syntactic relations* in Integrational Linguistics. For example,  $mod(f', s', e', S') = \{\langle little_2, the_1 boy_3 \rangle, \langle yesterday_5, came_4 \rangle\}$  may be called *the mod[ifier] relation* on  $f', s'$  and  $e'$  in  $S'$ . Thus, while there is only one mod function, there is an indefinite number of mod relations which are values of the mod function.

This concludes our introductory remarks on Integrational Linguistics. The interested reader may consult Lieb (1983b, 1993a) for a more detailed account.

## 4. The syntactic structure of numerative expressions

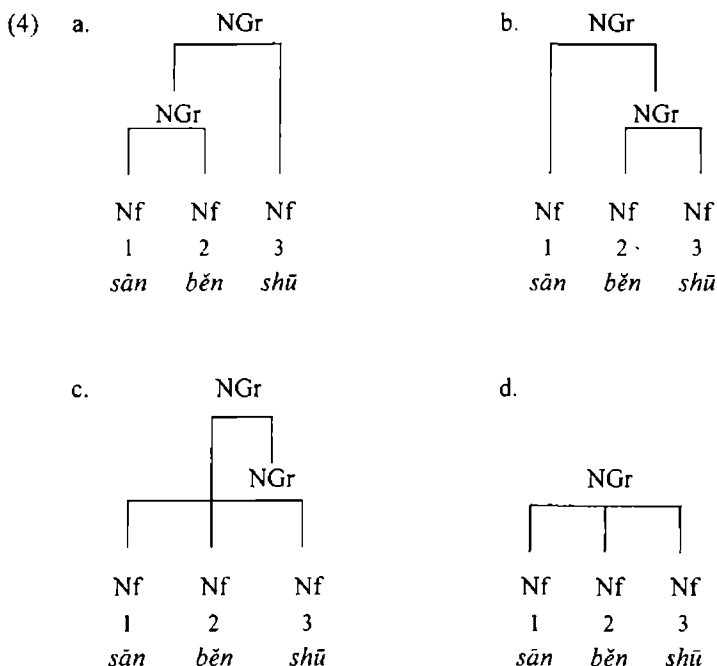
### 4.1. Theoretical options

As established in Sackmann (forthcoming b), the numeratives in Mandarin Chinese are lexical words, i.e. syntactic rather than morphological entities, and the forms of these words are Noun forms (which implies that a numerative expression such as *sān běn shū* consists of three phonological words). It is from these results that we will proceed in our investigation of the grammatical properties of numeratives and numerative expressions. In the present section (section 4), we will try to determine the *syntactic structure* of numerative expressions and the *syntactic functions* by which their parts (constituents) are related. The results will help define the place of numeratives in the part-of-speech system of Mandarin Chinese (sections 5 and 6).

From here on, I will use a rounded “S” as a restricted variable for all *Mandarin Chinese* idiolect systems, while “S” continues to stand for *arbitrary* idiolect systems.

As described above (section 3), any syntactic structure of any syntactic unit is construed in Integrational Syntax as a triple consisting of (i) a constituent structure, (ii) a marking structure, and (iii) an intonation structure of the unit. In this section, we concentrate on the *constituent* structures of numerative expressions. The marking structures will be treated indirectly in sections 5 and 6. Intonation structures will be discussed here only incidentally.

For a three-member syntactic unit like *sān<sub>1</sub> běn<sub>2</sub> shū<sub>3</sub>*, the following four types of constituent structures would be allowed by the general syntactic theory:<sup>11</sup>



(Note that the “(–, *S*)”-parts in the expressions for syntactic categories will be omitted in all diagrams. — *b̄en*<sub>2</sub>, an occurrence of the classifier form *b̄en*<sup>1</sup>, is assigned to the category *Nf*(–, *S*) (“Noun form of *S*”) in accordance with Sackmann (forthcoming b). *shū*<sub>3</sub> is obviously also an *Nf*(–, *S*)-occurrence. For the numeral form *s̄an*<sub>1</sub>, *Nf*(–, *S*) seems to be the most natural option too, but this is not our topic.)

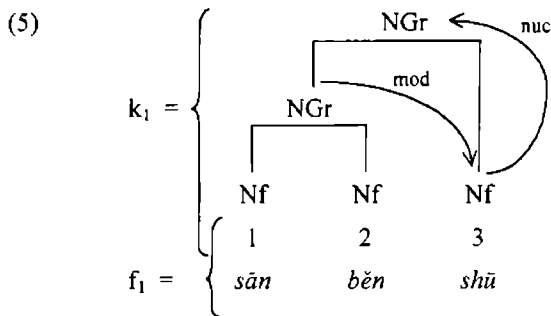
In all constituent structures represented in (4), *s̄an*<sub>1</sub>, *b̄en*<sub>2</sub>, and *shū*<sub>3</sub> are marked as primitive constituents of *s̄an*<sub>1</sub> *b̄en*<sub>2</sub> *shū*<sub>3</sub>. Examples (a) to (c) show hierarchical constituent structures in which two of the primitive constituents jointly form a constituent associated with the category Noun Group(–, *S*) (*NGr*(–, *S*)). This Noun Group occurrence is again a co-constituent of the third primitive constituent; together they form the complete Noun Group *s̄an*<sub>1</sub> *b̄en*<sub>2</sub> *shū*<sub>3</sub>. Example (d) represents a flat constituent structure in which all three primitive constituents are co-constituents of each other and are immediate constituents of the Noun Group *s̄an*<sub>1</sub> *b̄en*<sub>2</sub> *shū*<sub>3</sub>. Note that Integrational Syntax provides both for the possibility of constituents with more than two immediate (sub-)constituents (example (d)), and of discontinuous constituents as in (c). Exclusion of both possibilities has been one of the most glaring shortcomings (at least in practice if not in theory) of traditional American Structuralism (IC analysis), typically continued by the syntactic models proposed in the generative framework.<sup>12</sup> It may well be claimed that imposing such an inappropriate restriction

on constituent structures has been a major source of inadequate analyses in modern linguistics.

Which of the four types of structures exemplified in (4) are defensible for numerative expressions like  $sān_1 bēn_2 shū_3$ ? Cases (b) and (c) are easily ruled out because neither  $bēn_2 shū_3$  (as in (b)) nor  $sān_1 shū_3$  (as in (c)) occur independently as constituents anywhere in Chinese,<sup>13</sup> and neither can be assigned an appropriate constituent meaning. Case (a) is the structure of choice if one considers the numeral-plus-numerative part of the numerative expression to be an attribute of the substantival part.

## 4.2. The traditional analysis

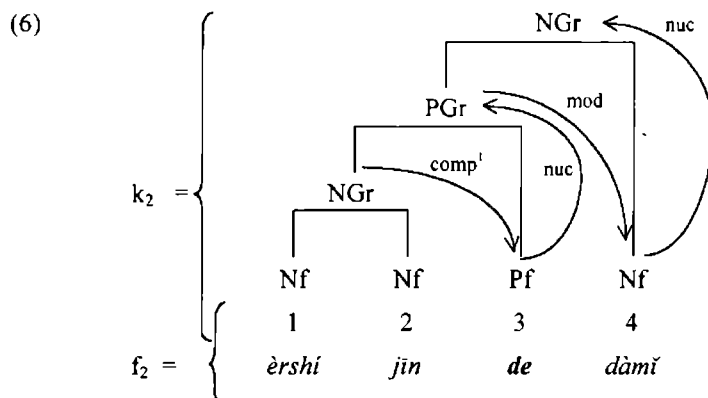
The constituent structure given in (4a) would be in keeping with the assumptions commonly made (explicitly or implicitly) in Chinese linguistics with respect to the structure of numerative expressions like  $sān_1 bēn_2 shū_3$ . In particular, (4a) allows for the constituent  $sān_1 bēn_2$  to be an attribute of  $shū_3$ , with  $shū_3$  being the nucleus of the whole expression.<sup>14</sup> This analysis would be reconstructed in Integrational Syntax in the following way:



The labelled arrows in (5) indicate occurrences of syntactic functions (cf. section 3.2.6) and are read in the obvious way: “ $sān_1 bēn_2$  is a [syntactic] modifier of  $shū_3$ ”, “ $shū_3$  is a [syntactic] nucleus of  $f_1 = sān_1 bēn_2 shū_3$ ”. (The syntactic functions that apply *within* the constituent  $sān_1 bēn_2$  are not represented in (5).) Braces indicate that the numbers 1 to 3 belong both to the constituent structure  $k_1$  and to the syntactic unit  $f_1$ .

One of the main reasons why  $sān_1 bēn_2$  is usually considered a modifier (attribute) of  $shū_3$  is apparently the existence of expressions such as *èrshí jīn de dànmǐ* ‘twenty pounds of (white) rice’,<sup>15</sup> where the attribute marker *de* occurs between the

Num+Numt part and the Subst part.<sup>16</sup> The constituent structure and syntactic functions in such a case would be as follows:



Again, the syntactic functions that apply *within* the constituent *èrshí<sub>1</sub> jīn<sub>2</sub>* are not represented. Diagram (6) is to be interpreted as follows. The attribute marker *de*<sup>w</sup> (a lexical word) is construed as a particle; thus, its only form *de*<sup>1</sup> is a Particle form (Pf), and *de*<sub>3</sub> is an occurrence of *de*<sup>1</sup> in  $f_2 = \textit{èrshí}_1 \textit{jīn}_2 \textit{de}_3 \textit{dàmǐ}_4$ . Each occurrence of the form *de*<sup>1</sup> requires a single syntactic complement, reconstructed by the syntactic function *comp*<sup>1</sup> in Integrational Syntax. The complement of *de*<sub>3</sub> in [the syntactic unit]  $f_2$  and [constituent structure]  $k_2$  is the Noun Group (NGr) occurrence *èrshí<sub>1</sub> jīn<sub>2</sub>*. Together they form the Particle Group (PGr) occurrence *èrshí<sub>1</sub> jīn<sub>2</sub> de<sub>3</sub>* of which *de*<sub>3</sub> is the syntactic nucleus. This Particle Group occurrence is in turn an attribute—reconstructed in Integrational Syntax by the syntactic function *mod*[ifier]—of the Noun form occurrence *dàmǐ*<sub>4</sub> in  $f_2$  and  $k_2$ . Finally, *dàmǐ*<sub>4</sub> is the nucleus of the complete Noun Group, *èrshí<sub>1</sub> jīn<sub>2</sub> de<sub>3</sub> dàmǐ<sub>4</sub>*.

The argument for regarding *sān<sub>1</sub> běn<sub>2</sub>* in  $f_1$  and *èrshí<sub>1</sub> jīn<sub>2</sub>* (*de*<sub>3</sub>) in  $f_2$  as attributes of the final Noun form occurrences (*shū<sub>3</sub>* and *dàmǐ<sub>4</sub>*) typically remains implicit in the relevant literature on Chinese grammar but may be summarised in the following four steps.

1. There are expressions like *èrshí jīn de dàmǐ* (6) where the attribute particle *de* occurs between the Num+Numt part of a numerative expression and the Subst part. In such cases the Num+Numt+*de* combination is clearly an attribute of the Subst; the very function of *de* in Chinese syntax is to mark attributes.
2. On the other hand, we have the expression *èrshí jīn dàmǐ*, where no *de* occurs. It is assumed that the meanings of *èrshí jīn de dàmǐ* and *èrshí jīn dàmǐ* are identical. Thus, *èrshí jīn dàmǐ* can be analysed as an ellipsis (elliptic version) which

results from *èrshí jīn de dàimǐ* by omission of *de*. (Omission of *de* is frequent also in expressions other than numerative expressions.)

3. Ellipsis does not only imply that both the elliptic and the non-elliptic versions of a sentence are assigned the same meanings; the syntactic structure also remains intact. Hence, if *èrshí jīn (de)* is an attribute of *dàimǐ* in *èrshí jīn de dàimǐ*, *èrshí jīn* should also be an attribute of *dàimǐ* in *èrshí jīn dàimǐ*.
4. Finally, we have classifier expressions such as *sān běn shū*. Although *de* can never occur in such expressions and *sān běn shū* therefore cannot be analysed as an ellipsis of *\*sān běn de shū*, one would certainly want to assume that the same syntactic relations hold between the parts of *sān běn shū* and *èrshí jīn dàimǐ*, respectively. Hence, *sān běn* should be an attribute of *shū* just as *èrshí jīn* is an attribute of *dàimǐ*.

Convincing as this line of reasoning may seem for a common-or-garden analysis, there are a number of problems both from a syntactic and a semantic point of view.

### 4.3. Four problems for the attribute analysis

#### 4.3.1. First problem

The occurrence of *de* in numerative expressions is somewhat irregular. It is generally accepted that *de* cannot occur in classifier expressions, i.e. there is no *\*sān běn de shū*. On the other hand, *de* is normally used with so-called ‘temporary measures’, as in *yī wūzi de rén* ‘a roomful of people’. In such expressions, however, *yī* acquires a meaning like ‘full, whole, all over’ rather than a numeral meaning<sup>17</sup> and can be substituted by *mǎn* ‘full’; furthermore, no other numeral can occur instead of *yī*—both of which point to the fact that (i) the so-called ‘temporary measures’ are not measures but ordinary substantives, and (ii) expressions like *yī wūzi de rén* are not numerative expressions at all but represent ordinary attribute constructions.

In measure expressions with other types of measures such as ‘container measures’ like *bēi* ‘cup’ or ‘standard measures’ like *gōngjīn* ‘kilogram’, *de* is normally not used; expressions like *??sān bēi de chá* are generally judged as ungrammatical by native speakers, while others, such as *sān gōngjīn de dàimǐ*, seem possible.<sup>18</sup> At any rate, even *measure* expressions without *de*—let alone classifier expressions—cannot regularly be derived from corresponding expressions with *de* because the latter often do not exist.

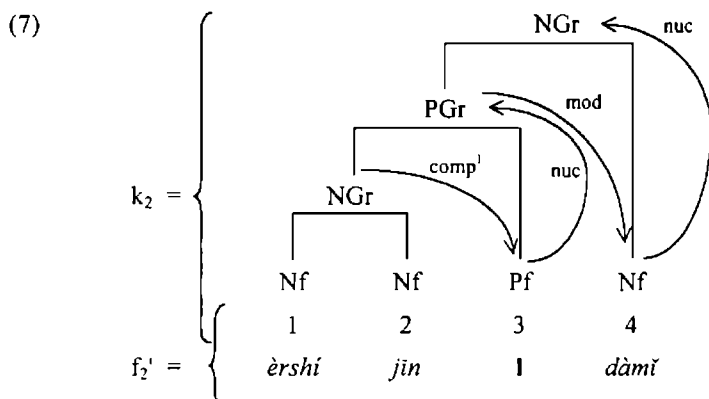


## 4.3.2. Second problem

The particle *de* is the universal syntactic marker of attributes in Mandarin Chinese. Although *de* can often be omitted by way of ellipsis, as in *wǒ (de) fùqīn* 'my father', *hǎo (de) yīfu* 'good clothes', it is a basic fact of Chinese grammar that *de* can *always* be used as long as something is an attribute of something:<sup>19</sup> although an expression with 'superfluous' occurrences of *de* may sound awkward (like *wǒ de fùqīn de péngyǒu* 'my father's friend(s)' instead of *wǒ fùqīn de péngyǒu*), it is still grammatically correct. Hence, if *sān<sub>1</sub> běn<sub>2</sub>* really were an attribute of *shū<sub>3</sub>* in *sān<sub>1</sub> běn<sub>2</sub> shū<sub>3</sub>*, then Num+Cl would be the only major type of attribute where the attribute marker *de*, strangely, cannot be used.

## 4.3.3. Third problem

The alleged structural and functional parallelism between *sān běn shū* and *èrshí jīn dànmǐ* needed in step (3) of the attribute argumentation is only apparent. A careful theoretical treatment of ellipsis can hardly do without assuming some kind of 'empty' entity that may replace some 'non-empty' entity in a syntactic unit. In Integrational Linguistics, the *empty phonological word* *l*, conceived as the triple  $(\emptyset, \emptyset, \emptyset)$ , is used in reconstructing any elliptic version of a non-elliptic construction.<sup>20</sup> (Since only the empty set occurs in *l* as a component, *l* naturally is not realised in utterances.) For example, (7) would be an ellipsis of (6), with *l* replacing *de* in (6):



Obviously, it is the replacement of *de* by the empty phonological word *l* as the third member of *f<sub>2</sub>'* in (7) that allows us to retain unchanged the constituent structure *k<sub>2</sub>* assigned to *f<sub>2</sub>* in (6). *èrshí jīn dànmǐ* is now reconstructed as *èrshí<sub>1</sub> jīn<sub>2</sub> l<sub>3</sub> dànmǐ<sub>4</sub>*.

The problem is as follows. There is no way to construe *sān běn shū* as an ellipsis of anything on the pattern of (7): there is simply no expression *\*sān běn de shū* from which *sān běn* | *shū* could result by substituting | for *de*. Hence, if *sān<sub>1</sub> běn<sub>2</sub>* were to be analysed as an attribute of *shū<sub>3</sub>*, the *only* possible analysis would be the one in (5). But the two constituent structures *k<sub>1</sub>* (in (5)) and *k<sub>2</sub>* (in (6) and (7)) are different—which shows that the alleged structural parallelism between *sān běn shū* (with *sān běn* as an attribute of *shū*) and *èrshí jīn dàimǐ* (construed as an elliptic version of *èrshí jīn de dàimǐ*) is merely an illusion created by an inappropriate informal treatment; it cannot therefore serve as an argument for treating *sān<sub>1</sub> běn<sub>2</sub>* as an attribute of *shū<sub>3</sub>*.

#### 4.3.4. Fourth problem

Even ignoring the serious *syntactic* problems of the attribute analysis of numerative expressions, the *four-step argument* in support of this analysis (see section 4.2) relies on an assumption of semantic identity that simply isn't true.

In order to construe a Num+Numt+Subst construction as an ellipsis of a Num+Numt+*de*+Subst construction, it is necessary to assume that every meaning of the ellipsis (Num+Numt+|+Subst) is also a meaning of the 'full' version (Num+Numt+*de*+Subst). This key assumption, however, is false (similarly, Cheng—Sybesma forthcoming: section 3.1.A).

In many cases, the occurrence or non-occurrence of *de* simply distinguishes numerative expressions (in a narrow sense) from genuine attribute constructions, as in *wúshí kè dīngzi* '50 grams of nails' versus (*yī gēn*) *wúshí kè de dīngzi* '(a) nail of [i.e. weighing] 50 grams'. Here, the semantic differences are, of course, fairly obvious.

In cases such as *èrshí jīn dàimǐ* versus *èrshí jīn de dàimǐ*, however, the differences in meaning can be rather subtle. Suffice it to say that *èrshí jīn dàimǐ* simply means 'twenty pounds of rice', whereas *èrshí jīn de dàimǐ* can be rendered as, approximately, 'rice weighing twenty pounds'. It may even be true that in certain borderline cases the meanings of expressions with or without *de* are indeed identical; but typically they are not.<sup>21</sup> Therefore, a buttress of the attribute analysis collapses: if the meanings of Num+Numt(+*de*)+Subst tend to be different for the versions with and without *de*, then one cannot be an ellipsis of the other.

Pointing out the four problems does not exclude an attribute solution for numerative expressions once and for all but does demonstrate that the reasons usually put forward for adopting this analysis do not hold water. The attribute analysis faces a number of syntactic and semantic problems which I believe are hard to overcome.

Anyway, the syntactic and semantic facts that can be observed for numerative expressions suggest quite a different analysis.

#### 4.4. An alternative analysis for numerative expressions

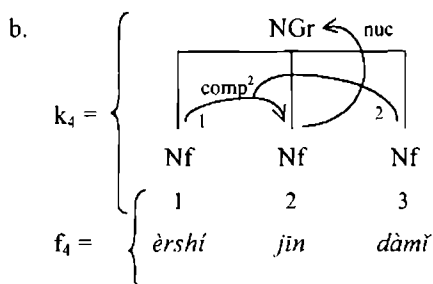
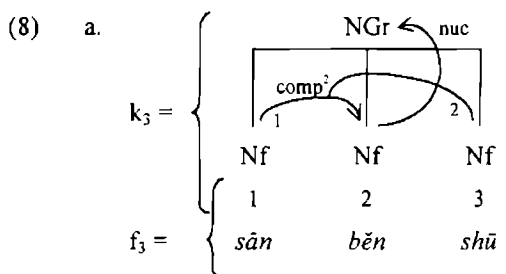
The basic facts of Mandarin Chinese numerative constructions, together with the arguments put forward in section 4.3, suggest that numerative expressions with *de* and without *de* should be treated separately with respect to their syntactic structures and relations: classifier expressions like *sān<sub>1</sub> běn<sub>2</sub> shū<sub>3</sub>* and measure expressions like *èrshí<sub>1</sub> jīn<sub>2</sub> dàimǐ<sub>3</sub>* should be assigned a *common* syntactic structure *different* from the structure of expressions like *èrshí<sub>1</sub> jīn<sub>2</sub> de<sub>3</sub> dàimǐ<sub>4</sub>* (as in (6)), where we have *èrshí<sub>1</sub> jīn<sub>2</sub> de<sub>3</sub>* as an attribute of *dàimǐ<sub>4</sub>*. Only the former are numerative expressions proper; expressions with *de* contain attributes (with quantity meanings) and are expressions of a different type.

Let us begin by considering the syntactic relations that should be assumed among the parts of numerative expressions, and only then deal with their structures. If the Num+Numt part of a numerative expression is not analysed as an attribute of the Subst part, then what are the syntactic relations within a numerative expression? Strikingly, the position immediately before a numerative form must always be filled by a form of a numeral or a demonstrative (or another item from Chao's four groups of 'determinatives'): neither *\*běn shū* nor *\*jīn dàimǐ* can occur independently as Noun Groups, but *sān běn shū* and *èrshí jīn dàimǐ* can (see (1) and (2)). The fact that any numerative form, when occurring in a sentence, obviously *requires* one of these items suggests that they should be regarded as syntactic *complements* rather than modifiers of the numerative form occurrence. This makes sense also semantically: it has frequently been observed that the *raison d'être* of numeratives is to create units for counting. Clearly, the idea of counting not only requires a *unit* but also a *number* of times by which the unit is applied.

In the same way, an occurrence of a numerative form requires an occurrence of a *nominal* (a Noun form or Noun Group) denoting what is being measured, i.e. denoting an object to which the unit (denoted by the numerative form) is applied a certain number of times. One could argue that the occurrence of a nominal is *not* required because expressions such as *wǒ yào zhèi běn* 'I want this one' (for any kind of book) or *tā mǎile sān jīn* '(s)he bought three pounds' are perfectly acceptable. However, such expressions are obviously elliptic: they can only be understood if it is known (by linguistic or non-linguistic context) what type of object is involved. In this sense, occurrence of a nominal *is* required for a complete numerative expression.

I therefore propose an analysis by which an occurrence of a numeral form and an occurrence of a nominal together make a *complement pair* of an occurrence of a numerative form in a numerative expression. This implies that the occurrence of the numerative form is the *syntactic nucleus* (head) of the numerative expression. Indeed, the argument presented here is very similar to the one for treating a subject and an object constituent jointly as a *complement pair* of a transitive verb form occurring as a *predicate* (a subcase of nucleus) of a sentence: the subject and object constituents are used to refer to entities which are involved in an action or process that is expressed by the predicate; since these entities are introduced through the predicate's lexical meaning, they are represented at the syntactic level through complements rather than modifiers of the predicate constituent. In the same way, the meaning of a numerative involves a 'unit for counting'; the unit must be applied a certain number of times, and it must be applied to some object or another; both the number of times the unit is applied and the object must therefore also figure in the meaning of the numerative. At the syntactic level, these two entities again are represented through complements of the numerative constituent.<sup>22</sup>

Generally, complement n-tuples (pairs, triples etc.) are taken care of in Integrational Linguistics by the syntactic comp<sup>n</sup>-functions. If a constituent is a complement of another constituent, then the two are co-constituents. This implies a "flat" constituent structure for numerative expressions, such as the one in (4d). As far as the constituent structure and the syntactic relations are concerned, the syntactic analysis of expressions like *sān běn shū* or *èrshí jīn dàimǐ* would therefore be as follows:



Note that  $k_3 = k_4$ , i.e. the constituent structures assigned to  $f_3 = \text{sān běn shū}$  and  $f_4 = \text{èrshí jīn dànmǐ}$  are identical; but they are *different* from  $k_2$ , the constituent structure assigned to  $f_2 = \text{èrshí jīn de dànmǐ}$  in (6). In (8),  $\langle \text{sān}_1, \text{shū}_3 \rangle$  and  $\langle \text{èrshí}_1, \text{dànmǐ}_3 \rangle$  form *complement pairs*<sup>23</sup> of, respectively,  $\text{běn}_2$  and  $\text{jīn}_2$ .

This type of analysis avoids the three syntactic problems raised by the traditional attribute analysis (see section 4.3). Neither the ‘irregular’ behaviour of *de* (first problem) nor the impossibility of *de*-occurrences in classifier expressions (second problem) can cause trouble because all proper numerative expressions are treated in a unified manner and expressions with *de* are treated separately; the third problem inherent in the attribute analysis simply does not arise in our analysis. Furthermore, systematic semantic differences (fourth problem) between  $\text{èrshí jīn dànmǐ}$  (as in (8)) and  $\text{èrshí jīn de dànmǐ}$  (as in (6)) can be accounted for in a natural and systematic way: the two expressions are assigned different syntactic structures, and the syntactic functions that relate their parts are different as well. Thus, there are systematic differences in the bases for syntactic meaning composition for both expressions.

I now make the assumption (eventually to be modified) that numeratives belong to a *government category*<sup>24</sup>  $\text{NUML}+\text{NL}(-, S)$ , understood as the set of all numeratives (lexical words) with the following property: whenever a form of one of these words occurs in a sentence, it requires two co-constituents, namely one constituent that is an occurrence of a form of a numeral or a corresponding expression,<sup>25</sup> and one that is an occurrence of a nominal (i.e., either a Noun form or a Noun Group). A nominal instead of simply a Noun form is required for the second complement because of cases such as  $\text{sān běn hěn hòu de shū}$  ‘three very thick books’, where the Noun Group occurrence  $\text{hěn}_3 \text{ hòu}_4 \text{ de}_5 \text{ shū}_6$  as a whole forms the second complement of  $\text{běn}_2$ .

However, not all numeratives belong to the same government category  $\text{NUML}+\text{NL}(-, S)$ : at least the so-called ‘measures for verbs of action’ (often simply called “verbal measures”) like *cì* ‘number of times’, which express “the number of times an action takes place” (Chao 1968: 615), and certain ‘quasi-measures’ such as *bèi* ‘times, -fold’ can only take a numeral complement; a nominal as a second complement does not occur.<sup>26</sup> Hence, such measures must be assigned to a second government category for numeratives, namely the category  $\text{NUML}(-, S)$ , to be understood as the set of all numeratives whose forms, when occurring in a sentence, require only *one* co-constituent, which must be an occurrence of a form of a numeral or a corresponding expression.<sup>27</sup>

We still have to account for those numerative expressions in which a form of a *demonstrative* instead of a numeral occurs in front of the numerative form occurrence.

#### 4.5. The status of demonstratives in numerative expressions

As mentioned above, it is not only forms of numerals that may occur in the position immediately in front of the numerative form occurrences but, generally speaking, items from any one of the four subgroups of 'determinatives' as proposed by Chao. These are the "numerical determinatives" (i.e., numerals), "demonstrative determinatives", "specifying determinatives", and "quantifying determinatives" (Chao 1968: 565).

For reasons of space, I will only deal with one other group of 'determinatives', namely, the demonstratives *zhèi*<sup>w</sup> 'this', *nèi*<sup>w</sup> 'that', and *něi*<sup>w</sup> 'which'. (The other two classes of 'determinatives' can be treated along the same lines; see Sackmann forthcoming a). In particular, we have not only expressions such as *sān běn shū* 'three books' and *èrshí jīn dàimǐ* 'twenty pounds of rice', but also *zhèi běn shū* 'this book', *nèi jīn dàimǐ* 'that pound of rice', *něi sān běn shū* 'which three books', etc. (See also the examples in (3).) How can this be accounted for?

One obvious solution would simply be to require that numeratives, instead of belonging to a syntactic government category  $\text{NUML}+\text{NL}(-, S)$  as specified above, be actually elements of a category  $\text{NUML}/\text{DEM}+\text{NL}(-, S)$ —whose elements require an occurrence of a nominal as a second co-constituent, and an occurrence of a numeral *and/or* demonstrative form as a first co-constituent. (Analogously, the category  $\text{NUML}(-, S)$  could be replaced by  $\text{NUML}/\text{DEM}(-, S)$ ). However, this solution would, for two reasons, not be satisfactory.

First, it is important to note that *zhèi běn shū* 'this book' has only a singular reading and cannot mean 'these books' (analogously, for *nèi* and *něi*). Now, if *zhèi*<sub>1</sub> figures as the first complement of *běn*<sub>2</sub> in *zhèi*<sub>1</sub> *běn*<sub>2</sub> *shū*<sub>3</sub>, where does the singular reading derive from? It cannot be due to the numerative, because numeratives combine with any numeral. Nor can it be due to the demonstrative, since there are expressions like *zhèi sān běn shū* 'these three books' in which a number greater than one is expressed although the same demonstrative form *zhèi*<sup>1</sup> is used.<sup>28</sup> (Note that the forms of demonstratives in Mandarin Chinese are not marked for number, unlike the forms *this*<sup>1</sup> and *these*<sup>1</sup> in English.) Moreover, in addition to *zhèi běn shū* there is also the expression *zhèi yī běn shū*, with an additional *yī* 'one', and this has the same meaning as *zhèi běn shū* unless *yī* carries a contrastive accent (accent on *yī* leads to a different, contrastive reading, 'this one (single) book').

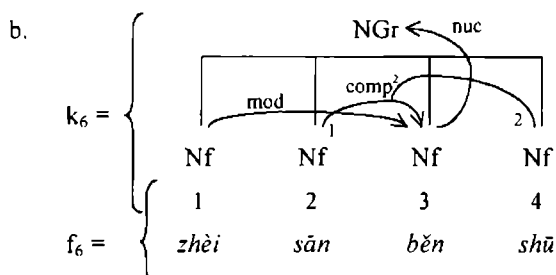
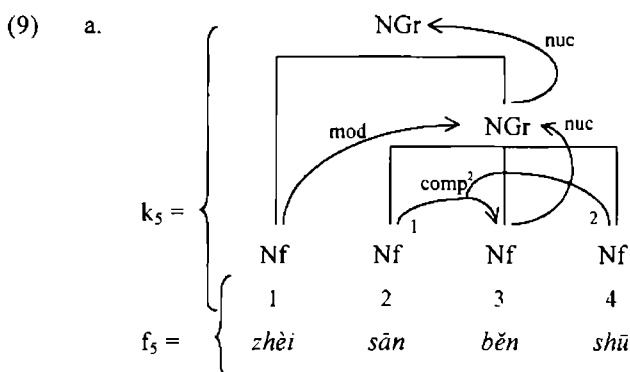
Second, if *zhèi*<sub>1</sub> were the first complement of *běn*<sub>2</sub> in *zhèi*<sub>1</sub> *běn*<sub>2</sub> *shū*<sub>3</sub>, how would it be syntactically embedded in the expression *zhèi*<sub>1</sub> *sān*<sub>2</sub> *běn*<sub>3</sub> *shū*<sub>4</sub>, where the numeral constituent *sān*<sub>2</sub> is obviously the first complement of *běn*<sub>3</sub>?

I suggest the following solution. Because of the possibility of *zhèi yī běn shū* in addition to *zhèi běn shū*, it is legitimate to assume that an occurrence of a numera-

tive form *always* requires an occurrence of a numeral form as its first complement. If the numeral form is  $yī^1$  'one' and there is no contrastive accent on it, then it may be 'omitted' by way of ellipsis. This analysis is supported by the fact that ellipsis of unstressed  $yī^1$  is very frequent also in numerative expressions *without* a demonstrative as long as  $yī^1$  does not occur in sentence-initial position. For example, the elliptic version  $wǒ_1 xiǎng_2 hē_3 l_4 bēi_5 chá_6$  'I'd like to drink a cup of tea' is uttered more readily than its full version  $wǒ_1 xiǎng_2 hē_3 yī_4 bēi_5 chá_6$ .

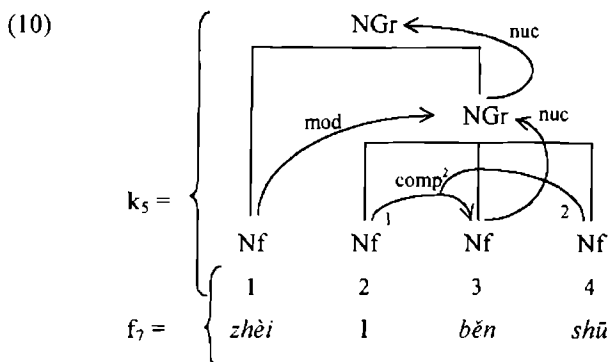
Consequently, it is the numeral constituent  $sān_2$  which is governed by  $běn_3$  in  $zhèi_1 sān_2 běn_3 shū_4$  'these three books', not the constituent  $zhèi_1$ ; the occurrence of the demonstrative form is not required syntactically, since  $sān_1 běn_2 shū_3$  alone (without the demonstrative) is equally possible. At the same time, the word sequence  $zhèi_1 běn_2 shū_3$  is, strictly speaking, ungrammatical; what *is* grammatical is the sequence  $zhèi_1 l_2 běn_3 shū_4$ , obtained through ellipsis from  $zhèi_1 yī_2 běn_3 shū_4$ , replacing the second member  $yī$  by the empty phonological word  $l$ .

$zhèi_1$  in  $zhèi_1 sān_2 běn_3 shū_4$  should thus be construed as a *modifier* rather than a complement—but a modifier of what? Two answers can be considered: (1)  $zhèi_1$  modifies the NGr constituent  $sān_2 běn_3 shū_4$  (an occurrence of the numerative expression  $sān_1 běn_2 shū_3$ ) as a whole, as in (9a); or (2)  $zhèi_1$  modifies only  $běn_3$ , the occurrence of the numerative form which is the nucleus of the whole expression, as in (9b):



I cannot here enter into a full discussion of the two alternative analyses. But solution (9a) is to be preferred for semantic reasons: the function of  $zhèi_1$  in this case is to direct the hearer's attention to a certain *set* of three books rather than to each book individually.<sup>29</sup> The set is identified by the constituent  $sān_2\ běn_3\ shū_4$  which is marked as a Noun Group in (9a); hence, it is this constituent which should be syntactically modified by  $zhèi_1$ . In (9b), on the other hand, there is simply no constituent by which the set could be identified, and  $zhèi_1$  modifies, as it were, the wrong constituent.

Since expressions like  $zhèi\ běn\ shū$  'this book' were analysed above as related through ellipsis to expressions of the form  $zhèi\ yī_2\ běn_3\ shū_4$ , replacing the second member  $yī$  by the empty phonological word  $l$ , we can now render the structure of  $zhèi_1\ l_2\ běn_3\ shū_4$  as



The constituent structures in (9a) and (10) are identical, and so are the syntactic relations, allowing for  $l_2$  in  $f_7$  instead of  $yī_2$  in  $f_5$ .<sup>30</sup>

Having clarified the most important aspects of the structure of numerative expressions, we are in a position to ask how the numeratives themselves (the lexical words) are embedded in the part-of-speech system of Mandarin Chinese.

## 5. The part-of-speech status of numeratives and substantives

### 5.1. Numeratives and substantives

On the basis of Sackmann (forthcoming b) it is assumed in the present essay that forms of numeratives in Mandarin Chinese are *Noun forms*. This is certainly true also of forms of substantives such as  $shuǐ^w$  'water',  $qìchē^w$  'car',  $lèqù^w$  'joy' etc. So



the initial question may be whether numeratives are not only nouns but substantives in the narrow sense of the examples just quoted.

This is hardly the case. Due to significant differences in syntactic behaviour between numeratives and prototypical substantives, the two classes must be kept sharply apart, at least for the following reasons:

- (i) Numeratives and substantives in Chinese show complementary distribution. Numerative forms cannot occur in the typical slots for substantive forms. For example, if one fills the slot in *wǒ xǐhuan* \_\_\_\_ 'I like \_\_\_\_' with any substantive form (*wǒ xǐhuan shū* 'I like books', *wǒ xǐhuan chá* 'I like tea'), the result will be a grammatical sentence, with hardly an exception; the word sequences, however, that result from putting in a numerative form are always ungrammatical:<sup>31</sup> both *\*wǒ xǐhuan běn* (classifier for books) and *\*wǒ xǐhuan jīn* ('pound') are totally unacceptable. The same holds true of the position of the second complement in numerative expressions, for instance, in *zhèi zhǒng* \_\_\_\_ 'this kind of \_\_\_\_'.

On the other hand, the typical slot for numerative forms, namely the position immediately behind a form of a cardinal numeral, cannot be filled by a substantive form. While *sān* \_\_\_\_ 'three \_\_\_\_' is possible with any numerative form, substantive forms generally cannot be inserted.<sup>32</sup>

- (ii) Differently from occurrences of substantive forms, occurrences of bare numerative forms are not capable of serving as immediate constituents of sentences in Mandarin Chinese. Consequently, they cannot take syntactic modifiers, while occurrences of substantive forms of course can. Compare *tā<sub>1</sub> xǐhuan<sub>2</sub> hěn<sub>3</sub> dà<sub>4</sub> de<sub>5</sub> gǒu<sub>6</sub>* '(s)he likes big dogs', where *hěn<sub>3</sub> dà<sub>4</sub> de<sub>5</sub>* syntactically modifies *gǒu<sub>6</sub>*, with *\*tā<sub>1</sub> hēle<sub>2</sub> yī<sub>3</sub> hěn<sub>4</sub> dà<sub>5</sub> de<sub>6</sub> píng<sub>7</sub> niú<sub>8</sub>ǎi<sub>8</sub>* for '(s)he drank a big bottle of milk': *hěn<sub>4</sub> dà<sub>5</sub> de<sub>6</sub>* cannot modify *píng<sub>7</sub>*, an occurrence of a form of the measure *píng<sub>7</sub><sup>w</sup>* 'bottle'. Only *tā<sub>1</sub> hēle<sub>2</sub> yī<sub>3</sub> dàpíng<sub>4</sub> niú<sub>5</sub>ǎi<sub>5</sub>* '(s)he drank a big bottle of milk' is possible, which is, however, not a case of syntactic modification; rather, *dàpíng<sub>4</sub><sup>w</sup>* 'big-bottle' should be treated as a compound in Chinese.

These striking differences both in distribution and in function are reason enough for assigning numeratives and substantives to separate lexical categories, viz. NUMT(−, S) (numerative) and SUBST(−, S) (substantive).

On the other hand, measures and substantives do share an important property: as argued in section 4.4, occurrences of numerative forms typically serve as nuclei of numerative constructions, thus, of *referential expressions*, and so do occurrences of substantive forms. Just as *predicativity* is the defining characteristic of verbs, *referentiality* is the defining characteristic for another part of speech called SUBSTV

(“substantival word”) in Integrational Linguistics: it is characteristic of the substantival words in any language that occurrences of their forms may serve as nuclei of referential expressions.<sup>33</sup> Hence, we posit numeratives and substantives (in the narrow sense) as two separate subcategories of SUBSTV(−, *S*) in Mandarin Chinese.

Besides NUMT(−, *S*) and SUBST(−, *S*), SUBSTV(−, *S*) has at least one other subcategory, namely, the category PRON(−, *S*) which contains the (personal) pronouns *wǒ*<sup>W</sup> ‘I’, *nǐ*<sup>W</sup> ‘you’, *tāmen*<sup>W</sup> ‘they’, etc. Like numeratives and substantives, the elements of PRON(−, *S*) can occur as nuclei of referential expressions, and they share a number of other properties with substantives. However, they are distinguished from substantives by a syntactic criterion: forms of substantives can occur as second complements of numeratives, whereas forms of pronouns cannot (there is no \**sān ge wǒ*).

In summary, SUBSTV(−, *S*) is further subdivided by a unique classification in the Lexical Word Ordering (LWO)<sup>34</sup> of Mandarin Chinese idiolect systems, *Relation to Numeratives*, a classification based on the way in which substantival words relate to numeratives. There are three categories: (1) the numeratives themselves (NUMT(−, *S*)), (2) those elements of SUBSTV(−, *S*) which *may* combine (as second complements) with numeratives, i.e. the substantives in a narrow sense (SUBST(−, *S*)), and (3) those elements of SUBSTV(−, *S*) which may *not* combine with numeratives, i.e. the (substantival) pronouns (PRON(−, *S*)). This partially determines the Lexical Word Ordering for Mandarin Chinese idiolect systems *S*.<sup>35</sup>

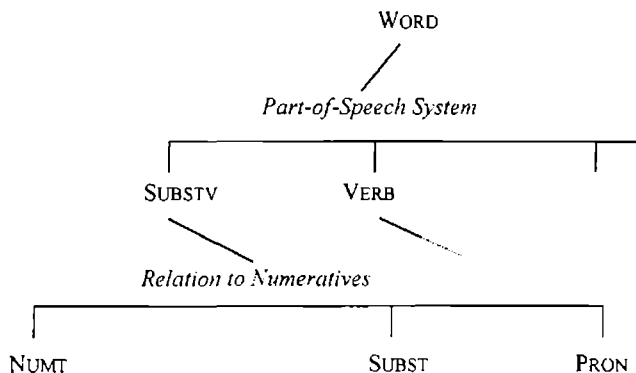


Figure 2. The Lexical Word Ordering: The substantival part (basic classification)

Neither NUMT(−, *S*) nor SUBST(−, *S*) is an *endpoint* of the LWO. Further subclassifications are needed on either category in order to account for the specific grammatical behaviour of its elements as well as for the specific interrelation of numeratives and substantives in Mandarin Chinese.

## 5.2. Subclassifications on NUMT(-, S) and SUBST(-, S)

Two subclassifications may be assumed on NUMT(-, S). The first, simply called "*Type of Numerative*", divides the numeratives into classifiers (CLASS(-, S)) and measures (MEAS(-, S)). Putting it simply, forms of measures may take forms of substantives of any type as their second complements. Forms of classifiers, however, take only forms of substantives from certain *sets* of substantives, namely, the traditional *noun classes*. Further subclassifications may be expected on MEAS(-, S). In particular, we may expect a subclassification "*Type of Measure*" based on differences in the syntactic behaviour of measures. This will not be pursued any further in the present essay.

The second subclassification on NUMT(-, S), called "*Numerative Government*", reflects the distinction made in section 4.4 between numeratives which require only a single complement and those which require a complement pair. Hence, this classification yields the government categories NUML(-, S) and NUML+NL(-, S) as informally identified in section 4.4.

There is a unique subclassification on SUBST(-, S), *Type of Substantive*, that divides the substantives into collectives (COLL(-, S)) and non-collectives (NON-COLL(-, S)). These two classes are related to the classes in *Type of Numerative*, CLASS(-, S) and MEAS(-, S), as follows: COLL(-, S) is the set of substantives which are 'combinable' both with elements of CLASS(-, S) and with elements of MEAS(-, S). NON-COLL(-, S) is the set of substantives which are 'combinable' with elements of MEAS(-, S) but *not* 'combinable' with elements of CLASS(-, S).

On NON-COLL(-, S) we assume a further subclassification, *Type of Non-Collective*, which is related to the subcategories of MEAS(-, S) given by *Type of Measure*. *Type of Non-Collective* contains at least the class of mass nouns (MASS(-, S)). Again, this will not be pursued here any further.

The assumptions made so far on the relevant part of the Mandarin Chinese LWO are summarised in the following diagram:

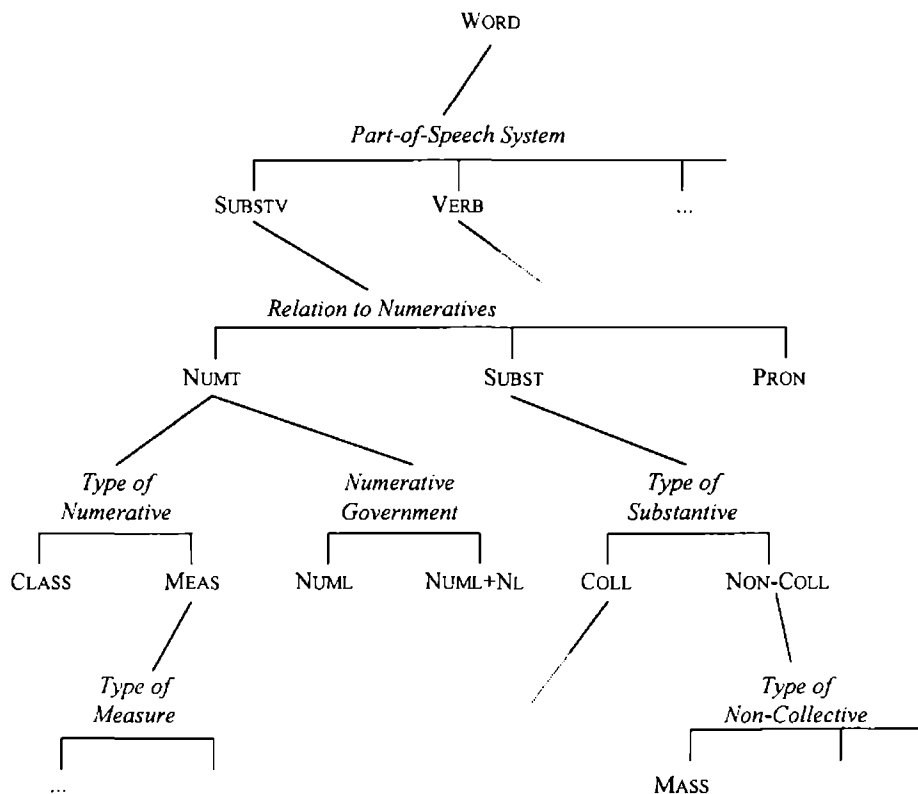


Figure 3. The Lexical Word Ordering: The substantival part (preliminary expansion)

Before considering further subclassifications on the syntactic categories identified above, we will try a formal definition of two key terms which have already been used in the previous subsections, but in an informal way.

### 5.3. Defining “NUMT”

Several *relational terms* were introduced in previous sections. Terms such as “NUM”, “SUBSTV”, “SUBST”, “PRON”, “NUMT”, “CLASS”, and “COLL” underlie expressions for syntactic categories in the idiolect systems not only of Mandarin Chinese but of a great many languages; they should therefore be *defined* in a theory of language rather than in theories of individual languages.

As indicated in section 5.1, the expression “SUBSTV” (“(is a) substantival-word-of”) is defined in semantic terms in the Integrational Theory of Language. The same

is certainly true of the expressions "SUBST" ("substantive-of"), "PRON" ("pronoun-of"), "NUM" ("numeral-of"), and "COLL" ("collective-of"). (While the definitions of these *terms* are based on semantic properties, the respective *categories* of individual idiolect systems must be syntactically identifiable.)

For the expression "NUMT", which is obviously of key importance for describing numerative expressions in Mandarin Chinese but still belongs to a theory of language, a *syntactic* definition will now be attempted, based on our syntactic analysis of numerative expressions in section 4. There will be another syntactic definition for "CLASS" in section 5.6. However, I am aware of the fact that these syntactic definitions may eventually have to be replaced by partially semantic ones in case they do not hold water when confronted with a greater number of languages. In this case the defining conditions in the following Definition G1 will reappear in a theorem of Mandarin Chinese grammar that *identifies* the set  $\text{NUMT}(-, S)$ .

From here on, all definitions belonging to a theory of language will be marked by a "G" (for "General") in front of their serial numbers, whereas definitions belonging to a grammar (a theory) of Mandarin Chinese will be marked by an "M" (for "Mandarin"):

*Definition G1.* Let  $S$  be an idiolect system.

$\langle P, b \rangle$  is a *NUMT* in  $S$  iff [if and only if]<sup>36</sup>

1.  $\langle P, b \rangle \in \text{SUBSTV}(-, S)$ ;
2. for all  $f, s = \langle k, m, I \rangle, e, f'$ , and  $f''$ , if
  - (a)  $\langle f, s, e \rangle$  is a sentence of  $S$ ,
  - (b)  $f'$  is a positional variant of a form of  $\langle P, b \rangle$ ,
  - (c)  $b$  is related to  $f'$  by  $e$ ,
  - (d)  $\langle f', f'' \rangle \in \text{nuc}(f, s, e, S)$ ,

then there is an  $f_1$  such that

- (e)  $f_1$  is marked as  $\text{NUM}(-, S)$  in  $m$ ,
- (f)  $f_1$  is a co-constituent of  $f'$  in  $f$  and  $k$ .

More informally, a lexical word  $\langle P, b \rangle$  is a *numerative* in an idiolect system  $S$  if  $\langle P, b \rangle$  is a substantival word of  $S$ , and every form of  $\langle P, b \rangle$  that occurs in a sentence of  $S$  has a co-constituent which is marked in the marking structure of the sentence as a form of a numeral of  $S$ .

Condition (2c) in the definition ensures that it is with the meaning  $b$  of the lexical word  $\langle P, b \rangle$  that its form occurs in  $f$ . (Remember that the lexical interpretation  $e$  in a sentence  $\langle f, s, e \rangle$  assigns lexical meanings to the primitive constituents of  $f$  relative to  $s$ .)

Condition (2e) makes use of the notion of 'marking structure'. Any syntactic structure  $s$  in a sentence  $\langle f, s, e \rangle$  is conceived as a triple  $\langle k, m, I \rangle$  whose second com-

ponent  $m$  is a marking structure of  $f$  (the sentence's word sequence). The marking structure contains categorial information about the primitive constituents of  $f$ . This information concerns both form categories and word categories, since it is *forms of lexical words* that occur in  $f$ . Having recourse to marking structures allows one to cover cases of elliptic numerative expressions such as the one in (10): although the constituent  $I_2$  of  $zhèi_1 I_2 bēn_3 shū_4$  is *not* an occurrence of a form of any numeral, it is still marked as NUM( $-$ ,  $S$ ) in the marking structure (not represented in (10)).

Definition G1, although inspired by our syntactic analysis of numerative expressions in Mandarin Chinese, should stand a fair chance of serving as a general definition of “numerative”: condition (1) in the definition restricts  $\langle P, b \rangle$  to substantival words of  $S$ . Among the substantival words, *pronouns* generally do not combine with numerals; *substantives*, of course, do, but then they do not *require* a ‘numeral’ co-constituent, i.e. a co-constituent marked as NUMERAL. It should be a defensible hypothesis that it is precisely forms of *numeratives* that *require* a ‘numeral’ co-constituent when occurring in a sentence—a manifestation of the close relationship between numeratives and numerals, owing to the numeratives’ lexical meanings.

As demonstrated in section 4, forms of numeratives occur as nuclei of numerative expressions, which are noun groups; with respect to their co-constituents, two cases were distinguished:

1. numeratives belonging to the category NUML( $-$ ,  $S$ ) require one complement, namely an occurrence of a form of a *numeral*;
2. numeratives belonging to the category NUML+NL( $-$ ,  $S$ ) require two complements: an occurrence of a form of a *numeral*, and an occurrence of a *nominal*.

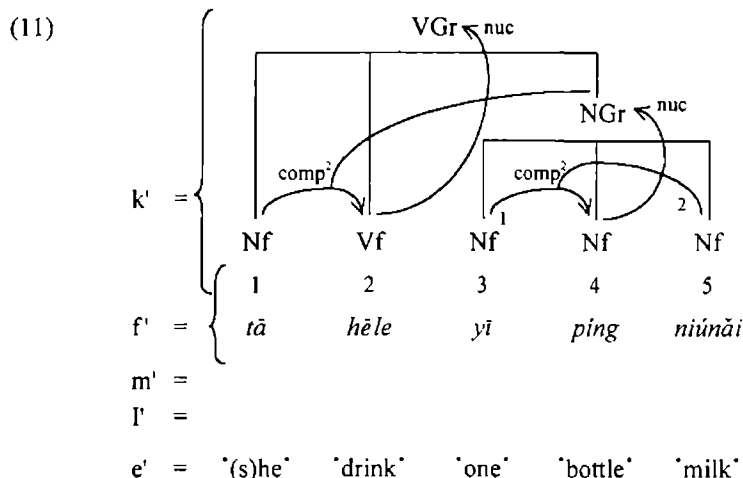
The elements of NUML( $-$ ,  $S$ ) are chiefly the so-called ‘verbal measures’ (see section 4.4). In accordance with the traditional analyses, they should be included among the numeratives in Mandarin Chinese. Therefore, Definition G1 is based upon the single most important syntactic feature that all numeratives of Mandarin Chinese have in common, namely the requirement of a numeral co-constituent: it is a key property of numeral expressions in Mandarin Chinese that no substantival words other than numeratives, i.e., neither substantives nor pronouns, require such a co-constituent.<sup>37</sup> This should at the same time be the distinctive syntactic feature of numeratives in arbitrary languages.

## 5.4. Defining “combinable”

As a first intuitive approximation, the notion of “combinability”, used in section 5.2 for informally identifying the two categories COLL( $-$ ,  $S$ ) and NON-COLL( $-$ ,  $S$ ), may

be understood as follows: a substantive is *combinable* with a numerative if there is a sentence such that a form of the substantive occurs as a syntactic complement of an occurrence of a form of the numerative in the word sequence of the sentence. (Remember that a sentence of an idiolect system  $S$  is conceived in Integrational Syntax not just as a word sequence but as a triple  $\langle f, s, e \rangle$ , where  $f$  is a word sequence of  $S$ ,  $s$  is a syntactic structure of  $f$  in  $S$ , and  $e$  is a lexical interpretation of  $f$  relative to  $s$  in  $S$ ; cf. section 3.2.6).

Take, for example, a certain sentence  $\langle f', s', e' \rangle$  of some idiolect system  $S$ , where  $f' = t\bar{a}_1 h\bar{e}l\bar{e}_2 y\bar{i}_3 p\bar{i}ng_4 ni\bar{u}n\bar{a}i_5$ ,  $s' = \langle k', m', l' \rangle$  is an appropriate syntactic structure of  $f'$  whose constituent structure component  $k'$  is such that the constituent  $y\bar{i}_3 p\bar{i}ng_4 ni\bar{u}n\bar{a}i_5$  is assigned a part of  $k'$  that corresponds to  $k_3$  and  $k_4$  in (8), and  $e'$  assigns the lexical meaning of the measure  $p\bar{i}ng^w$  'bottle' (a lexical word) to the constituent  $p\bar{i}ng_4$  of  $f'$ . The meaning of the sentence is '(s)he drank a bottle of milk'.  $\langle f', s', e' \rangle$  together with the most important syntactic relations between its constituents can be represented in a diagram as



(The marking structure  $m'$  and the intonation structure  $l'$  are here left unspecified.  $e'$  is a sequence of concepts. Remember that raised dots are used to form names of concepts; see section 3.2.4, above.)

The substantive  $ni\bar{u}n\bar{a}i^w$  'milk' (a lexical word whose meaning is 'milk') is combinable with the numerative  $p\bar{i}ng^w$  'bottle' (also a lexical word) in  $S$  because there is a sentence of  $S$ , namely,  $\langle f', s', e' \rangle$ , such that a form ( $ni\bar{u}n\bar{a}i^1$ ) of the substantive occurs as a syntactic complement ( $ni\bar{u}n\bar{a}i_5$ ) of an occurrence ( $p\bar{i}ng_4$ ) of a form ( $p\bar{i}ng^1$ ) of the numerative in the word sequence ( $t\bar{a}_1 h\bar{e}l\bar{e}_2 y\bar{i}_3 p\bar{i}ng_4 ni\bar{u}n\bar{a}i_5$ ) of the sentence.

This intuitive conception is now made precise. I choose a definition that restricts the notion of ‘combinability’ neither to Mandarin Chinese idiolect systems nor to combinability of substantives with numeratives. Moreover, the notion of complement, on which our informal explication of “combinability” relies, is replaced in the definition by the notion of co-constituency. This has mainly technical reasons. In particular, using “co-constituent” instead of “complement” helps to avoid circularity in defining the terms we will need for our analysis of the Mandarin Chinese LWO:

*Definition G2.* Let  $S$  be an idiolect system.

$\langle P_1, b_1 \rangle$  is combinable with  $\langle P_2, b_2 \rangle$  in  $S$  iff

1.  $\langle P_1, b_1 \rangle$  is a lexical word of  $S$ ;
2.  $\langle P_2, b_2 \rangle$  is a lexical word of  $S$ ;
3. there are  $f, s = \langle k, m, l \rangle, e, f_1, f_2$ , and  $f_3$  such that
  - (a)  $\langle f, s, e \rangle$  is a sentence of  $S$ ;
  - (b)  $f_1$  is a positional variant of a form of  $\langle P_1, b_1 \rangle$ ;
  - (c)  $f_2$  is a positional variant of a form of  $\langle P_2, b_2 \rangle$ ;
  - (d)  $b_1$  is related to  $f_1$  by  $e$ ;
  - (e)  $b_2$  is related to  $f_2$  by  $e$ ;
  - (f)  $\langle f_2, f_3 \rangle \in \text{nuc}(f, s, e, S)$ ;
  - (g)  $f_1$  and  $f_2$  are co-constituents in  $f$  and  $k$ .

Some comments are in order.

Conditions (1) and (2) in Definition G2 are self-evident: lexical words are conceived as pairs  $\langle P, b \rangle$  of a word paradigm  $P$  and a lexical meaning  $b$  of the paradigm. Since we define combinability of two lexical words *in an idiolect system  $S$* , we must require that both lexical words,  $\langle P_1, b_1 \rangle$  and  $\langle P_2, b_2 \rangle$ , are actually lexical words of  $S$ .

Points (b) and (c) of condition (3) allow  $f_1$  and  $f_2$  to be *occurrences* of forms of  $\langle P_1, b_1 \rangle$  and  $\langle P_2, b_2 \rangle$ , respectively, in the word sequence  $f$ . (Remember that each *form* of a lexical word is a *sequence* of phonological words; *occurrences* of a form of a lexical word in another sequence, e.g. in the word sequence of a sentence, need not be sequences but are *positional variants* of the form; cf. section 3.2.3.)

(3d) and (3e) ensure that it is with the meanings of the two lexical words that their forms occur in  $f$ . (See also the remarks on Definition G1.)

(3f) and (3g) are the central conditions in Definition G2. (3f) may be read as “The pair  $\langle f_2, f_3 \rangle$  is an element of the nucleus relation on  $f, s, e$ , and  $S$ ”, or “ $f_2$  is a nucleus of  $f_3$  relative to  $f, s, e$ , and  $S$ ”. (3f) and (3g) jointly determine (i) that  $f_1, f_2$ , and  $f_3$  are actually *constituents* of  $f$  in the constituent structure  $k$  (hence, are subsets of  $f$ ), and (ii) that  $f_3$  is a constituent of  $f$  such that  $f_2$  is the syntactic nucleus of  $f_3$ , and  $f_1$  is a co-constituent of  $f_2$ . Note that the possibility of  $f_3$  being identical with  $f$  is not excluded (every syntactic unit is a constituent of itself).



Obviously, a definition of “combinable” based on the notion of “co-constituent” is weaker than one based on “complement”: co-constituents of a nucleus constituent may be complements *or modifiers* at least. Still, the definition is specific enough for our purposes: according to the syntactic analysis of numerative expressions developed in section 4, the nucleus constituents of such expressions are occurrences of forms of numeratives, and there may be either one or two complement constituents. Since occurrences of forms of numeratives do not take syntactic modifiers (see section 5.1), there can be no co-constituent of the occurrence of the numerative form other than a complement constituent. (It is assumed that no other syntactic relations are relevant for numeratives in Mandarin Chinese.)

In sections 5.1 and 5.2, we postulated a number of syntactic categories for idiolect systems  $S$ . Definition G2 now enables us to formulate some assumptions on the interrelations between these categories:<sup>38</sup>

*Assumption 1.*  $\text{MEAS}(-, S) =$  the set of all  $\langle P, b \rangle$  such that:

- (a)  $\langle P, b \rangle \in \text{NUMT}(-, S)$ ;
- (b)  $\langle P, b \rangle \notin \text{CLASS}(-, S)$ .

*Assumption 2.*  $\text{SUBST}(-, S) =$  the set of all  $\langle P, b \rangle$  such that:

- (a)  $\langle P, b \rangle \notin \text{NUM}(-, S)$ ;
- (b) there is a  $\langle P_1, b_1 \rangle$  such that
  - $\alpha.$   $\langle P_1, b_1 \rangle \in \text{NUMT}(-, S)$ ;
  - $\beta.$   $\langle P, b \rangle$  is combinable with  $\langle P_1, b_1 \rangle$  in  $S$ .

*Assumption 3.*  $\text{COLL}(-, S) =$  the set of all  $\langle P, b \rangle$  such that:

- (a)  $\langle P, b \rangle \in \text{SUBST}(-, S)$ ;
- (b) there is a  $\langle P_1, b_1 \rangle$  such that
  - $\alpha.$   $\langle P_1, b_1 \rangle \in \text{CLASS}(-, S)$ ;
  - $\beta.$   $\langle P, b \rangle$  is combinable with  $\langle P_1, b_1 \rangle$  in  $S$ .

*Assumption 4.*  $\text{NON-COLL}(-, S) =$  the set of all  $\langle P, b \rangle$  such that:

- (a)  $\langle P, b \rangle \in \text{SUBST}(-, S)$ ;
- (b) for all  $\langle P_1, b_1 \rangle$ , if  $\langle P_1, b_1 \rangle \in \text{CLASS}(-, S)$ , then  $\langle P, b \rangle$  is not combinable with  $\langle P_1, b_1 \rangle$  in  $S$ .

Note that the categories  $\text{COLL}(-, S)$  and  $\text{NON-COLL}(-, S)$  are identified here in syntactic terms, namely through combinability with elements of  $\text{CLASS}(-, S)$ .

Not yet represented in Figure 3 is the specific interaction of classifiers with collectives. This characteristic feature of Mandarin Chinese is accounted for by a classification system on the category  $\text{COLL}(-, S)$  now to be examined.

## 5.5. The Noun Class System

Any form of a *classifier* when occurring in a classifier expression requires an occurrence of a form of a *numeral* as its first complement, and an occurrence of a form of a *collective* as its second complement. Moreover, a form of a 'suitable' collective is required, i.e. the collective must belong to the right 'noun class'. Put differently, we may say that the classifiers impose a subdivision on the set of collectives: for each classifier in  $S$ , there is a subset of  $\text{COLL}(-, S)$  whose elements are combinable with the classifier.

In large parts of the relevant literature it is taken for granted that this phenomenon, known as 'noun classification', 'nominal classification', or 'numeral classification'—i.e., the relationship between (numeral) classifiers and noun classes, and the interrelation among noun classes—is basically a semantic one even synchronically. Therefore, much research centres around the semantic criteria supposedly underlying the noun classes.

I will come back to this problem in section 6, where the relation of 'compatibility' between the classifiers and the elements of the corresponding noun classes will be investigated. At this point suffice it to say that noun classification should be regarded as a phenomenon that is syntactically reflected in the LWO of Mandarin Chinese systems. In particular, I assume that  $\text{COLL}(-, S)$  is the source of a further classification system within the LWO, the *Noun Class System*, which yields the traditional *noun classes* such as  $\text{BEN}(-, S)$ ,  $\text{ZHANG}(-, S)$ ,  $\text{TIAO}(-, S)$  etc. These categories are to be understood as classes of collectives which are combinable (in the sense of Definition G2) with the classifiers  $běn^w$ ,  $zhāng^w$ ,  $tiáo^w$  etc., respectively.

It might be suggested that the syntactic aspect of noun classification, as far as the LWO is concerned, can simply be dealt with by a single flat subclassification on  $\text{COLL}(-, S)$  that gives us the noun classes immediately. Unfortunately, matters are not that simple.

The problem is in the classifier  $ge^w$  and its corresponding noun class  $\text{GE}(-, S)$ .  $ge^w$  is often referred to as the 'general' classifier (as opposed to the 'specific' classifiers) in the classification literature, partly because  $\text{GE}(-, S)$  contains many more elements than the 'specific' classes  $\text{BEN}(-, S)$ ,  $\text{ZHANG}(-, S)$ ,  $\text{TIAO}(-, S)$ , etc.; moreover,  $ge^w$  combines with many collectives that simultaneously belong to other noun classes. Still,  $ge^w$  enters into classifier expressions in exactly the same way as all the other classifiers. So what is problematic about the classifier  $ge^w$ ?

It can be observed that the noun classes in Mandarin Chinese frequently *overlap*: one collective may simultaneously belong to more than one noun class (be combinable with more than one classifier). For example, the lexical word  $jīngyú^w$  'whale' is an element of the noun classes  $\text{TOU}(-, S)$  and  $\text{TIAO}(-, S)$  at the same time; and the

lexical word *gǒu*<sup>W</sup> 'dog' belongs to ZHI(−, S) and TIAO(−, S). Hence, the noun classes TOU(−, S) and TIAO(−, S) overlap, and so do ZHI(−, S) and TIAO(−, S).<sup>39</sup>

The noun class related to the classifier *ge*<sup>W</sup> also overlaps with other classes. For example, the collective *cháhu*<sup>W</sup> 'teapot' is combinable with the classifiers *bā*<sup>W</sup> and *ge*<sup>W</sup>; hence, the classes BA(−, S) and GE(−, S) overlap. The problem now is that there are some smaller noun classes which apparently do not only *overlap with* but are completely *contained in* GE(−, S).<sup>40</sup> Put differently, there are noun classes that are proper *subsets* of the noun class GE(−, S).

This poses a theoretical problem. It is assumed in Integrational Syntax that the Lexical Word Ordering of any idiolect system S is a *classification system* on the set of all lexical words of S. By definition, no class in a classification may be a proper subset of another class in the same classification. This means that the noun class GE(−, S) cannot be obtained together with all the other noun classes by a single classification on COLL(−, S). Rather, we must find a way to single out the class GE(−, S) from the others.

I propose the following solution. In keeping with the usual idea that *ge*<sup>W</sup> is the 'general' classifier and the others are more 'specific', I posit a first classification on COLL(−, S), called "*ge-Status*", that yields the classes GE(−, S) and SPECIFIC(−, S). GE(−, S) is the set of all collectives that are combinable with *ge*<sup>W</sup>. SPECIFIC(−, S) contains all collectives that are combinable with one or more of the other (specific) classifiers. GE(−, S) and SPECIFIC(−, S) overlap to a large extent, because many collectives are combinable with one of the specific classifiers *and* with *ge*<sup>W</sup>. Still, there are collectives belonging solely to GE(−, S), such as *rén*<sup>W</sup> 'person' and *shēnti*<sup>W</sup> 'body' which both are combinable with *ge*<sup>W</sup> but with no specific classifier; and there are collectives belonging solely to SPECIFIC(−, S), such as *shū*<sup>W</sup> 'book' which is combinable with the (specific) classifier *běn*<sup>W</sup> but not with *ge*<sup>W</sup>.

There is a further subclassification on the category SPECIFIC(−, S), to be called the "*Specific Noun Class Division*", which yields the 'specific' noun classes BEN(−, S), TIAO(−, S), ZHANG(−, S) etc. No noun class related to the classifier *ge*<sup>W</sup> is assumed in this classification. We now get the following picture for the *Noun Class System of S*, a classification system whose source is COLL(−, S):

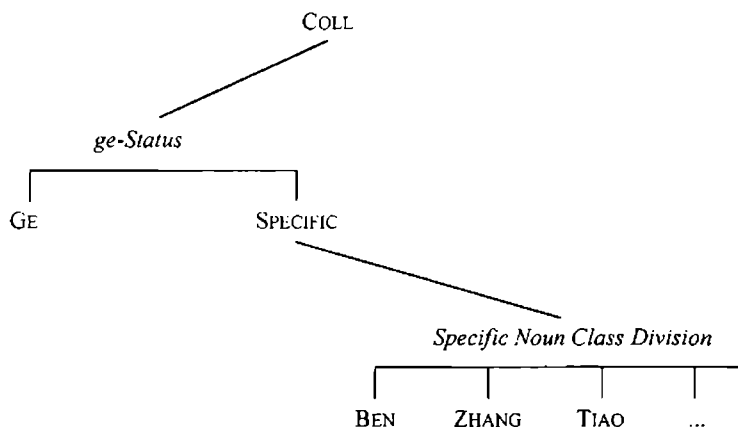


Figure 4. The Noun Class System of *S*

(Note that the Noun Class System is part of the LWO, so that Figure 4 expands Figure 3.)

This solution shows that the intuitive observation—frequently made in the literature—of *ge*<sup>w</sup> being the ‘general classifier’ is well-founded: *ge*<sup>w</sup> is ‘general’ not only in the sense that it combines with a much greater number of collective nouns than the other classifiers; its noun class *GE*(−, *S*) also stands in clear opposition to the ‘specific’ noun classes within the Noun Class System of *S*.

Now consider some specific noun class like *DING*(−, *S*). Each collective in this class is combinable with *dīng*<sup>w</sup> and with *ge*<sup>w</sup>; hence, *DING*(−, *S*) is a subset of *GE*(−, *S*). This is now innocuous since both classes belong to different classifications.

The following Figure 5 shows how some of the sample words used in this section are categorised through the LWO of *S*:

Word	Meaning in English	Categories
<i>shēntǐ</i> <sup>w</sup>	‘body’	<i>GE</i> (−, <i>S</i> )
<i>shū</i> <sup>w</sup>	‘book’	<i>BEN</i> (−, <i>S</i> )
<i>cháhú</i> <sup>w</sup>	‘teapot’	<i>BA</i> (−, <i>S</i> ), <i>GE</i> (−, <i>S</i> )
<i>jīngyú</i> <sup>w</sup>	‘whale’	<i>TOU</i> (−, <i>S</i> ), <i>TIAO</i> (−, <i>S</i> )

Figure 5. Some collectives of *S* and their noun classes

## 5.6. Noun class terminology (1): Terms specific to a grammar of Mandarin Chinese

Differently from relational terms such as "SUBST" and "COLL", the terms used in the expressions for individual noun classes should not be defined in a theory of language but in a grammar of Mandarin Chinese: "GE", "BEN", "ZHANG", "TIAO" etc. all underlie expressions for categories which occur only in Mandarin Chinese idiolect systems. Other terms, such as "noun class", "Noun Class System", and "numeral classifier language", should again apply more generally and should therefore be defined not in a grammar of Mandarin Chinese but in a theory of language.

In this subsection, I will suggest some definitions for terms specific to a grammar of Mandarin Chinese, followed in the next subsection by some definitions of a theory of language (continuing the chain of definitions starting with "NUMT" and "combinable" in sections 5.3 and 5.4). It is important to note in this connection that a theory of an individual language (such as a grammar) should be formulated in terms of a general theory of language. This means, in particular, that terms defined in the underlying theory of language are available in the grammar, but not vice versa; in other words, the terms of the theory of language must precede the terms of the grammar in any chain of definitions. For developing my analysis, however, I will turn to the definitions specific to a grammar of Mandarin Chinese first, but the chain of definitions (marked by "G") from the theory of language systematically precedes the entire chain of definitions (marked by "M") specific to a grammar of Mandarin Chinese.

As indicated above, relational terms like "GE", "BEN", and "ZHANG" should be defined using the names of the corresponding classifiers. The definition of "BEN", for example, proceeds in two steps: first, we define "*běn*<sup>W</sup>"; second, we define "BEN".

As a first step in defining "*běn*<sup>W</sup>", we have to define the expression "*běn*" as a name of the phonological word whose unit sequence is the only form of the paradigm *běn*<sup>P</sup>; the paradigm, in turn, is the first component of the lexical word *běn*<sup>W</sup>. I will skip this definition because it would lead us too far into Integrational Phonology. Moreover, the concept 'ben' which is the lexical meaning of the classifier *běn*<sup>W</sup> will not be defined here, since I am not dealing with classifier semantics in the present essay.

Suppose that the terms "*běn*" and "'ben'" have been defined. Every classifier in Mandarin Chinese has only a single form; for simplicity's sake, I here assume that this form is simply categorised as a Noun form in the classifier's paradigm. Hence, the terms "*běn*<sup>P</sup>" and "*běn*<sup>W</sup>" are defined as follows:

Let  $S$  be a Mandarin Chinese idiolect system.

*Definition M1.*

$$b\check{e}n^P(S) =_{df} \{ \langle b\check{e}n^1, \{Nf(-, S)\} \rangle \}.$$

*Definition M2.*

$$b\check{e}n^W(S) =_{df} \langle b\check{e}n^P(S), 'ben' \rangle.^{41}$$

Using the term “combinable-with-in” defined in section 5.3, we can now define “BEN”:

*Definition M3.* Let  $S$  be a Mandarin Chinese idiolect system.

$\langle P, b \rangle$  is *BEN* in  $S$  iff

1.  $\langle P, b \rangle \in \text{COLL}(-, S)$ ;
2.  $\langle P, b \rangle$  is combinable with  $b\check{e}n^W(S)$  in  $S$ .

Obviously, all other terms from which names of Mandarin Chinese noun classes are derived, including the term “GE”, can be defined along the same lines. Only the term “SPECIFIC” which is not related to a single classifier, must be defined in a different way:

*Definition M4.* Let  $S$  be a Mandarin Chinese idiolect system.

$\langle P, b \rangle$  is *SPECIFIC* in  $S$  iff

1.  $\langle P, b \rangle \in \text{COLL}(-, S)$ ;
2. there is a  $\langle P_1, b_1 \rangle$  such that
  - (a)  $\langle P_1, b_1 \rangle \in \text{CLASS}(-, S)$ ;
  - (b)  $\langle P_1, b_1 \rangle \neq ge^W(S)$ ;
  - (c)  $\langle P, b \rangle$  is combinable with  $\langle P_1, b_1 \rangle$  in  $S$ .

(Conditions (2a) to (2c) in Definition M4 jointly determine that there must be a classifier *other than*  $ge^W$  with which  $\langle P, b \rangle$  is combinable.)

All terms needed for the noun class systems of Mandarin Chinese idiolect systems (possible, of other numeral classifier languages as well) can be defined on the pattern of Definitions M1 to M4. We shall now try to define some more general terms.

## 5.7. Noun class terminology (2): Terms of a theory of language

I hypothesise that the analysis proposed in this essay for the numeratives and classifiers in Mandarin Chinese applies in any ‘numeral classifier language’ (there may be other types of classifier languages; cf. Allan 1977): numeratives are substantial words *requiring* rather than allowing a form of a numeral occurring as a co-constituent; classifiers are numeratives with which only collectives (but no non-

collectives) are combinable, due to their semantic role as “individual measures” (Chao 1968: 585) or “unit counters” (Greenberg 1974: 10 and *passim*) in classifier expressions. Thus, the term “classifier” can be defined as follows:

*Definition G3.* Let  $S$  be an idiolect system.

$\langle P, b \rangle$  is a *CLASSIFIER* in  $S$  iff

1.  $\langle P, b \rangle \in \text{NUMT}(-, S)$ ;
2. there is a  $\langle P_1, b_1 \rangle$  such that
  - (a)  $\langle P_1, b_1 \rangle \in \text{COLL}(-, S)$ ;
  - (b)  $\langle P_1, b_1 \rangle$  is combinable with  $\langle P, b \rangle$  in  $S$ ;
3. for all  $\langle P_1, b_1 \rangle \in \text{WORD}(-, S)$ , if  $\langle P_1, b_1 \rangle \notin \text{COLL}(-, S)$ , then  $\langle P_1, b_1 \rangle$  is *not* combinable with  $\langle P, b \rangle$  in  $S$ .

$\text{WORD}(-, S)$  is the set of all lexical words of  $S$  (the source of the LWO of  $S$ ). Hence, “for all  $\langle P_1, b_1 \rangle \in \text{WORD}(-, S)$ ” in condition (3) can be rendered more informally as “for all lexical words  $\langle P_1, b_1 \rangle$  of  $S$ ”.

Note that the definition of “classifier” (“CLASS”) does not presuppose a notion of “noun class”. Thereby the definition allows for the limiting case of a language in whose idiolect systems there is only a single numeral classifier that serves as a ‘unit counter’ for all collectives. Next, we define the notion of “noun class”:

*Definition G4.* Let  $S$  be an idiolect system.

$L$  is a *noun class* of  $S$  iff

there is a  $\langle P, b \rangle$  such that

1.  $\langle P, b \rangle \in \text{CLASS}(-, S)$ ;
2.  $L =$  the set of  $\langle P_1, b_1 \rangle$  such that
  - (a)  $\langle P_1, b_1 \rangle \in \text{COLL}(-, S)$ ,
  - (b)  $\langle P_1, b_1 \rangle$  is combinable with  $\langle P, b \rangle$  in  $S$ .

Again, the limiting case of a single noun class containing all collectives is not excluded. Based on the notion of “noun class”, we now define “numeral classifier language”:

*Definition G5.* Let  $D$  be a language.

$D$  is a *numeral classifier language* iff

for all  $S$ , if  $S$  is an idiolect system in  $D$ , then there is a  $Q$  such that

1.  $Q$  is a classification system on  $\text{COLL}(-, S)$ ;
2. for all  $L$ , if  $L$  is an endpoint of  $Q$ , then  $L$  is a noun class of  $S$ ;
3.  $Q \subseteq \text{LWO}(S)$ .

Note that Definition G5 is based indirectly on the term “classifier”, since “classifier” enters into the definition of the term “noun class” as used in condition (2) of Definition G5.

The variable “Q” in the definition stands, in particular, for the Noun Class System of a numeral classifier language. According to section 5.5, the Noun Class System is to be a *classification system* that is part of the Lexical Word Ordering (LWO), rather than a simple classification: any classification system is a (non-empty, finite) *set of classifications*. The LWO of any idiolect system S is a classification system on the set of lexical words of S (cf. section 3.2.5), and the Noun Class System is a *subset* of the LWO (condition (3) in Definition G5).

Condition (1) implies that  $\text{COLL}(-, S)$  is non-empty. (1) and (2) imply that there must be more than one noun class in every idiolect system of a numeral classifier language. Hence, even if *head*<sup>w</sup> (as used in *three head of cattle*) were analysed as a numeral classifier in English and *cattle*<sup>w</sup> as an element of a corresponding ‘noun class’, English would still not be a numeral classifier language.<sup>42</sup>

Finally, we can define the notion of “Noun Class System”:

*Definition G6.* Let D be a numeral classifier language and S an idiolect system of D.

*The Noun Class System of S* = the greatest Q such that Q and S satisfy conditions (1) to (3) in Definition G5.

The definitions given here represent a first draft of a chain of definitions linking the various phenomena in connection with numeratives, collectives, classifiers, and noun classes. Individual definitions may still have to be refined when confronted with empirical facts from a wider range of classifier languages.<sup>43</sup> Still, they should give an impression of how the various notions needed in this area can be systematically explicated and interrelated.

The syntactic analysis developed in sections 4 and 5 does not yet solve all problems relating to Noun Class Systems. There is one problem that I am still going to tackle at least with respect to Mandarin Chinese: the problem of ‘compatibility’ between a classifier and the collectives in the corresponding noun class.

## 6. The systematic basis of ‘nc-compatibility’

### 6.1. Introduction

The conceptions of “noun class” and “Noun Class System” developed in sections 5.5 to 5.7 are based on the syntactic notion of combinability (defined in sec-



tion 5.4) between the elements of a certain set of lexical words and a classifier (cf. Definitions G4 and G6 in section 5.7). For instance, *běn*<sup>1</sup>, the only form of the classifier *běn*<sup>W</sup>, can occur as the syntactic nucleus of a classifier expression of some idiolect system *S*. It then requires a co-constituent that is an occurrence of a nominal (Noun form or Noun Group); the nucleus of this nominal must in turn be an occurrence of a form of a collective belonging to a certain noun class, namely, the noun class BEN(−, *S*) (cf. Definition M3). BEN(−, *S*) contains collectives such as *shū*<sup>W</sup> ‘book’, *zázhì*<sup>W</sup> ‘magazine’, *xiǎoshuō*<sup>W</sup> ‘novel’ etc.

However, there is an important question that still remains unanswered: *Why* are certain collectives combinable with a given classifiers, whereas the use of any other substantive together with the classifier leads to ungrammaticality? Obviously, there must be a relation between classifiers and collectives that somehow determines their combinability. I will call this relation “noun class compatibility”, or “nc-compatibility”, for short. The question then is: How should the relation of ‘nc-compatibility’ between a classifier and a collective be conceived?

First of all, ‘nc-compatibility’ must be kept apart from the relation of combinability defined in section 5.4. Combinability is a relation between arbitrary lexical words in the idiolect systems of arbitrary languages. ‘nc-compatibility’ is to be a relation between classifiers and collectives in numeral classifier languages.

## 6.2. Semantic basis or semantic bias?

As mentioned above, nc-compatibility is frequently seen in the literature as a *semantic* phenomenon. It is claimed that the relation between a classifier and a collective is semantically motivated in the sense that classifiers denote certain perceivable features of physical objects. A classifier is compatible with a substantive if and only if all features denoted by the classifier are inherent to the objects denoted by the substantive (or, as Allan 1977: 291 puts it, “classifiers can be identified by the semantic characteristics of the class of nouns in their domain”).

For example, the collectives combinable with the classifier *pī*<sup>W</sup> by and large denote hooved animals suitable for riding. The classifier *tiáo*<sup>W</sup> is said to be compatible with collectives which denote ‘saliently long, thin, flexible or winding objects’, such as streets, snakes, scarves, fishes, dragons, earthworms, and some breeds of dogs (especially those long, rather sausage-shaped breeds like dachshunds); *bǎ*<sup>W</sup> is said to be compatible with collectives denoting objects ‘with a handle’ such as teapots, chairs (!), and umbrellas; and the classifier *dīng*<sup>W</sup> is claimed to be used ‘with certain objects with a top’, or, even more vaguely, ‘with hats, sedan chairs, mosquito nets, etc.’.

This approach is highly problematic, because the compatibility of classifiers with the corresponding collectives can be accounted for semantically only to some extent; the semantic motivation is not completely transparent. Put differently, the right classifier for a given collective can be inferred from perceivable features of the collective's referents, such as their shape, only with a certain probability. Which classifiers are compatible with a given collective must be learned—a fact noted by many authors. For example, Li—Thompson (1981: 112) point out that

by and large, which nouns occur with which classifier must be memorized, though there is a slight amount of regularity with respect to the meanings of groups of nouns taking the same classifier.

And Allan (1977: 296–297), in his famous paper on classifiers, remarks on numeral classifier languages in general that

[t]his imposition of convention over perception must qualify any claim that noun classification operates freely according to the salient characteristic of the referent. It may be true that most noun classes have been established on a perceptual basis; but presumably most classification is fossilized by conventions that restrict innovation.

Without entering into a full discussion, it should be correct to say that with respect to noun classes and numeral classifiers in Mandarin Chinese, we can speak of no more than a 'semantic bias' rather than a 'semantic basis'.<sup>44</sup>

### 6.3. Semantic bias and syntactic basis

If it is true that the relationship between the classifiers and the noun classes of a given language cannot be fully explained in semantic terms, this means, flatly, that there must be a *syntactic basis* for this relationship in the idiolect systems of that language. I tried to demonstrate in section 5.5 how an important part of such a formal basis can be anchored in the Lexical Word Ordering of Mandarin Chinese idiolect systems (and of numeral classifier languages in general), namely, by assuming a classification system, the Noun Class System, on the set of collectives.

Still, even though the noun classes are semantically not *fully* transparent and must, therefore, be formally identified, their 'semantic bias' remains quite noticeable. Put differently, noun classification in Chinese, although completely grammaticalised, is historically much closer to its semantic origin than, say, the gender distinction in

Indo-European languages. It is precisely in the context of historical linguistics and grammaticalisation that research on the semantic or cognitive basis for noun classification can be assigned its proper place in the description of languages such as Mandarin Chinese. However, I regard it as a grave misconception to try to explain in semantic or cognitive terms why a given substantive in some modern variety of Mandarin Chinese belongs to this rather than that noun class. Ultimately, this makes sense as little as trying to find semantic reasons for the fact that the German substantive *tisch*<sup>W</sup> 'table' is masculine rather than feminine or neuter.

Moreover, the overall conception developed so far in this essay indicates that the question of semantic motivation or non-motivation of noun classes is actually immaterial for a synchronic description of the phenomenon, as long as a syntactic basis for both the individual noun classes and the relation of nc-compatibility *can* be ensured. In this case, even complete semantic motivation of noun classes would not alter the fact that they qualify as *syntactic* classes since they can be determined through the formal behaviour of their elements.

The syntactic basis for noun classes was established in sections 5.5 to 5.7 (cf., in particular, Definition M3). However, this account is obviously not yet complete: assuming a system of noun classes does not explain in which respect expressions like  $sān_1 bēn_2 shū_3$  are acceptable, whereas expressions combining a classifier with an incompatible substantive are not.

Take, for example, the expressions  $*sān_1 bēn_2 mǎ_3$  and  $*sān_1 bēn_2 shuǐ_3$ .  $mǎ_3$  is an occurrence of a form of the collective  $mǎ^W$  'horse', which is not an element of  $BEN(-, S)$ , the noun class associated with the classifier  $bēn^W$ ; and  $shuǐ_3$  is an occurrence of a form of the substantive  $shuǐ^W$  'water', which is not even a collective. In section 4.4, we tentatively assumed that all classifiers of  $S$  (together with many measures) belong to a *government category*  $NUML+NL(-, S)$ . This means that each form of a classifier, when occurring in a sentence, requires a complement pair consisting of an occurrence of a form of a numeral (with the qualification made in section 4.4) and an occurrence of a Noun form or Noun Group. Obviously, the pairs  $\langle sān_1, mǎ_3 \rangle$  and  $\langle sān_1, shuǐ_3 \rangle$  satisfy this condition. So what is wrong with  $*sān_1 bēn_2 mǎ_3$  and  $*sān_1 bēn_2 shuǐ_3$ ?

The Integrational Theory of Language allows us to consider three different types of solutions: the two expressions may have to be excluded either by certain conditions in the lexical meaning of the classifier  $bēn^W$ ; or by conditions of government; or by conditions of agreement. Treating compatibility restrictions through agreement requires assumptions on form categories and the structure of classifier paradigms in Mandarin Chinese which can hardly be vindicated. The reasons for this are highly complex and cannot be discussed in this essay.<sup>45</sup> I only consider the two remaining possibilities.

## 6.4. Compatibility restrictions through lexical meaning

Take so-called language-relative word meanings as allowed in Integrational Semantics. Meanings of this type are assumed in particular for proper names and personal pronouns (see Lieb 1981: section 5 for the meanings of proper names, 1983a: section 10 for the 'grammatical' meanings of third person pronouns in German). For instance, using the German third person pronoun  $er_1^W$  having a 'grammatical' meaning, a speaker of German can refer by  $er_1$  in  $er_1$   $ist_2$   $nicht_3$   $hier_4$  'he/it is not here' to, roughly, any object denoted by a German *masculine* substantive (compare German *Wo ist der Tisch? Er ist nicht hier.* but *\*Wo ist die Lampe? Er ist nicht hier.*).

According to the General Valency Hypothesis (see section 3.2.4) and our syntactic analysis of numerative expressions (section 4), the lexical meanings of classifiers in Mandarin Chinese must be 3-place concepts since the valency of these words is 2, i.e. their forms take a complement *pair* when occurring in a sentence.

Generally, the extension of an  $n$ -place concept is a set of  $n$ -tuples. Consider, for example, the English verb  $eat^W = (eat^P, 'eat')$  whose valency is 2 and whose meaning component is the 3-place concept 'eat'. The extension of 'eat' is an (indefinitely large) set of triples  $\langle x, x_1, x_2 \rangle$ , where  $x$  is an action of eating,  $x_1$  an eater, and  $x_2$  an entity eaten.

Since classifier meanings are 3-place, their extensions must be sets of triples, too. We may assume that the first components in these triples relate to the classifier's 'individualising' function in numerative expressions; the second components to numbers; and the third components to the entities counted. Syntactically, the numbers and the entities counted are represented by, respectively, the first and second complement constituents in classifier expressions.

Now suppose that any concept that is the lexical meaning of a classifier in Mandarin Chinese contains a unique 'noun class condition'. For example, the concept 'ben', which is the lexical meaning of the classifier  $bēn^W$ , would contain the following condition: for each triple in the extension of 'ben', the third component must be in the extension of the lexical meaning of some substantive in the noun class  $BEN(-, S)$  (more concisely: must be denoted by a BEN-substantive of  $S$ ). Whenever the classifier  $bēn^W$  is combined with a substantive which does *not* belong to  $BEN(-, S)$ , a case of semantic incompatibility occurs.

Consider, again, the classifier expression  $sān_1 bēn_2 shū_3$  of  $S$ .  $sān_1$  and  $shū_3$  represent the second and third components, respectively, of certain triples in the extension of 'ben'.  $shū_3$  is an occurrence of a form of the substantive  $shū^W = \langle shū^P, 'shu' \rangle$ .  $shū^W$  is in the noun class  $BEN(-, S)$ . The lexical meaning of  $shū^W$  is the 1-place concept 'shu' ('book') whose extension is the set of all books. Put differently, each book fulfils the condition of being in the extension of the lexical mean-

ing ('shu') of a substantive ( $shū^w$ ) in the noun class  $BEN(-, S)$  and can therefore occur as the third component of a triple in the extension of 'ben', the lexical meaning of the classifier  $běn^w$ . Hence,  $sān_1 bēn_2 shū_3$  is a well-formed classifier expression in  $S$ .

This solution, however, runs into the following problem. Whether a constituent  $f_1$  is a complement of a certain co-constituent  $f_2$  in a given sentence depends solely on two things: the government category for which the constituent  $f_2$  is marked, and on  $f_1$  satisfying the conditions laid down in the government category. These conditions may be syntactic or semantic but are still encoded syntactically, namely, in the government category (government categories are sets of lexical words, hence, syntactic entities). The lexical meaning of  $f_2$  is not directly involved in determining whether  $f_1$  can serve as a complement or not.

Take, then, our malformed example  $*sān_1 bēn_2 mǎ_3$  and the government category  $NUML+NL(-, S)$  to which  $bēn^w$  (along with all other classifiers) was tentatively assigned in section 4.4. The pair  $\langle sān_1, mǎ_3 \rangle$  does satisfy the conditions laid down in  $NUML+NL(-, S)$  ( $sān_1$  is an occurrence of a form of a numeral, and  $mǎ_3$  an occurrence of a nominal). Therefore,  $\langle sān_1, mǎ_3 \rangle$  now is a complement pair of  $bēn_2$ , and the expression  $sān_1 bēn_2 mǎ_3$  (given the usual syntactic structure and assignment of lexical meanings) now is grammatical. Since we still want to mark it as deviant, this could only be semantic deviance such as in English *\*fred sleeps in his telephone number*, which is grammatical but semantically deviant (and therefore uninterpretable).

This solution is hardly acceptable: if somebody utters  $sān_1 bēn_2 mǎ_3$ , we can still interpret it in the sense of "three horses", but we would say that the speaker has made a 'grammatical mistake', just as a speaker saying *\*the cats be sleeping* in English.

In summary, word meanings of classifiers provide no basis for treating the deviancy of expressions like  $*sān_1 bēn_2 mǎ_3$  in an appropriate way.

## 6.5. Compatibility restrictions through government

In order to mark  $*sān_1 bēn_2 mǎ_3$  and  $*sān_1 bēn_2 shuǐ_3$  as ungrammatical and exclude  $\langle sān_1, mǎ_3 \rangle$  and  $\langle sān_1, shuǐ_3 \rangle$  from being complement pairs of  $bēn_2$ , we may have recourse to the government category associated with  $bēn^w$ . The category is made more specific: as demonstrated above, it is not enough to require that the second complement of  $bēn_2$  be a nominal; rather, we must require a nominal whose nucleus is an occurrence of a form of a substantive in the noun class  $BEN(-, S)$ . Since  $mǎ^w$  'horse' is not an element of  $BEN(-, S)$ , its only form  $mǎ^1$  cannot occur as a comple-

ment of  $b\check{e}n_2$ .  $*s\bar{a}n_1 b\check{e}n_2 m\check{a}_3$  now is ungrammatical because  $m\check{a}_3$  is no longer related to any other part of the expression by a syntactic relation.

This solution makes it necessary to posit a separate government category for each classifier (of which the classifier is in turn the only element), because each classifier is connected with a different noun class ( $b\check{e}n^w$  with  $BEN(-, S)$ ,  $ti\acute{a}o^w$  with  $TIAO(-, S)$ , etc.). For the classifier  $b\check{e}n^w$ , for instance, there must be a government category  $NUML+BEN(-, S)$ , understood as the set of all classifiers (lexical words) with the following property: whenever a form of one of these classifiers occurs in a non-elliptic sentence, it requires two co-constituents, such that one constituent is an occurrence of a form of a numeral or a corresponding expression<sup>46</sup> and the other is an occurrence of a nominal *whose nucleus is an occurrence of a form of a substantive in [the noun class]  $BEN(-, S)$* . The only element of the government category  $NUML+BEN(-, S)$  is the classifier  $b\check{e}n^w$  itself.

Relational terms like “ $NUML+BEN$ ”, from which the expressions for individual government categories for classifiers are derived, can be defined on the following pattern:

*Definition M5.* Let  $S$  be a Mandarin Chinese idiolect system.

$\langle P, b \rangle$  is  $NUML+BEN$  in  $S$  iff

1.  $\langle P, b \rangle \in CLASS(-, S)$ ;
2. for all  $f, s = \langle k, m, l \rangle, e, f'$ , and  $f''$ , if
  - (a)  $\langle f, s, e \rangle$  is a sentence of  $S$ ;
  - (b)  $f'$  is a positional variant of a form of  $\langle P, b \rangle$ ;
  - (c)  $b$  is related to  $f'$  by  $e$ ;
  - (d)  $\langle f', f'' \rangle \in nuc(f, s, e, S)$ ;
 then there is an  $f_1$  and  $f_2$  such that
  - (e)  $f_1$  is marked as  $NUM(-, S)$  in  $m$ ;
  - (f)  $f_2$  is marked as  $BEN(-, S)$  in  $m$ ;
  - (g)  $f_1$  and  $f_2$  are co-constituents of  $f'$  in  $f$  and  $k$ .

More informally, a lexical word  $\langle P, b \rangle$  is  $NUML+BEN$  in an idiolect system  $S$  if  $\langle P, b \rangle$  is a classifier of  $S$ , and if every form of  $\langle P, b \rangle$  that occurs in a sentence of  $S$  has two co-constituents, one marked as a numeral in the marking structure of the sentence, and the other as substantive in  $BEN(-, S)$ .

The individual government categories for classifiers are obtained through a sub-classification in the Lexical Word Ordering whose basis is  $CLASS(-, S)$ . This classification may simply be called “*Classifier Government*”. At the same time, the original classification *Numerative Government* in Figure 3 that supplies the categories  $NUML(-, S)$  and  $NUML+NL(-, S)$  now becomes irrelevant for classifiers and should

be based on  $\text{MEAS}(-, S)$  rather than on  $\text{NUMT}(-, S)$  and renamed “*Measure Government*”.<sup>47</sup>

Under this type of analysis, the compatibility between a classifier and a substantive from a certain noun class is conceived as a purely syntactic relation. No reference to properties of lexical meanings is required at any point.

A solution by which every classifier is the only element of a specific government category may seem odd at first. However, it is simply the precise expression of the informal observation that every *single* classifier combines with a *single* set of substantives. This is, so to speak, the syntactic essence of numeral classifiers.

## 6.6. Conclusion

In sections 6.1 to 6.3 it was argued that synchronically ‘noun classification’ must be treated as a syntactic phenomenon anchored in the idiolect systems of ‘numeral classifier languages’, rather than a purely semantic phenomenon. Consequently, a way had to be found to deal with the typical ‘compatibility restrictions’ between classifiers and collectives in such idiolect systems.

Of the two theoretical approaches discussed in section 6, the first had to be rejected: accounting for compatibility restrictions through the lexical meanings of classifiers (section 6.4) does not lead anywhere. Only the approach that attributes compatibility restrictions to government properties of classifiers (section 6.5) allows one to account for all relevant phenomena in a clear and consistent way.

The following diagram summarises the assumptions made in this essay on the substantial part of the LWO in Mandarin Chinese idiolect systems:

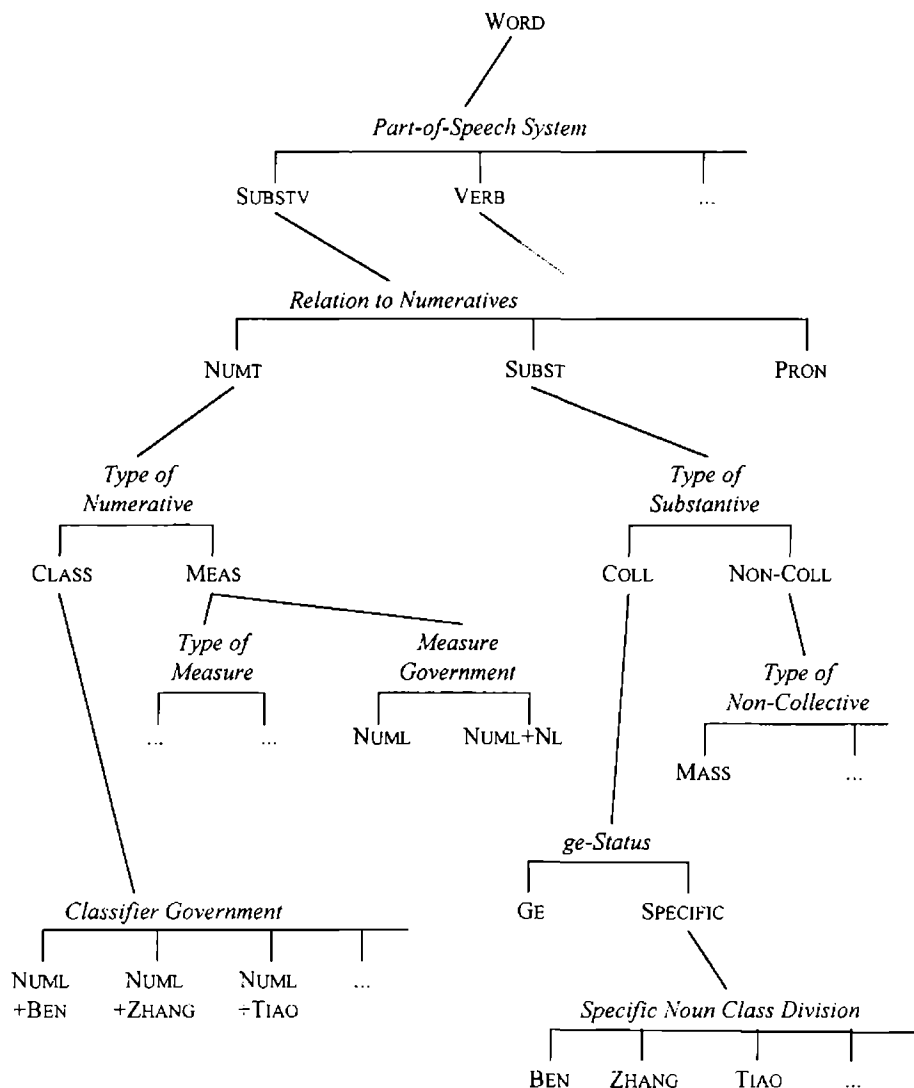


Figure 6. The Lexical Word Ordering: The substantival part (final version)

## 7. Summary and outlook

Our analysis of Mandarin Chinese numerative expressions proceeded in three main steps. After characterising the problem (section 2) and the theoretical background of



this essay (section 3), we examined the syntactic structure of numerative expressions (section 4), the place of numeratives and substantives within the Lexical Word Ordering of Mandarin Chinese idiolect systems (section 5), and the relation between classifiers and noun classes (section 6).

In section 4.1 the theoretical options for the syntactic constituent structures of numerative expressions were considered, and in section 4.2 the motivation for the traditional analysis was discussed, which treats the numeral + numerative parts of such expressions as modifiers of the nominal parts. It was argued in section 4.3 that this analysis is untenable, both for syntactic and semantic reasons: the traditional argument for adopting it is seriously flawed, and on closer scrutiny the entire analysis turns out to be inconsistent.

We suggested an alternative solution: the numeral and nominal constituents of a Mandarin Chinese numerative expression form a *complement* pair of the numerative constituent (section 4.4); an additional demonstrative form may occur as a *modifier* of (an occurrence of) the numerative expression as a whole (section 4.5).

With respect to the part-of-speech status of the relevant items, we argued that numeratives, substantives, and personal pronouns should be treated as three separate subcategories of the category of 'substantival' lexical words, which is a part of speech in Mandarin Chinese (section 5.1). Numeratives were further subdivided into classifiers and measures, and substantives into collectives and non-collectives (section 5.2). Using our analyses of numerative expressions, we proposed a general formal definition of the terms "NUMT" ("numerative-of") (section 5.3) and "combinable" (section 5.4).

The structure of the *Noun Class System* of Mandarin Chinese was investigated in section 5.4. We argued that this should be a classification *system*, rather than a simple classification, on the set of collectives. The endpoints of the classification system are the traditional *noun classes*. In this context, terms were needed that are specific to a grammar of Mandarin Chinese. These were defined in section 5.6, and the necessary terms of the underlying theory of language, in section 5.7. Again using our analyses of numerative expressions, we were able to formally define the key terms "classifier", "noun class", "numeral classifier language", and "Noun Class System" for arbitrary languages.

The overall analysis of numerative expressions in sections 4 and 5 throws into relief the prominent status of numeratives within the grammar of Mandarin Chinese: their fundamental organising function both in the noun group and in the part-of-speech system of Mandarin Chinese.

A semantic basis was rejected for the relation of 'nc-compatibility' between classifiers and noun classes (section 6.2) in favour of a syntactic one (section 6.3). Two possibilities for a syntactic basis were considered: certain 'noun class conditions'

inherent in the lexical meanings of classifiers (section 6.4), or government properties of classifiers (section 6.5). Classifier meanings turned out to be insufficient for excluding deviant classifier-substantive combinations, whereas recourse to government categories for classifiers seemed adequate.

The results of the present essay suggest a number of questions for further research on numeratives and numerative expressions in Mandarin Chinese:

1. What exactly are the lexical meanings of classifiers and measures?
2. How do classifiers and measures function in the meaning composition process for the numerative expressions in which they occur?
3. What syntactic and semantic subtypes of measures should be assumed?
4. What is the syntactic and semantic status of the various subtypes of substantives (in particular, of collectives and non-collectives) in Mandarin Chinese?
5. Are the general definitions given in section 5.7 for “classifier” and “numeral classifier language” appropriate for all languages one would like to include?
6. What exactly does the ‘semantic bias’ of noun classes in Mandarin Chinese consist in?

As to the ‘semantic bias’, work on this essay has convinced me that ‘cognitive categories’ do not provide a systematic basis for noun classes in Mandarin Chinese systems. Conversely, it may well be that it is the terms, definitions, and analyses proposed in this essay that allow us to understand and describe the relationship between noun classes and cognition.

## Notes

- \* I wish to express my gratitude to Elna Andersson (Lund) for reading, and commenting on, the final draft of this paper; and, above all, to Hans-Heinrich Lieb (Berlin) for a number of discussions on the issues in this paper, and for contributing some important ideas.
- 1. In this essay, single quotation marks are used as ‘scare quotes’ (to indicate some kind of reserve in using the enclosed expressions).
- 2. Tonal changes on the numeral *yī* ‘one’ will not be indicated in the sample expressions. Names of sample words are generally given with a lower-case letter, indicating that we are dealing with *spoken* entities; see also section 3.2.3, below.
- 3. “(Pl.)” here indicates that the word form *flaschen* belongs to the syntactic category Plural.

4. Possible candidates for count nouns like *tiān* 'day' and *nián* 'year' should be treated as numeratives rather than substantives.
5. It is a matter of course that this analysis of Chinese nouns cannot be demonstrated within the scope of this paper; but see Sackmann (forthcoming a) for a detailed discussion.
6. There are the alternative forms *zhè*, *nà* and *nǎ*, respectively, but the forms given above are more common in colloquial speech. I leave it open here whether *něi* should indeed be classified as a demonstrative together with *zhèi* and *nèi*, as is done by many grammars; this is not relevant for our discussion.
7. Integrational Linguistics should not be confused with an entirely unrelated approach proposed by Roy Harris. When Harris chose it, the term "Integrational Linguistics" had already been in use for several years for the linguistic approach that is applied in the present paper.
8. For an introduction to Integrational Syntax as well as to some central assumptions made in Integrational Linguistics, cf. Lieb (1993a). A comprehensive introduction to the approach as a whole, in particular to the general morphologic, syntactic, and semantic theories proposed in Integrational Linguistics can be found in Lieb (1983b). The account of Integrational Linguistics given here is based on these two texts. For initial orientation, the reader may also consult the Homepage of Integrational Linguistics (<http://www.germanistik.fu-berlin.de/il>).
9. For details see Lieb (1983b: section 13).
10. The exact ontological status of these components is here left unspecified. For details, cf. Lieb (1983b: sections 4–8); Lieb (1993a: sections 3.2 and 6).
11. Strictly speaking, these are only the 'strong' constituent structures. For details see Lieb (1993a: sections 6.1–6.2).
12. For discussion, see also McCawley (1982).
13. Expressions of the type *zhèi běn shū* 'this book' will be discussed in detail in section 4.5.
14. For this type of analysis see, for example, Wang ([1985]: 259–260); Dragunov (1960: 31); Chao (1968: 289, 555); Liu—Pan—Gu (1983: 86, 277–278); Zhu (1984: 13).
15. The example is from Zhu (1984: 13).
16. From here on I will resort to the usual abbreviations, Num (numeral), Numt (numerative), Cl (classifier), M (measure), and Subst (substantive). More precisely, the abbreviations stand for *occurrences of forms* of words of the five classes of lexical words, NUMERAL, NUMERATIVE, CLASSIFIER, MEASURE, and SUBSTANTIVE. In discussing traditional arguments I may not always adhere to all notational conventions introduced in section 3.2.
17. Already noted by Chao (1968: 603).
18. Note that this does not concern expressions like *sān gōngjīn de yāzi* 'a duck of [i.e. weighing] three kilograms' which are, of course, not numerative expressions in a narrow sense.
19. With the possible exception of *pronominal* modifiers; see section 4.5 below.

20.  $\emptyset$  = the empty set; all three components of a phonological word are *sets*; see section 3.2.1 above.
21. For a more explicit demonstration, see Sackmann (forthcoming a).
22. There may be a difference: I assume that neither *sān*<sub>1</sub> nor *shū*<sub>3</sub> are referential expressions in *sān*<sub>1</sub> *běn*<sub>2</sub> *shū*<sub>3</sub>, and that only *sān*<sub>1</sub> *běn*<sub>2</sub> *shū*<sub>3</sub> as a whole is referential. On the other hand, subject and object constituents of a predicate are, as a rule, referential expressions. This difference is however irrelevant for our argument.
23. The two arcs of the comp<sup>2</sup>-arrows in (8) are numbered "1" and "2". This represents fixed complement order as determined by the government category that is associated with the *nuc* constituent. For a more formal account, see Lieb (1993a: section 7.6).
24. For the concept of government category see Lieb (1993a: section 5.5), Lieb (1983b: sections 7–9); for an application to the class of verbs in Mandarin Chinese see also Sackmann (1996: section 4.3).
25. The qualification is necessary because of expressions such as *wǔ dào bā* 'five to eight', *èrshí duō* 'over twenty', and others which can also figure as first complements. Possibly, the class of numerals in Mandarin Chinese also contains items such as *hǎojiǔ* 'quite a few'. For details see Sackmann (forthcoming a).
26. For more details, cf. Chao (1968: 608–620).
27. The abbreviation "NUML" in the expressions for government categories is chosen here in order to avoid confusion with "NUM(–, *S*)" as an expression for the category of numerals (lexical words).
28. Occasionally, one comes across the claim that *zhèi* can be analysed as a fusion of *zhè* with *yī* 'one'. This may be correct etymologically; see, for example, Chao (1968: 650). Such an analysis is, however, inappropriate for modern Mandarin: expressions like *zhèi sān běn shū* 'these three books' are common. Dissolving *zhèi* into *zhè* + *yī* would yield \**zhè yī sān běn shū*, which is nonsense. Semantically, *zhèi* cannot imply a singular reading, because it is combinable with higher numbers as well.
29. This analysis is in keeping with our assumption that only the complete Noun Group but not its primitive constituents are referential expressions; see Note 22.
30. Our analysis of expressions like *zhèi sān běn shū* 'these three books' in Mandarin Chinese (*sān*<sub>2</sub> and *shū*<sub>4</sub> form a complement pair of *běn*<sub>3</sub>, and *zhèi*<sub>1</sub> is a modifier of *sān*<sub>2</sub> *běn*<sub>3</sub> *shū*<sub>4</sub>) is supported by a comparison with numerative expressions in Vietnamese. Vietnamese syntax is quite similar to Chinese syntax in major aspects, except for the following point: a nominal modifier in Vietnamese as a rule follows rather than precedes the nominal head. Now consider the Vietnamese equivalent of the Chinese expression *zhèi sān běn shū*, namely, *ba quyển sách này* (literally: 'three CL book this'). *này*<sub>4</sub> follows *ba*<sub>1</sub> *quyển*<sub>2</sub> *sách*<sub>3</sub>, obeying the positional rules for modifiers. *ba quyển*, however, does not follow *sách*<sub>3</sub>, indicating that it is not a modifier of *sách*<sub>3</sub>. Hence, the syntactic relations among the constituents of expressions such as *ba quyển sách này* in Vietnamese, brought out more clearly by the word order rules of Vietnamese, suggest the same type of analysis for numerative expressions in Vietnamese as developed here for Mandarin Chinese.
31. Strictly speaking, it is not simply syntactic units but *pairs* of a syntactic unit *f* and a syntactic structure *s* of the unit *f* which are said to be grammatical or ungrammatical in

Integrational Linguistics. For example, the pair  $\langle f, s \rangle$  is *grammatical* if  $f = w\ddot{o}_1 x\ddot{i}huan_2 f\ddot{e}ng_3$  and  $f\ddot{e}ng_3$  is marked as an occurrence of a form of a substantive (e.g.,  $f\ddot{e}ng_1^W$  'wind') in the marking structure component of  $s$ ;  $\langle f, s \rangle$  is *ungrammatical* if  $f\ddot{e}ng_3$  is marked as a form of a classifier ( $f\ddot{e}ng_2^W$ , a classifier for letters).

32. With the possible exception of borrowings from pre-modern forms of Chinese, which may not conform with the grammar of Modern Standard Chinese.  
Items such as  $ti\dd{a}n^W$  'day' and  $ni\dd{a}n^W$  'year' should be treated as numeratives rather than substantives. For forms like  $s\dd{a}n yu\dd{e}$  '(the month of) March', two types of analysis could be proposed: either they are treated as compounds ( $s\dd{a}nyu\dd{e}$ ) or as syntactic constructions where  $s\dd{a}n$  is an ordinal rather than a cardinal numeral. For reasons not to be specified here, I adopt the compound analysis. In either case, such forms do not constitute a counter-example.
33. For a formal definition of "SUBSTANTIVAL WORD" see Budde (forthcoming: section 4.3).
34. Cf. section 3.2.5 for the notion of Lexical Word Ordering.
35. Remember that the " $(-, S)$ "-parts in expressions for syntactic categories are omitted in the diagrams.
36. More formally, this line can be rendered as " $\langle P, b, S \rangle \in NUMT$  iff". As stated in section 3.2, terms such as "NUMT" denote *relations* between lexical words  $\langle P, b \rangle$  and idiolect systems  $S$ . Since the lexical words are pairs, three domains of entities are involved altogether, and "NUMT" denotes a *three-place relation* between entities  $P$ ,  $b$ , and  $S$ . Any three place relation is a set of triples. Hence, "NUMT" is the set of all triples  $\langle P, b, S \rangle$  that fulfil certain requirements (namely, the requirements specified in the definiens of the definition). Hyphenated expressions for categories of lexical words should therefore contain two hyphens, not one: "SUBSTV $(-, -, S)$ " and "NUMT $(-, -, S)$ ", not "SUBSTV $(-, S)$ " and "NUMT $(-, S)$ ". For simplicity's sake only one hyphen will be written. These remarks apply analogously to all similar definitions.
37. Note that Definition G1 presupposes an analysis by which forms such as  $s\dd{a}ng\dd{e}$  [three-brother] 'Third Brother' and  $s\dd{a}nyu\dd{e}$  [three-month] 'March' on the one hand and  $x\dd{i}ngq\dd{i}s\dd{a}n$  [week-three] 'Wednesday' on the other are forms of *compound words* rather than syntagmas; cf. Note 32. See also Chao (1968: 395, 567).
38. Systematically, these assumptions can be formulated only *after* the relational terms used have been defined (see sections 5.6 and 5.7). The assumptions appear here for illustrative reasons.
39. Such cases must be sharply distinguished from cases like  $y\dd{i}_1 su\dd{o}_2 xu\dd{e}xi\dd{a}o_3$  'one school [institution]' (with classifier  $su\dd{o}^W$ ) vs.  $y\dd{i}_1 zu\dd{o}_2 xu\dd{e}xi\dd{a}o_3$  'one school(house)' (with classifier  $zu\dd{o}^W$ ). This is not a case of overlap between the corresponding noun classes  $SUO(-, S)$  and  $ZUO(-, S)$ , nor do the semantic differences between the two expressions result from semantic features of the classifiers used. Rather, there are two different lexical words in Mandarin Chinese that have the same form component but different meaning components:  $xu\dd{e}xi\dd{a}o_1^W = (xu\dd{e}xi\dd{a}o^P, \text{'school [institution]'})$  is compatible with the classifier  $su\dd{o}^W$ , and  $xu\dd{e}xi\dd{a}o_2^W = (xu\dd{e}xi\dd{a}o^P, \text{'school(house)'})$  is compatible with the classifier  $zu\dd{o}^W$ .

The two types of phenomena (class overlap vs. homophonous words belonging to different noun classes) are usually confused in the linguistic treatment of numeral classifier languages, due to inadequate theoretical conceptions that conceive lexical words merely as paradigms (disregarding their meaning components), or, even worse, as word forms.

40. This seems to be the case, for example, for DING(–, S), the noun class related to the classifier *dǐng*<sup>W</sup>. This class contains, by and large, only the elements *màozi*<sup>W</sup> ‘hat, cap’, *jiàozǐ*<sup>W</sup> ‘sedan chair’, *zhāngpeng*<sup>W</sup> ‘tent’, *zhàngzi*<sup>W</sup> ‘bed-curtain’, and *wénzhāng*<sup>W</sup> ‘mosquito net’, all of which are also combinable with *ge*<sup>W</sup>.
41. Note that the variable “S” has to appear in the definiendum of either definition, due to its free occurrence in the definiens. Technically, terms like “*běn*<sup>P</sup>” and “*běn*<sup>W</sup>” turn out to be functor terms, for the following reason. Phonological words are triples ⟨f<sup>P</sup>, k<sup>P</sup>, l<sup>P</sup>⟩. At least their second and third components involve an idiolect system S. For example, the phonological constituent structure k<sup>P</sup> of f<sup>P</sup> contains *phonological categories* such as Consonantal(–, S). Therefore, names of phonological words as well as names of entities that are constructs from phonological words (in particular, syntactic words, word paradigms, and lexical words) are relativised to idiolect systems S; instead of *cat*, *cat*<sup>l</sup>, *cat*<sup>P</sup>, and *cat*<sup>W</sup>, we should write *cat*(S), *cat*<sup>l</sup>(S), *cat*<sup>P</sup>(S), and *cat*<sup>W</sup>(S), respectively. For simplicity’s sake, the “(S)”-part of such expressions has so far been omitted in this essay, but must be reinstalled within formal definitions.
42. Definition G5 thus solves the problem brought up by Greenberg (1974: 22), resulting from a simplistic conception of “numeral classifier language”.
43. Note, however, that languages such as Japanese and Korean are covered by the definitions: both are numeral classifier languages in the sense of Definition G5. Expressions of the type *se kwən ŭi c<sup>h</sup>æk* ‘three books’ in Korean (with the attribute marker *ŭi* between the Num+Numt part and the Subst part) may seem problematic at first, because *c<sup>h</sup>æk<sub>4</sub>* is apparently not a co-constituent of *kwən<sub>2</sub>*, as required in the definition of “classifier” (Definition G3; “combinable” in condition (2c) of Definition G3 requires co-constituency, by Definition G2); similarly, *san satsu no hon* ‘three books’ in Japanese (with the attribute marker *no*). However, in all these cases there are alternative expressions of the type *c<sup>h</sup>æk se kwən* and *hon san satsu*, respectively (literally: ‘book three Cl’). These are readily analysed on the pattern of the Mandarin Chinese expression *sān běn shū*, notwithstanding the differences in word order.
44. Terms coined by Allan (1977: 292) in a similar context.
45. But see Sackmann (forthcoming a).
46. Cf. Note 25.
47. Possibly, the classification “*Measure Government*” can eventually be dispensed with once the classification “*Type of Measure*” has been worked out.

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# **Polynesian multifunctionality and the ambitions of linguistic description**

Arnfinn Muruvik Vonen

## **1. Introduction**

One of the main innovations brought to us by structuralist linguistics was the systematic discarding the traditional “translation” method of grammatical analysis—which meant analysing an expression according to the analysis of its translation into Latin, Greek, or Hebrew—and the urge to describe each language “on its own terms”. This research programme was particularly clear in the so-called “American structuralism” which was formed by Leonard Bloomfield and his followers (cf. Bloomfield 1933, Harris 1960), and came to have a very strong influence on linguists describing little-known languages.

Not even the classical parts of speech, which had been practically taken for granted in all linguistic work since Dionysius Thrax in the second century BC, were taken as axioms any more, and for a number of language groups the empirical basis for the distinction of nouns and verbs came to be questioned. These debates have become particularly long-standing and intense with regard to the Wakashan and Salishan (and Chimakuan) families of languages spoken on the Western coast of North America, and with regard to the Polynesian languages and other languages of the Austronesian family (Fijian, Tagalog, Riau Indonesian) spoken in the archipelagos of the Pacific Ocean—for references, see Vonen (1997: 18–19, 131–144). A similar debate seems to be slowly emerging in the literature on signed languages (visually based natural languages used in Deaf communities, cf. Supalla—Newport 1978). In these debates, the main “problem” is usually not that syntactic functions are indistinguishable in the language under consideration (Broschart 1997 is a radical and notable exception), but rather that an overwhelming number of lexical forms can be used in verbal as well as nominal syntactic functions.

The aim of the present article is to point out that some of the apparent disagreements in these debates may stem from differences in the ambitions of linguistic description rather than from real differences in understanding the data. In particular, it seems that the heritage from American structuralism lives on in much descriptive

linguistics, not only in the requirement of describing each language on its own terms, but also in that tradition's relative disregard of semantic detail and methodological bias towards relying on (spoken) text corpora. I shall restrict my argument to the debate concerning Polynesian languages, but expect some of it to be transferable to work on "Northwestern" and signed languages, too.

## 2. Bazell's four linguists

The phenomenon of multifunctionality with respect to the noun-verb distinction is not unique to the language families mentioned above. In fact, it is a prominent feature of English, too. Therefore, the following quotation from C. E. Bazell's excellent discussion of possible approaches to the classification of the English words *rob*, *thief*, *call*, and *show* can serve as an appropriate introduction to the debates (Bazell 1958: 7):

One linguist will state that there is a relationship of overlapping between the classes of noun and verb, such that the same unit may be a member of both classes. A second linguist may state that there are three classes of unit here, three parts of speech. So if we choose to call *thief* a noun, and *rob* a verb, we shall have to find a third term for such units as *call* and *show*. By a third linguist, *call* and *show* might be taken as different units, mere homophones, in one function and the other. A fourth linguist might choose to say that there is only one class of words here, containing, however, a fair number of words with defective paradigms.

It was Belikov (1990: 180–182) who first pointed out that Bazell's typology of approaches to noun-verb multifunctionality was a fair sketch of the approaches actually found in the literature on the phenomenon in Polynesian languages. George Pratt's long authoritative grammar of Samoan, the largest Polynesian language in terms of number of speakers, may stand as an example of the first approach. It is a traditional grammar, clearly based on the "translation" principle of grammatical description (see above). It abounds with such statements as "The simple form of the verb is sometimes used as a noun" and "The reciprocal form of the verb is often used as a noun" (Pratt 1893 [1984]: 4). The second approach was introduced in Bruce Biggs's (1960) classification of the lexical items of New Zealand Maori. Lexical forms (bases) which can occur in only nominal or only verbal syntactic

function, are labelled "N" and "V", respectively (presumably evoking the notions of "noun" and "verb"). What is particularly interesting here is that bases which can occur in both nominal and verbal syntactic function, are assigned to a different base class (either "G"[eneral] or "A"[ctive], on the basis of whether they are or are not, respectively, compatible with a passive suffix). The third approach is advocated by Vonen (1997), who seeks to account for the multifunctionality of lexical forms in Tokelauan (the Polynesian language spoken in Tokelau) by means of the notions heterosemy and conversion. In this approach, relevant lexical items are considered to be either verbs or nouns. Conversion rules are important word-formation processes. The fourth approach—the rejection of a noun-verb distinction on the lexical level—is adopted by, for example, Pukui—Elbert (1957) in the introduction to their Hawaiian dictionary.

Of course, Samoan, Maori, Tokelauan, and Hawaiian are different—and largely mutually incomprehensible—languages which may well differ from each other in crucial respects with regard to the noun-verb distinction, as pointed out for Polynesian languages in general by Moyse-Faurie (1984). However, at least one language, Samoan, has been subjected to serious analysis according to three of the four approaches: the first (Pratt 1893 [1984]), the second (Pawley 1966, in which the three relevant classes are "N"[oun], "V"[erb], and "U"[niversal]), and the fourth approach (Mosel—Hovdhaugen 1992). And that is not all: based on my own analysis of Tokelauan (Vonen 1997) and the similarity of Samoan and Tokelauan grammar, I dare assume that an analysis of Samoan according to the third approach would be little less feasible than that of Tokelauan. We may suspect, therefore, that the differences in approach are determined by other considerations than the actual structural differences between the languages. Let me now examine each approach critically.

First of all, the first approach seems to me to be relevant primarily if we have a strong reason to maintain a particular *a priori* classification system, for example because the system has universal aspirations. This was the case of the classical Greco-Latin parts-of-speech system in traditional grammar. As pointed out by Belikov (1990: 181), this approach will lead to a lack of lexical classification and thus to indeterminacy of a kind which cannot be evaluated. I shall pay no more attention to the first approach in this article.

Next, let us consider the relationship between the second and the fourth approaches. With respect to our issue, these approaches are in fact fairly similar: both assume that there is a large class of words that can function alternatively as nominals and as verbals. The difference between the approaches is that the second approach additionally assumes that there are also some words which can only function nominally and others which can only function verbally. But for two reasons this difference is not very fundamental: First, the actual membership in these two "re-

stricted" classes is generally less than in the "unrestricted" class (Pawley's "U"). Second, any "N" or "V" (in Pawley's terms) may be reclassified as a "U" as soon as a single occurrence in the unexpected function is attested. Thus, the more comprehensive the data available, the less members the "restricted" classes will be expected to have. In this sense, the "restricted" classes of words which can function only nominally or only verbally are truly marginal, and in effect there is little more than terminology which distinguishes them from the words with "defective paradigms" or "defective data" within the fourth approach.

If we read carefully the works that assume the second or fourth approach, however, we will see that many of them have a rather lax notion of "word" to be classified. For example, the Samoan "word" that Mosel—Hovdhaugen (1992) discuss seems to be simply a linguistic form with a set of senses that are intuitively perceived as related: "The semantic relationship between the verbal and the nominal usage of full words follows certain patterns, but it is not fully predictable ..." (Mosel—Hovdhaugen 1992: 73). They state nine such patterns for Samoan later on in the chapter (Mosel—Hovdhaugen 1992: 79–84). Examples are the action-instrument pattern, as in *fana* 'shoot; gun', and the age and status pattern, as in *teine* 'be a girl; girl'. (Vonen (1997: 154–164, 174–176), in the framework of the third approach, presents a similar range of corresponding patterns between nominal and verbal senses of lexical forms in Tokelauan.)

Let us now for a moment return to Bazell's four linguists. His example language was not a Polynesian, Salishan or other "exotic" language with few native linguists. He was referring to English. It is quite feasible to describe English according to the second or fourth approach to multifunctionality, so that, for example, *call* and *show* are multifunctional lexical items. However, few serious students of English would be satisfied with that. Numerous detailed studies of English (e.g., Marchand 1969, Clark—Clark 1979, Wierzbicka 1988) have revealed subtle semantic patterns between nominal and verbal uses of individual forms. Few students of English would be inclined to categorise *box* as a single "multifunctional" lexical item without stating exactly the relationships between its verbal and its nominal senses. But choosing the second or fourth approach to multifunctionality may serve as a way to avoid having to investigate such relationships. I think it is safe to say that it is the third approach which is dominant in contemporary treatments of English multifunctionality, and for good reason.

In principle, then, linguists describing Polynesian languages may have two different reasons to choose the second or fourth approach to lexical classification rather than the third approach. Both may be legitimate, but they stem from widely different perspectives. I will call these two perspectives the "principled adoption of multi-

functional lexical items” and the “methodological adoption of multifunctional lexical items”, respectively.

### 3. Principled adoption of multifunctional lexical items

First, one may, of course, choose to operate with “multifunctional” lexical categories because there is evidence that this is more suited to the actual distribution of forms and senses in the language. Given that the third approach is widely accepted for the analysis of English multifunctionality, we also expect that such a choice involves the view that Polynesian multifunctionality is fundamentally different from English multifunctionality. The third approach fits in with a view according to which there is a large number of multifunctional forms with specific semantic relationships between well-established nominal and verbal uses (cf. English *fish*, *place*, *hammer*), and a number of lexical rules (in Leech’s 1974 sense) by which new formations may be made on specific stylistic and other conditions (e.g. Clark—Clark’s 1979 attestation of the verb *Houdini* in the example *He Houdinied his way out of the closet*). By contrast, the fourth approach can assume no other restrictions on occurrence than pragmatic restrictions.

The clearest representative of this approach to the study of multifunctionality in Polynesian languages is Broschart (1997), who has developed an innovative view of Tongan multifunctionality which not only refuses to assume a noun-verb distinction in the language, but even extends this refusal to the syntactic level. Rather, he proposes a typological distinction between “noun-verb languages” such as Latin and “type-token languages” such as Tongan. This is not, however, the place to enter into a discussion of the substance of Broschart’s work, so I leave it here.

### 4. Methodological adoption of multifunctional lexical items

The other reason for adopting the second or fourth approach is practical: By assuming most words to be “multifunctional”, the descriptive linguist can act as if liberated from the burden of making hard decisions on lexicalisation of senses and productivity of conversion processes. The “American structuralist” methods widespread in descriptive linguistics are good tools for studying distributional and other

formal patterns, but less good for semantic patterns. This is partly due to the reliance on (spoken) texts as the main source of data. Text analysis alone is not sufficient to reveal semantic subtleties, let alone the fact that no text corpora are large enough to contain all relevant functions of the lexical forms being studied. Since few of the linguists are native speakers of the languages in question, introspection is not a reliable method. What is left is elicitation of informants' judgements, a method of data collection which requires extreme caution because the investigator has minimal control of the relevant influences from the immediate as well as the wider context.

This is a methodological challenge, but it can be at least partially overcome by eliciting independent judgement data from a number of native speakers and taking as much contextual information as possible into consideration. I have demonstrated elsewhere (Vonen 1997) that the relationships between nominal and verbal senses of lexical forms in Tokelauan are quite specific and thus should be stated in a lexically adequate description of the language. Speakers moreover have intuitions not only about the possibility of using a form in a given syntactic function (plain noun, relational noun, intransitive verb, transitive verb, etc.), but also about the specific set of senses that are lexicalised in each syntactic function, and about what additional senses are imaginable outputs of linguistic creativity. Here is one small example to indicate the subtlety of these relationships: in Tokelauan the form *hāmala* 'hammer' is a commonplace noun denoting the tool used for hitting nails. As a verb denoting the action of hammering, however, it is not accepted by all speakers of the language, even though existing semantic patterns and pragmatic considerations would make it plausible that such a verb existed.<sup>1</sup>

What I am saying is that a lexically adequate analysis of the language should make these efforts to map the individual lexicalised form-sense pairings and the individual conversion processes as accurately as possible. It is, however, perfectly legitimate to be less ambitious in one's description and only aim at a preliminary, form-focused description of a little-known language. In that case, however, careful notice should be given of the lack of ambition and the inevitable shortcomings of the description. Both the second and the fourth approaches seem quite appropriate to me as this kind of "preliminary" descriptive model for use before proper attention can be paid to semantics and lexical restrictions. The following passage from Mosel—Hovdhaugen (1992: 77) seems to indicate that their adoption of the fourth approach is made at least in part on the basis of methodological considerations:

Until now we have not, for instance, found *alu* "go" in a nominal function or *mea* "thing" in a verbal function. But we hesitate to say that *alu* is inherently a verb and *mea* inherently a noun for two reasons. First, we cannot find any func-

tional explanation why *alu* should not be used as a noun and *mea* as a verb, whereas, for instance, *gaoi* “thief, steal” and *tagata* “person, be a person” are bi-functional. And, second, previous experience taught us to be careful with classifications. The more texts we analysed and included in our corpus, the more items we unexpectedly found in nominal or verbal function.<sup>2</sup>

## 5. Conclusion

I have discussed the various possible approaches to the issue of the noun-verb distinction in languages where a substantial proportion of the lexicon appears to be able to function nominally as well as verbally. In particular, I have compared a conversion-based approach and a “multifunctionality” approach to the description of Polynesian languages. I have suggested that the choice of a “multifunctionality” approach over a conversion-based approach may have very different, though legitimate reasons, in that it can be principled or methodological. In the latter case, if a particular approach is chosen because the description is less than maximally ambitious, notice of this should be given to the reader.

## Notes

1. In fact, the lack of general acceptance of the “verbal” use of the Tokelauan form *hāmala* may be a problematic example for the approach described in the previous section (“Principled adoption of multifunctional lexical items”).
2. Mosel—Hovdhaugen (1992: 77–78) proceed to illustrate the latter point by giving three examples of “unusual” occurrences: the otherwise “local noun” *fafo* ‘outside’ used as a verb ‘be/go outside’, the otherwise nominal *ia* ‘fish’ used as a verb ‘be abundant with fish’, and the otherwise nominal *teine* ‘girl’ used as a verb ‘be a girl’. These examples are, however, fairly easy to account for within the third approach: the first one is arguably the product of a colloquial extension of a very productive verbalising conversion process from ordinary nominal bases to local noun bases (cf. Vonen 1994); and the third one is an example of the generally available verbalisation of nouns denoting temporary states or stages and actually listed by the authors themselves among the noun-verb patterns mentioned above. The second example is, according to my informants, not an example of multifunctionality at all: the verb in the example is *i’ā* ‘be abundant with



fish', derived from the noun *i'a* 'fish' with the ornative suffix *-a*, which remains invisible in the orthography of the source.

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## Index of authors

- Abbott, C. 401  
Abney, S. 182  
Abraham, W. 322, 324, 325, 326, 329,  
333, 336, 343, 345, 346, 347, 348  
Aikhenvald, A. 305  
Ajdukiewicz, K. 184, 185  
Alfonso, A. 292, 301  
Allan, K. 459, 462, 463, 475  
Allen, W. 23  
Alsagoff, L. 192  
Ameke, F.K. 24, 305  
Amith, J.D. 105, 108, 109, 110, 122, 126,  
131, 133, 134, 135, 137, 150, 151,  
153, 154, 159, 161, 164, 165  
Anderson, L.B. 91, 176, 178  
Andrzejewski, B.W. 233  
Anward, J. 4, 13, 15, 21, 24, 25, 40, 84,  
275, 281  
Aronoff, M. 276  
Asher, R.E. 222  
Austin, P. 184  
  
Bach, E. 103, 177  
Baker, M.C. 25, 194  
Bamgbose, A. 39  
Bar-Hillel, Y. 184  
Bauer, W. 39  
Bazell, C.F. 480  
Becker, A.L. 351  
Beekes, R.C.P. 247  
Behrens, L. 155  
Belikov, V.I. 480, 481  
Benzing, J. 247  
Berlin, B. 289  
Berndt, C.H. 141  
Bhat, D.N.S. 49, 52, 54, 56, 59, 60, 217  
  
Bichsel, P. 16  
Biggs, B. 39, 480  
Bisang, W. 229, 237, 238, 240, 248  
Bloomfield, L. 105, 165, 479  
Boas, F. 58, 183  
Bogoras, W. 39  
Bolinger, D.L. 53, 97  
Bonvillain, N. 246  
Borer, H. 195  
Brauner, S. 246  
Bresnan, J. 184  
Brinton, L. 277  
Brøndal, V. 40  
Broschart, J. 40, 110, 161, 246, 259, 263,  
264, 265, 266, 267, 271, 272, 285,  
352, 353, 366, 367, 479, 483  
Brugmann, K. 351, 359  
Bryan, M.A. 247  
Budde, M. 385, 389, 392, 474  
Bugenhagen, R.D. 292, 297  
Buscha, J. 327  
Bybee, J. 66, 147, 160, 348, 359  
  
Campbell, L. 246  
Capell, A.C. 162  
Carnap, R. 389  
Carstairs-McCarthy, A. 208  
Chafe, W.L. 105, 125, 126, 127, 129  
Chao, Y.R. 240, 246, 424, 425, 427, 442,  
443, 460, 472, 473, 474  
Chappell, H. 225  
Cheng, L.L. 439  
Childs, G.T. 246  
Chomsky, N. 40, 176, 178, 182, 184, 185,  
205  
Christjohn, M.H. 401

- Churchward, C.M. 109, 246, 247, 356, 357
- Churchward, S. 218
- Clahsen, H. 391
- Clark, E.V. 96, 270, 482, 483
- Clark, H.C. 96, 270, 482, 483
- Clark, R. 362
- Comrie, B. 39, 66, 166, 182, 197, 223, 224, 248
- Contini-Morava, E. 176
- Cook, E.-D. 246, 247
- Corbett, G. 126, 130
- Cornyn, W. 248
- Covington, M.A. 3, 17
- Craig, C. 351
- Croft, W. 21, 40, 65, 66, 68, 76, 82, 85, 86, 87, 88, 89, 90, 91, 93, 94, 95, 96, 97, 182, 193, 197, 203, 208, 293, 295
- Cruse, D.A. 90, 91
- Curme, G.O. 298, 383, 385, 389
- Dahl, J. 339, 343
- Davies, J. 39
- Dayley, J.P. 53
- De Groot, C. 4, 32, 273
- De Lagunas, J.B. 105
- De Villiers, J.G. 16
- De Villiers, P.A. 16
- Delbrück, B. 351, 359
- Demers, R.A. 40
- Denny, J.P. 313
- Deny, J. 246
- Derbyshire, D.C. 19, 247
- Devitt, J. 162
- Dik, S.C. 248
- Dimmendaal, G.J. 53
- Dixon, R.M.W. 48, 49, 60, 87, 182, 217, 221, 247, 286, 288, 290, 297
- Donaldson, T. 219
- Dragunov, A.A. 472
- Dryer, M.S. 85, 191, 193
- Du Feu, V. 247
- Durie, M. 310
- Eco, U. 39
- Eisenberg, P. 372, 391
- Elbert, S.H. 481
- Elman, J.L. 4
- Emeneau, M.B. 226, 241
- Emonds, J.E. 15
- Enfield, N. 291
- Escalante, F. 108, 109, 159
- Evans, N. 112, 118, 140, 149, 162, 163, 164, 220, 291
- Ewen, C.J. 176
- Fabri, R. 391
- Falkenberg, T. 375
- Faltz, L.M. 184, 185
- Ferguson, Ch. 247
- Fillmore, Ch. J. 96
- Foley, W.A. 25
- Fortescue, M. 246
- Freiberger Wilson, N. 223, 226, 238, 241, 246
- Friedrich, P. 236
- Fries, Ch.C. 286, 287, 296
- Gabler, D. 247
- Gao, Q. 224, 246
- Gil, D. 40, 174, 175, 176, 177, 183, 184, 192, 194, 197, 198, 205
- Gilberti, M. 105
- Givón, T. 15, 103, 104, 177, 293, 310
- Gleason, H.A. 39
- Goddard, C. 289, 291, 293, 300, 303
- Goldberg, B. 176
- Goodman, N. 231

- Greenberg, J.H. 87, 191, 192, 229, 237,  
240, 247, 460, 475
- Gu, W. 472
- Günther, H. 359
- Haegeman, L.M.V. 66, 84
- Hakulinen, A. 39
- Hale, K. 184
- Halpern, A.P. 105, 106, 131, 132, 133
- Handelsmann, R. 162
- Harms, R.T. 177
- Harré, R. 300
- Harriehausen, B. 223, 227, 237, 238, 239,  
241, 242, 248
- Harris, Z.S. 176, 479
- Haspelmath, M. 91, 269
- Hawkins, J.A. 191
- Hayakawa, H. 309
- Helbig, G. 327
- Hengeveld, K. 4, 5, 6, 7, 19, 34, 67, 68,  
69, 70, 72, 76, 83, 84, 87, 89, 97, 217,  
218, 246, 261, 262, 271, 276
- Henry, R. 406
- Hess, T. 33, 76
- Hinch, H.E. 162
- Hintikka, J. 177
- Hinton, M. 401
- Hockett, Ch.F. 285
- Hoffmann, J. 56, 57, 58, 246
- Hoffmann, L. 372, 391, 392
- Holmer, N.M. 247
- Hopper, P.J. 21, 22, 182, 247, 259, 270,  
279, 293, 351
- Hoskison, J.T. 246
- Hovdhaugen, E. 218, 481, 482, 484, 485
- Huang, C.-T.J. 195, 225
- Hudson, R.A. 186
- Huestis, G. 39
- Hundius, H. 229, 230
- Ijbema, A. 321, 345
- Ilijic, R. 223, 240, 246
- Itkonen, E. 3, 10, 12
- Iturrioz, J.-L. 269
- Jackendoff, R.S. 185, 186
- Jacobsen, W.H. 20, 73, 74, 75, 76, 77, 82,  
86, 204
- Jakobson, R. 105
- Jelinek, E. 40, 108, 109, 159, 194
- Jespersen, O. 18, 52, 248, 274
- Johnson, M. 313
- Joos, M. 84, 85
- Kang, B.-M. 240
- Karlsson, F. 39
- Kastenholz, R. 243
- Kay, P. 104, 105, 106, 125, 127, 129,  
130, 147, 153, 155, 289
- Kecnan, E.L. 184, 185, 197
- Kemmer, S. 91
- Kibrik, A.E. 39, 197
- Kim, Y.H. 240
- Kinkade, M.D. 58, 76
- Kiparsky, P. 205
- Kölver, U. 229, 230, 239, 241
- Koning, W. 271
- Koptjevskaja-Tamm, M. 33, 39, 271
- Kuh, H. 240
- Kuipers, A. 76
- Kuno, S. 308
- Kuryłowicz, J. 40, 248
- Lakoff, G. 98, 108
- Lambek, J. 184
- Langacker, R.W. 28, 66, 97, 103, 277
- Langdon, M. 105, 131, 132
- Lange, S. 15
- Larrimore, B. 105, 112, 123, 162, 164

- Larsson, K. 15  
 Lee, H.-G. 240  
 Lee, H.H.B. 223, 246  
 Lee, Y.S. 225, 240, 244  
 Leech, G. 483  
 Lehmann, Ch. 352  
 Leiss, E. 279  
 Lerdahl, F. 186  
 Levin, J. 176  
 Lewis, G.L. 97  
 Li, Ch.N. 191, 224, 225, 240, 244, 463  
 Lieb, H.-H. 371, 376, 379, 380, 389, 390,  
     391, 392, 431, 433, 465, 472, 473  
 Lindblom, B. 4, 21  
 Link, G. 180  
 Liu, Y. 472  
 Löbel, E. 225, 226, 239  
 Lounsbury, F.G. 105, 127, 401, 406  
 Lucy, J.A. 230, 247  
 Lühr, R. 383  
 Lyons, J. 21, 229, 293  
  
 Marchand, H. 275, 277, 281, 482  
 Marchman, V. 4  
 Marlett, S.A. 164  
 Martin, S.E. 225, 240, 244  
 McCawley, J.D. 177, 472  
 McConvell, P. 118  
 Meillet, A. 248  
 Menges, K.H. 248  
 Merlan, F. 111, 165, 247  
 Meys, W.J. 54  
 Miao Language Team 240, 248  
 Mithun, M. 20, 71, 76, 105, 125, 126,  
     128, 129, 130, 221, 260, 402, 406  
 Montague, R. 184  
 Moravcsik, E. 13, 84, 243  
 Morrill, G.V. 184  
 Mosel, U. 218, 481, 482, 484, 485  
  
 Moser, M.B. 164  
 Moskal'skaja, O.I. 389  
 Mossé, F. 277  
 Moyse-Faurie, C. 481  
  
 Newport, E.L. 479  
 Nguyễn Đăng Liêm 241  
 Nguyễn Đình-Hoà 223, 226  
 Nida, E.A. 291  
 Ningomba, M.S. 56  
 Noonan, M. 76, 77, 78, 234  
 Norman, J. 108, 240  
  
 Okell, J. 222, 225, 241, 246  
 Olson, M. 25  
 Onishi, M. 291  
 Osumi, M. 53  
  
 Pagliuca, W. 359  
 Palmer, F.R. 287, 294, 296  
 Pan, W. 472  
 Pawley, A. 481  
 Peirce, Ch.S. 311  
 Perkins, R. 359  
 Perlmutter, D.M. 25  
 Peterson, N. 162  
 Plank, F. 161, 366  
 Plungian, V.A. 91  
 Plunkett, K. 4  
 Pratt, G. 480, 481  
 Press, M.L. 52  
 Preuss, F. 275  
 Pukui, M.K. 481  
 Pustet, R. 217  
 Pym, N. 105, 112, 123, 162, 164  
  
 Quirk, R. 281  
  
 Radford, A. 65, 66

- Ramstedt, G.J. 240  
Ratliff, M. 242, 248  
Rice, K. 166  
Richter, H. 380, 392  
Rijkhoff, J. 4, 34, 221, 228, 233, 234, 237, 248  
Robins, R.H. 3, 10, 12, 39  
Roop, D.H. 248  
Rosch, E. 4, 289  
Ross, J.R. 182  
Rowlands, E.C. 39  
  
Sackmann, R. 225, 421, 425, 427, 433, 434, 443, 445, 472, 473, 475  
Sanches, M. 240  
Sanders, G.A. 185  
Sapir, E. 53, 54, 88, 95, 105, 125, 203  
Sasse, H.-J. 19, 76, 105, 122, 125, 126, 128, 129, 130, 155, 161, 164, 166, 221, 260, 285, 287, 295, 296, 299, 300, 302, 308, 310, 311, 312, 400, 401, 403, 406, 409, 410, 411  
Saul, J.F. 223, 226, 238, 241, 246  
Šaumjan, S.K. 185  
Schachter, P. 66, 67, 68, 69, 82, 161, 197, 221, 285, 286, 295, 296, 298, 301, 302, 304, 307, 308  
Scheffler, H.W. 149, 163  
Schlesinger, I.M. 14, 16  
Searle, J.R. 87  
Seiler, H. 23, 105, 138, 139, 152, 153, 165, 166, 351  
Seok Choong Song 240  
Serzisko, F. 157, 167  
Shen, Y. 176  
Shibatani, M. 39  
Shyldkrot, B.-Z. 91  
Siewierska, A. 4, 34, 191  
Silverstein, M. 153, 165  
  
Sinha, N.K. 246  
Skorik, P.J. 39  
Slobin, L. 240  
Smith-Stark, T.C. 105, 108, 109, 110, 122, 126, 131, 133, 134, 135, 137, 150, 151, 153, 154, 159, 161, 164, 165  
Sohn, H. 240  
Song, J.J. 240  
Stassen, L. 13, 14, 15, 23, 29, 67, 84, 86, 87, 91, 94, 96, 97, 209, 217  
Steedman, M. 18  
Stowell, T. 182  
Strecker, B. 372, 391, 392  
Stroomer, H.J. 233, 234  
Suárez, J.A. 248  
Supalla, T. 479  
Suppes, P. 389  
Suzuki, T. 291  
Swadesh, M. 204  
Swanton, J.R. 247  
Sweet, H. 281  
Sybesma, R. 439  
Szakos, J. 247  
  
Taylor, J.R. 182  
Tchekhoff, C. 70, 352  
Tesièrre, L. 40, 186  
Thompson, E. 4  
Thompson, L.C. 226, 241  
Thompson, S.A. 21, 22, 103, 161, 182, 224, 225, 240, 244, 270, 293, 351, 463  
Thomsen, M. 247  
Thurmair, M. 345  
Tomlin, R.S. 191  
Traugott, E.C. 259, 279  
Tucker, A.N. 247  
Tuite, K. 248



- Uehara, S. 79, 80, 81, 90, 97  
 Unseth, P. 247  
 Unterbeck, B. 247  
  
 Van Baarda, M.J. 220  
 Van Bulck, G. 39  
 Van der Auwera, J. 91, 353  
 Van Eijk, J.P. 33, 76  
 Van Valin, R.D. 58, 194  
 Varela, F. 4  
 Vogel, P.M. 40, 104, 281  
 Vonen, A.M. 96, 479, 481, 482, 484, 485  
 Vū Duy-Tù' 248  
  
 Wang, F. 240  
 Wang, L. 472  
 Weick, F. 277  
 Werner, H. 248  
 Westphal, E.O.J. 39  
  
 Wetzter, H. 86, 161, 209, 217  
 Wheatley, J.K. 246  
 Whorf, B.L. 6, 19  
 Wierzbicka, A. 94, 97, 287, 289, 293,  
 300, 301, 302, 303, 305, 311, 313,  
 482  
 Wiese, B. 381  
 Wiesemann, U. 300  
 Williams, M.M. 70, 105, 125, 126, 130,  
 164  
 Winfield, W.W. 53  
 Wunderlich, D. 391  
 Wurzel, W.U. 391  
  
 Yip, M. 176  
  
 Zhu, D. 472  
 Zifonun, G. 372, 391, 392  
 Zwicky, A.M. 186

## Index of languages

- Abkhaz 221  
Acoli 49  
Ainu 22, 23, 30, 31, 35, 37, 38  
Alamblak 221  
Archi 22, 30, 31, 35, 36, 38  
Athapaskan 158
- Babungo 221  
Bambara 221, 222, 243, 244  
Basque 221  
Bemba 49  
Berbice 221  
Bolante 300  
Boro 60  
Bororo 22, 23, 31, 30, 35, 36  
Bukiyip 221  
Burmese 221, 222, 225, 241  
Burushaski 221
- Cahuilla 138-139, 145, 146, 152, 153, 159, 166  
Carib languages 19  
Cayuga 125, 126, 128, 129, 130, 147, 148, 166, 221, 260, 398, 399, 400, 401, 406, 407, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418  
Central Guerrero Nahuatl 109, 135-137, 145, 146, 152, 153, 159  
Chemehuevi 51, 52  
Cherokee 397, 398  
Chinese 69, 72, 195, 221, 223, 224, 225, 237, 238, 240, 249, 274, 421-477  
Classical Chinese 108  
Chukchi 22, 30, 31, 35, 36, 38, 221  
Cora 145, 159
- Dalabon 139, 144  
Dani 289  
Dutch 8, 220, 221, 228, 230, 232, 233, 245, 262, 263, 271, 281, 321, 322, 324, 325, 345, 348, 418
- English 7, 17, 25, 34, 49, 53, 57, 69, 71, 72, 75, 79, 81, 85, 97, 107, 110, 121, 145, 155, 161, 173, 178, 179, 180, 195, 225, 231, 262, 274-278, 281, 286, 287, 288, 291, 296, 298, 303, 304, 307, 321, 324, 325, 331, 345, 348, 371, 376, 384, 391, 410, 423, 424, 429, 431, 432, 443, 461, 465, 466, 480, 482  
Aboriginal English 117  
Early Modern English 274  
Middle English 274, 275  
Modern English 275, 276, 277, 278, 279, 280, 300  
Old English 276, 277
- Etruscan 221
- Finnish 22, 30, 31, 35, 36  
French 191, 192, 193, 288, 321, 325, 345, 409  
Frisian 322, 324, 325, 348  
West Frisian 281
- Galela 220, 221  
German 180, 205, 269-274, 275, 277, 278, 281, 288, 291, 321-350, 359, 371-395, 410, 422, 423, 424, 464, 465  
Middle High German 263  
New High German 263, 374

- Old High German 263  
 Germanic languages 274, 276, 277, 278,  
 279, 322, 324, 325, 330  
 Gilyak 221, 223  
 Gothic 281  
 Greek 479  
 Guaraní 221  
 Gude 221  
 Gujarati 51  
 Gunwinyguan languages 139, 145, 146,  
 148, 149, 159  
 Gurindji 118  
  
 Hausa 7, 221  
 Hawaiian 481  
 Hebrew 181, 195, 479  
 Hittite 221  
 Hixkaryana 19, 221  
 Hmong Njua 221, 223, 227, 236-244, 249  
 Hopi 145, 159  
 Hua 299  
 Huichol 133, 134, 145, 146, 150, 151,  
 152, 159  
 Hungarian 221, 243, 247, 271  
 Hurrian 221  
  
 Igbo 49  
 Ika 221  
 Ilgar 103, 104, 111-127, 115, 126,  
 145, 146, 152, 155  
 Imbabura 221  
 Iroquoian 20, 67, 71, 76, 126, 128-134,  
 140, 146, 147, 246, 397-402  
 Northern Iroquoian 397, 400, 403,  
 405, 410, 411, 412, 413  
 Proto-Northern Iroquoian 405, 409  
 Italian 325  
 Iwaidja 111-127, 115, 125, 140, 146, 149,  
 150, 156, 163  
  
 Japanese 79, 81, 90, 205, 291, 292, 301,  
 308, 309, 310, 475  
  
 Kannada 49, 50  
 Kayardild 149, 166, 220, 221, 291  
 Ket 221  
 Kilivila 49  
 Kisi 221  
 Koasati 221  
 Kobon 22, 23, 25, 30, 31, 35, 37  
 Korean 221, 223, 225, 226, 240, 244, 475  
 Krongo 221  
 Kui 53  
 Kunwinjku 140-144, 163  
  
 Lango 76, 77, 78, 79, 80, 81, 90, 91, 92,  
 93, 94, 221, 234, 235  
 Lao 291  
 Latin 275, 376, 409, 479  
 Luganda 49  
 Lushootseed 33  
  
 Makah 65, 73, 74, 75, 76, 86, 89, 96, 97  
 Malay 191, 192, 193, 194, 198, 291  
 Mangaaba-Mbula 292, 297  
 Manipuri 51, 52, 54, 55, 56, 57  
 Maori 22, 30, 31, 32, 34, 35, 37, 480, 481  
 Maung 147, 162, 163, 165  
 Mayali 140-144, 147, 149, 152, 154, 162  
 Meroitic 221  
 Mohawk 126, 128, 129, 398, 405  
 Mokilese 359  
 Mundari 56, 57, 58, 59, 246  
 Mura Pirahã 300  
  
 Nahali 221  
 Nama 22, 23, 25, 30, 31, 35, 36, 221  
 Nasioi 221  
 Ngalakan 165, 221

- Ngiti 221, 247  
 Ngiyambaa 219  
 Nootka 67, 73, 76, 204  
 Nung 221, 223, 226, 238, 241  
 Nunggubuyu 221  
  
 Oneida 126, 127, 128, 397, 398, 401,  
     402, 403, 404, 405, 406, 408, 409,  
     410  
 Onondaga 398, 405  
 Oromo 221, 233, 234, 247  
  
 Palaeosiberian 158  
 Pipil 221  
 Polish 296, 297  
 Polynesian languages 67, 479, 480  
  
 Quechua 8, 68, 69, 72, 75, 96, 221, 262  
  
 Riau Indonesian 194, 198, 199, 200, 203,  
     209  
 Russian 105, 291, 359  
  
 Salishan 76, 479  
 Samoan 219, 221, 246, 480, 481, 482  
 Sango 49  
 Sanskrit 47, 50, 51, 53  
 Sarcee 221, 246  
 Scandinavian languages 325  
 Semitic languages 178  
 Seneca 126, 127, 128, 129, 147, 153, 155,  
     398  
 Serbo-Croatian 359  
 Seri 164  
 Singlish 194  
 Somali 157, 167  
 Spanish 70, 72, 75, 246  
 Sumerian 221  
 Sundanese 67  
  
 Supyire 49  
 Swedish 15, 16, 17, 18, 19, 20, 23-30, 32,  
     35, 37, 281  
  
 Tagalog 173, 174, 194, 198, 202, 205  
 Takelma 53  
 Tamil 221, 222  
 Tarascan 105  
 Thai 198, 201, 228, 229, 230, 231, 305,  
     306, 307  
 Tinrin 53  
 Tokelauan 96, 481, 482, 484  
 Tongan 8, 70, 71, 72, 96, 109, 246, 262,  
     263-267, 268, 270, 274, 276, 279,  
     280, 351-369, 483  
 Tsou 221  
 Turkana 53  
 Turkish 97  
 Tuscarora 7, 70, 71, 72, 130, 147, 164,  
     262, 398, 405  
 Tzutujil 53  
  
 Uto-Aztec languages 105, 109, 133,  
     145  
  
 Vietnamese 198, 201, 221, 223, 225, 226,  
     239, 241, 473  
  
 Wakashan 20, 479  
 Wambon 7, 72, 221, 262  
 Warlpiri 203  
 West Greenlandic 221  
 Wichita 166  
 Wishram 105  
 Wyandot 397, 398  
  
 'Xu 262  
  
 Yaqui 108, 109, 145

Yiddish 322, 324, 325, 348

Yidiny 60

Yolngu 163

Yoruba 22, 23, 25, 30, 31, 35

Yucatec Maya 230

Yuma 105, 134-136, 145, 146, 147, 149,  
150, 156, 159

## Index of subjects

- absolute (phrase) 75, 354
- abstract text 374
- action 13, 55, 57, 65, 69, 74, 77, 78, 86, 88, 89, 90, 91, 93, 94, 96, 285, 286, 287, 288, 290, 295, 296, 301, 397
- activity 174, 194, 195, 196, 197, 199, 200, 202
- address (term) 107, 108, 124, 129, 143, 148, 150, 157, 160
- address-term status 137
- adhortative 345
- adjectival notions 217, 221, 224, 225, 226, 245, 246, 333, 376
- adjectivalisation 47
- adjective 6, 9, 10, 17, 18, 23, 26, 29, 30, 38, 47, 48-54, 59, 60, 65, 66, 67, 68, 69, 71, 72, 74, 75, 76, 78, 79, 80, 84, 85, 88, 89, 90, 93, 95, 97, 98, 103, 113, 217-257, 262, 272, 273, 275, 276, 286, 289, 295-298, 312, 360, 372
  - see* substantivised
  - colour – 38
  - nominal – 79, 80, 90
- adjective subclasses 78
- adjective-noun distinction 48
- adjective-verb distinction 48
- adnominal 13
  - modifier 84
- adposition 29, 38, 202, 303, 312
- adverb 6, 9, 10, 12, 13, 17, 18, 29, 38, 59, 60, 68, 74, 75, 76, 262, 272, 273, 276, 298-299, 312, 322, 343, 345, 347, 351, 353, 362, 363, 365
  - manner – 362, 364, 365
  - mimetic – 309
  - temporal – 324
- adverb marker 263
- adverbial (phrase) 5, 13, 17, 18, 55, 59, 201, 202, 324, 325, 333
  - modifier 84
- adversative 322, 336, 337, 338
- age 60
- agent 58, 59, 193
- agglomerative 231, 232, 235, 247
- agreement 53, 56, 76, 77, 86, 89, 93, 94, 155, 179, 181, 185, 234, 245, 346
  - double – 159, 165
- aktionsart 228, 234, 270, 277, 278, 352, 363, 365
- allolexes 292
- alternative forms 376
- American structuralism 84, 85, 176, 183, 434, 479, 483
- Amsterdam model of part-of-speech systems 4, 5-10, 13, 19, 30, 32, 37, 38
- anaphoric
  - compound 239, 248
  - constituent 237
  - reference 239
- ancestor category 188
- ancestral constraint 188, 189, 190, 206, 207
- animacy 177
- antiquity 173
- apposition 60, 184
- argument 22
  - category 186, 190
  - structure 104
- argument-changing prefixes 129
- article (phrase) 10, 12, 13, 147, 219, 264, 265, 266, 267, 268, 269, 363, 271,

- 274, 352, 372
- definite – 384
- indefinite – 270
- ascriptives 111
- aspect 22, 51, 53, 55, 56, 59, 86, 89, 174, 200, 270, 276, 277, 278, 365, 397, 399, 401, 409, 410
- collective – 234
- durative – 74
- habitual – 77, 78
- momentaneous – 74
- perfective – 78
- progressive – 78
- aspect marker 359
  - collective – 242
- aspectual system 277, 280
- attribute 5, 17, 18, 290, 295, 301, 380
- attribution 296, 312
- attributive position 52, 53
- augmentative 130
- augmentor 290
- auxiliary (phrase) 74, 75, 76, 89, 94, 271, 364
- behavioural potential criterion 89, 90
- benefactive 55, 107
- beneficiary 58
- binding 179, 181
- binyanim 181
- branching
  - binary – 184
  - multiple – 184
- case 12, 13, 22, 38, 40, 50, 53, 55, 57, 59, 89, 397
- categorical
  - see* grammar
  - function 59
  - shift 334
- categorisation 311
- category
  - see* kernel
  - cognitive – 471
  - conceptual – 66, 88, 89
  - covert – 73
  - grammatical – 66, 67, 81, 85, 88, 90, 91, 95
  - initial – 183, 184, 185, 187, 188, 189, 206
  - mixed – 178, 179
  - morphological – 179, 181
  - morphological-syntactic – 180
  - pure – 178, 179
  - radial – 98
  - semantic – 3, 4, 13, 15, 16, 21, 27, 29, 30, 32, 33, 34, 38, 177, 179, 180
  - semantic-morphological – 180
  - semantic-morphological-syntactic – 180
  - semantic-syntactic – 180
  - syntactic – 65, 66, 72, 82, 85, 86, 179, 180, 181, 182, 183-190, 191, 267
    - closed – 182
    - open – 182
- category combination 183, 184, 186, 189
- category formation 183, 186, 187, 188
  - rule 186, 188
  - operator 183, 184, 185, 187, 206
- causal (meaning) 322, 336, 337
- causative 55, 338
- centre place 380
- classification system 481
- classifier 205, 231, 237, 238, 239, 243, 301, 305, 306, 307, 312, 351, 352, 354, 355, 363, 365, 425, 448, 455, 456, 457, 458, 459, 460, 462, 463,

- 464, 465, 468
- see* language
- common – 246
- epistemological – 310, 312
- collective – 241, 242, 246
- general – 230, 231, 235
- group – 246
- mensural – 229, 230, 231
- numeral – 422-425, 227
- sortal – 217, 221, 222-227, 229, 230, 231, 242, 246
- classifier expression 437, 440
- collective 128, 130, 131, 133, 147, 234, 244, 275, 422, 424, 455, 456, 459, 462, 463, 468
  - marker 233, 240, 242, 248,
- collectivity 236, 241, 242, 244
- colour 60
- Columbia school of linguistics 176
- combinability 451, 453
- comparative 79
- comparison 52
- compatibility 461
  - see* noun class
- complement 52, 454, 466
  - pair 441
- complementiser 332
- compound 225, 239
- compounding 54, 55, 59
- concept 431
  - see* empty
  - logical – 290
- conceptual
  - primitive 287, 289
  - space 89, 91, 92, 93, 94, 95, 98
- concreteness 269
- concretisation 270
- conditional 302, 303
- conjunction 10, 12, 13, 184, 302-303, 312, 322, 324, 342, 345, 346, 356, 363
- constituent
  - discontinuous – 434
  - structure 432, 433, 434, 435, 438, 441, 445
- construction
  - establishing – 139, 152
- context 23, 33, 266, 276
  - canonical – 291, 295, 298, 299, 301, 303, 312
  - syntactic – 265, 269, 280
- contextuals 276
- conversation 160
- converse (term) 156, 166
- conversion 109, 131, 133, 137, 145, 259, 264, 267, 268, 270, 271, 273, 274, 275, 276, 277, 278, 280, 281, 481, 483, 484
  - see* zero
- co-ordinator 336
- copula 77, 78, 79, 80, 87, 89, 90, 93, 94, 202, 224, 271
- cross-linguistic
  - patterns 89
  - variation 47, 51, 57
- cumulative 231, 232
- death 290
- de-categorisation 53
- declarative 336
  - clausal structure 324
- defectivity 376
- definiteness 22, 53, 237, 239, 240, 269
- de-grammaticalisation 259, 263, 273, 274-279, 280
- degree 89
  - modification 52, 53, 60
  - modifier 48, 59



- deictic (element, meaning) 199, 311, 380, 383
- deixis 346
- delocutive 108, 109, 137, 140, 143
- demonstrative 55, 75, 90, 147, 237, 422, 424, 440, 443
- dependent expression 24
- derivation 10, 89, 94, 131, 259, 264, 265, 266, 267, 268, 271, 273, 280, 359
  - see* zero
- descriptive linguistics 480
- determinatives 424, 425, 440, 443
- determiner 182, 290
- dimension 60
- diminutive 130
- directionality 60
- directional 359, 365
- directiva 359
- discourse 103, 176
  - analysis 176
  - referents 228
- dissective 231, 232, 235, 247
- distributional
  - analysis 73, 76, 79, 81, 82, 83, 84, 91
  - method 82, 83, 86, 87
  - pattern 76, 80, 83, 84, 91, 92, 93, 98
- distributive 131, 133, 147, 240
  - morphology 415
- dynamic 160, 179, 180
- dynamicisation 93
- dynamicity 147
- ellipsis 438, 439, 444
- empty
  - concept 372, 384
  - phonological word 438
- enclitic 415
  - decessive – 416
  - distributive – 415
  - locative – 415
- entity 15, 28, 103, 412, 419
- essive 352
- eurocentricity 173–175, 203
- event 3, 14, 15, 16, 21, 22, 24, 25, 27, 28, 29, 30, 31, 32, 33, 37, 57, 58, 65, 103, 265, 288, 290, 295, 412
- event-like concept 287
- exclamation 52
- existence 290
- expanded form 277
- experiencer 58
- expressive 24, 312
- features
  - clustering of – 197
  - percolation of – 185
- finiteness 22, 23, 25, 335
- First Order Predicate Calculus 177
- focusing 52
- formality 176
- form-meaning pair 374
- free syntactic markers 260, 280
- frequency 60
- functional
  - see* grammar
  - basis 47
  - head 321, 345
  - opposition 387
  - property 91
- function-indicating morphosyntax 68, 69, 70, 71, 72, 73, 84, 87, 88, 89, 93, 97
- future tense 321
- gender 22, 50, 58, 89, 117, 124, 155, 156, 281, 351, 381, 387, 397, 399, 463
- gender-number distinction 52, 53
- General Valency Hypothesis 431, 465

- generative
  - grammar 175, 176, 178, 182, 183, 205
  - semantics 177
  - syntax 66
  - theory 66
- genitive 50, 79, 97
  - Saxon – 275
- genitive attribute 384
  - phrase 273
- genus verbi 363, 365
- gerund 276
- glossing 109
- government 179, 181, 185, 269, 271, 273, 276, 281
  - classifier – 467
  - measure – 468
  - numeral – 467
- government category 432, 442, 464, 466, 467, 468
- grammar
  - see generative*
  - categorial – 183, 184, 185
  - Chinese – 422, 436, 438
  - English – 173
  - functional – 68
  - Latin – 173
  - radical construction – 84, 85, 91, 93, 95
  - traditional – 286, 287, 296, 300, 305
  - universal – 85
- grammatical
  - see category*
  - description 181
  - function 374
  - marker 200
- grammaticalisation 147, 197, 208, 248, 249, 259–284, 321, 334, 344, 345, 347, 359, 464
  - legacies 344
- Greenberg's typology 191, 192
- head 185, 186
  - noun 50, 51, 52
- headedness 185, 186, 208
- headless 186
- headless relative 116, 133
  - clause 132
  - construction 111
- head-marking 125
- heterosemy 481
- homogeneity 228, 231, 235, 236, 244, 247
- homogeneous 231, 232, 235, 374
- homonym 322, 324, 325, 326, 333, 334, 336, 338, 343, 344, 345, 346
- human relationship 110, 160
- hyponymy 185
- iconic 24, 270
- identity combination 183, 184, 186, 195, 196, 200, 202, 208
- ideophone 24, 308, 309, 312
- idiolect 374, 375, 428, 431, 460
  - system 374, 375, 376, 377, 380, 428, 429, 449
- idioms 391
- illocutionary 322, 324, 325, 326, 327, 330, 333, 336, 337, 338, 341, 342, 345
  - hortative 327–330
- imperative 325, 326, 327–330, 332, 336, 339–343, 345
- implication
  - absolute – 227
  - statistical – 227
- inchoative process 96
- incorporation 109

- noun – 158, 412, 413, 414
- indeterminateness 229
- indexical connection 311
- individualiser 229
- individuality 269
- infinitival preposition 321, 345
- infinitive 77, 78, 181, 271, 276, 281
  - see substantivised
  - marker 276
- inflection 3, 13, 25, 123, 178, 182, 269, 280
  - adjectival – 275
  - determiner – 26
  - nominal – 3, 22, 23, 27, 29, 30, 32, 33, 40, 55
  - verbal – 22, 23, 29, 30, 33, 40, 55, 56
- inflection reduction 275, 279, 280
- inflectional
  - affix 55
  - category 191
  - elaboration 22-24, 27, 29
  - ending 260, 261, 274, 275, 277
  - marker 267
  - morphology 10
  - paradigm 181, 261, 266
  - pattern 13
  - take-over 23, 24, 27
- ingressive 363
- inherent construction 138, 139, 152
- instrumental 57
- Integrational
  - Linguistics (IL) 371-395, 421-477
  - Syntax 421-477
- intensifier 290
- intension 379
- interjection 10, 12, 24, 304-305, 308, 312
  - descriptive – 24
  - directive – 24
  - expressive – 24
  - phatic – 24
- interlanguage variability 373-375
- interpersonal
  - behaviour 114
  - pragmatics 160
  - relations 110
- interrogative 199, 336
- intonation structure 384, 432
- intralanguage variability 373-375
- intransitiviser 363
- isolating *see* language
- izafet 97
- juxtaposition 49, 50, 54, 143, 184, 202
- kernel
  - category 183, 186, 187, 206
  - operator 185, 188, 206
- kin
  - actual – 114, 141, 149, 152, 154
  - classificatory – 106, 120, 149, 152, 154
  - junior – 113, 118, 140, 156, 158
  - senior – 113, 124, 133, 157, 158, 160
- kin
  - category 120
  - noun 149
  - relation 119, 153, 157, 161
  - relationship 108, 116, 151, 158
  - roots 116
  - term 104, 107, 108, 109, 110, 112, 114, 118, 119, 120, 122, 126, 129, 130, 131, 133, 134, 137, 139, 140, 141, 142, 143, 144, 147, 148, 152, 155, 156, 157, 158, 159, 160, 161, 162
  - type 106, 110, 114, 127, 128, 141, 142, 144, 149, 150
  - verbs 158

- kin-constituting act 158
- kin-defining event 120, 142, 144
- kinship
  - category 141
  - expression 103
  - noun 105, 113, 124, 131, 133, 162
  - relation 104, 105, 106, 107, 108, 109, 110, 111, 114, 117, 120, 123, 124, 127, 130, 133, 134, 145, 150, 152, 155, 156, 158, 159, 160, 166
  - system 114, 119, 149, 163, 166
  - term 105, 107, 110, 114, 116, 119, 123, 129, 131, 145, 191
  - verb 103-172
- kinship-defining events 140
- language 374, 375
  - child – 270
  - classifier – 217, 223, 224, 225, 227, 236, 237, 238, 240, 242, 243, 244, 245, 422, 459, 461, 468, 475
  - flexible – 32, 68, 70, 218, 262, 273, 277, 281
  - head-marking – 158-159
  - isolating – 427
  - non-classifier – 223
  - noun-verb – 263, 264, 266, 268, 269-277, 279, 280
  - polysynthetic – 122
  - rigid – 32, 69, 70, 262
  - signed – 479, 480
  - specialised – 218, 262, 273, 277, 281
  - theory of – 371, 374, 375, 377, 378
  - type-token – 263-267, 279, 280
- language
  - acquisition 4, 13, 16
  - development 4
  - variety 374
- language type
  - idealised – 48, 49, 51, 57
  - abstract – 193
  - lexeme 259, 260, 261, 263, 264, 265, 267, 268, 274, 276, 279, 280, 377
    - category 185, 269
    - class 261
    - form 377
  - lexical
    - differentiation 29
    - interpretation 432
    - meaning 372, 375, 377, 378, 379-383, 387, 388
    - prototype 285-317
    - type 261, 264, 266, 267, 268, 276, 279
    - typology 155
    - word 371, 372, 373, 374, 375-378, 386, 430, 431
  - Lexical Word Ordering 432, 447, 449, 455, 456, 457, 460, 461, 463, 467, 468, 469
  - lexicalisation 16, 47, 60, 76, 144, 159, 160, 419, 483
  - lexicon 259, 261, 264, 267, 279
  - life 290
  - linear order 185
  - linguistic
    - description 479-487
    - form 176, 180, 181, 200
    - theory 388
  - location 25, 58, 86, 94
  - locative 57
    - expression 353
  - lumpers 67
  - lumping 67, 72, 76, 84
  - main clause 18
  - manner 60
    - of action 352, 358, 365

- markedness 93, 263
  - see* Prague school
- marking structure 432
- meaning 397
  - composition 426
  - properties 179
- measure 422-425, 448
  - individual – 460
  - quasi- – 442
  - temporary – 437
  - verbal – 442, 451
- measure expression 437, 440
- measurement unit 423
- mental construct 228
- méroï lógou 10
- metalanguage of linguistics 313
- middle field 324, 325, 333, 348
- mimetic words 309, 310
- mode
  - of action 228
  - of being 228, 247
- modi essendi 247
- modification 47, 48, 49, 51, 52, 53, 59, 60, 69, 76, 77, 78, 79, 80, 87, 88, 89, 93, 94, 95, 272
  - of verbs 59
- modifier 8, 14, 17, 19, 20, 21, 23, 24, 26, 37, 38, 49, 51, 52, 56, 68, 74, 75, 93, 97, 272, 298, 366, 454
  - category 186, 190, 196
- modistae 3, 17, 247
- monogenetic hypothesis 322
- mood 22, 51, 55, 86, 89, 90, 365
  - marker 307
- morpheme 176, 179
- morphological
  - see* category
  - classification 12
  - paradigm 377
  - property 179, 180
  - structure 178, 181, 397
- morphology 176, 177, 178
- morphosyntactic
  - behaviour 65, 66
  - characteristics 293
  - criteria 285
- motion 25
- movement 290
- multicategorisation 397-429
- multifunctionality 259, 264, 479-487
- multiple class membership 81, 82
- multiplicity of levels 176, 177
- Natural Semantic Metalanguage (NSM)
  - 289, 293, 304
- negation 200, 310, 416, 417
- neutralisation 376, 391
- nominal
  - adjunct 301
  - aspect 234, 238
  - attribution 192
  - characteristics 146
  - concept 287
  - construction 152, 153
  - modifier 48-52
  - morphology 22, 145, 147
  - phrase 197, 200, 202, 259
  - stem 268, 270
  - style 276
  - subcategory 228, 229, 230, 231, 235, 236, 247
  - term 97, 120, 131, 133, 140, 141
- nominalisation 47, 55, 87, 94, 133, 269, 354, 360
  - deverbal – 149
- nominaliser 224, 276, 413, 414
- nonfinite verbal form 271, 273
- non-referentiality 296

- noun 6, 8, 9, 12, 13, 17, 18, 22, 23, 26, 27, 29, 30, 33, 37, 40, 47, 49, 51, 54, 58, 60, 65, 66, 68, 71, 72, 74, 76, 79, 80, 84, 85, 88, 89, 95, 97, 98, 103, 113, 123, 131, 133, 145, 150, 157, 160, 174, 193, 204, 223, 228, 259, 261, 262, 264, 275, 276, 285, 286, 287, 290-294, 310, 311, 312, 371, 384, 397, 398, 403, 411, 418, 479
  - abstract – 32, 221
  - animate – 240, 242
  - collective – 231, 232, 234, 235, 425
  - count – 270, 381, 423, 424
  - deverbal – 32, 34, 130, 269
  - general – 230, 231, 235, 236, 244, 245
  - human – 240, 244
  - inanimate – 242
  - mass – 229, 230, 231, 232, 235, 423, 424, 448
  - place – 37
  - predicate – 271
  - prototypical – 290, 291
  - quantitative – 37, 38
  - set – 231, 233, 234, 235, 236, 242, 243, 244, 245, 246, 247
  - singular object – 231, 232, 234, 235, 236, 243, 244, 245
  - sort – 229, 230, 231, 232, 235, 236, 238, 242, 243, 244, 245, 246
  - temporal – 37
  - transnumeral – 233
  - verbal – 269, 271
- noun
  - adjunct 296, 297
  - classification 425, 455, 463, 468
  - prefix 399
  - stem 400
  - term 114, 116
  - type 228
- noun class 448, 455-457, 459, 460, 461, 463, 464, 468
  - condition 465
  - system 455, 456, 457, 459, 461, 463
  - compatibility 461-468
- nouniness 269
- noun-like characteristics 145
- noun-verb
  - continuum 106
  - distinction 54-59, 67, 76, 130, 159, 205, 397, 480, 481, 483, 485
  - flexibility 35
  - opposition 275
- null hypothesis 346
- number 22, 50, 58, 89, 182, 238, 243, 346, 384, 397
  - discord 234
  - marker 234
  - marking 217
- numeral 10, 26, 29, 38, 59, 217, 222, 223, 227, 229, 231, 232, 233, 234, 235, 236, 237, 238, 239, 242, 243, 300, 301, 312, 424, 440, 446, 455
  - cardinal – 228, 235
  - ordinal – 301
- numerative 421-477
  - expression 421, 422, 426, 427, 433-440, 450, 451, 465, 473
- object 5, 18, 19, 58, 59, 192, 197
  - agreement 22, 23
  - marking 147
  - prefix 116, 118, 136, 137
- object (ontological) 55, 57, 69, 74, 86, 88, 89, 94, 96, 97, 228, 265, 397, 411
- object-referent term 127
- obligatoriness 185
- Occam's razor 176, 180

- occurrence 430
- one-word stage 14
- one-word utterance 14, 15
- ontological
  - correlate 231, 236, 245
  - dimension 160
  - property 103, 228
  - type 103
- open-category constraint 190
- operator 200
  - see* kernel
- paradigm 372
  - structure 387, 388, 391
- paradigmatic expansion 20-21, 24, 27
- paradigm-meaning pair 372, 375-378
- partes orationis 10, 12
- participle 12, 13, 49, 51, 56, 273
  - present – 269, 276, 278
- particle 305, 321-350, 376, 398, 401, 411, 418, 419
  - attributive – 76, 77, 78, 93
  - focus – 322, 324, 332, 333, 334, 335, 338, 343, 345, 346, 347
  - linking – 80
  - sentence – 299, 305, 307, 308, 312
  - verb – 364
- part(s)-of-speech
  - see* Amsterdam model
  - see* word class
  - differentiation 4
  - distinction 18, 19, 34, 68
  - flexibility 32, 34
  - hierarchy 9, 10, 29, 262
  - membership 3, 28
  - system 3, 4, 10, 38, 39, 217-222, 246, 259, 260, 261, 262, 263, 277, 279, 280
- partonomy 290
- patient 58, 59
- people 199
- perfective 410
- performative implicatures 154
- person 58, 152-155, 271, 346, 363,
  - combination 145, 151, 152, 154
  - affix 58, 59
- person (ontological) 14, 15, 21, 22, 24, 26, 27, 28, 29, 30, 32, 33, 37, 54, 55, 65, 96, 285, 287, 289, 411
- phonological word 429, 431
  - see* empty
- phonology 176
- pivot 116, 117, 121, 122, 124, 126, 132, 139, 158, 163
- place 3, 10, 14, 15, 16, 21, 24, 27, 28, 29, 37, 65, 96, 196, 199, 285, 287, 289, 294
- plural 55, 76, 78, 232, 233, 234, 246, 269, 275
  - marker 239, 240, 241, 248
  - marking 240
- pluralisation 270
- plurality 236, 240, 241, 242, 248
- polygenetic hypothesis 322
- polysemous 69, 291, 300
- polysynthetic 139, 158, 177
  - see* language
- possession 73, 200, 290, 403
- possessive 55, 130, 363
  - construction 221
  - modifier 237
  - prefix 399
- possessor 19, 33, 152, 399
  - agreement 22, 23
- possessum 152
- pragmatic function 87, 88, 89, 90, 91, 92, 94, 95, 96, 98
- pragmatics 106

- Prague School markedness 88, 89
- predicatability 259, 263, 264
- predicate 5, 6, 7, 8, 12, 15, 17, 18, 21, 22, 23, 24, 25, 27, 29, 30, 32, 33, 34, 56, 58, 59, 65, 93, 122, 174, 178
  - composite – 18
  - dependent – 17-18, 19, 23, 25, 26, 29-30, 32, 38
  - mental – 290
  - presupposed – 58
  - series of –s 19
  - superordinate – 351, 353, 355, 364, 365
  - three-place – 161
  - two-place – 105, 110
- predicate modifier 5, 6, 7, 9, 10, 17, 19, 20, 26, 36, 37, 38
- predication 47, 53, 58, 59, 73, 77, 79, 80, 84, 86, 87, 88, 89, 93, 94, 96, 97, 123, 131, 260, 261, 264, 265, 267, 269, 271, 279, 287
  - identifying – 412
  - intransitive – 23, 94
  - nominal – 271
  - presupposed – 49, 51, 54
- predicative 18, 68, 333
  - adjective 273
  - identification 417
  - nominal 174
  - position 53
- predicativity 277, 446
- prefix 321, 358, 363, 401-409
  - neuter-zoic – 403, 415
  - zoic – 405
- preposition 10, 12, 13, 30, 59, 66, 76, 219, 303-304, 363, 364, 365
  - see* infinitival
- prepositional phrase 273
- present tense 277
- presentative 352
- preverb 351, 352, 359, 362, 363, 364, 365
- preverbal 351-369
  - manner – 359
  - modal – 359
  - phasal – 359
  - temporal – 359
- principles of economy 386
- process 28, 55, 57, 131, 285, 286, 288, 295, 301
  - see* inchoative
- pro-drop 195, 208
- pronominal prefix 400, 401, 406
- pronoun 10, 12, 13, 19, 59, 300
  - adjectival – 371-395
  - logophoric – 19
  - personal – 19, 300, 310, 311, 312, 384, 386, 447
  - possessive – 372, 380, 383, 386
  - reciprocal – 312
  - reflexive – 19, 312
  - relative – 78, 93, 312
  - substantival – 371-395
- proper name 304, 312, 412
- property 6, 14, 15, 16, 20, 21, 24, 27, 28, 29, 37, 40, 48, 52, 60, 65, 69, 75, 76, 77, 78, 79, 86, 88, 89, 90, 91, 93, 94, 96, 97, 103, 199, 201, 296
  - concept 296
- proposition 270
- propositional act 87
- propositus 110, 111, 122, 126, 134, 135, 138, 139, 152, 153, 155, 156, 158
- prototype 65, 90, 91, 93, 94, 95, 98, 293
- prototypical nature 182
- quality 65, 67, 295, 301
- quantificational 199
- quantifier 3, 10, 17, 18, 26, 29, 38, 182,



- 200, 240, 241, 290, 300, 301, 302, 425
- quantity 3, 14, 15, 16, 20, 21, 24, 26, 27, 28, 29, 37, 40, 422
- question 324
- quotative 114
- re-categorisation 53
- recipient 58, 59
- reciprocal 55, 118, 124, 128, 129, 130, 147
- recycling of lexical items 4, 20, 21, 29, 30, 32, 33, 34, 35, 37, 38, 40
- reduction 269, 270, 272
- reduplication 219, 220
- reference 47, 53, 58, 59, 69, 74, 75, 84, 87, 88, 89, 90, 94, 96, 123, 129, 131, 148, 154, 160, 259, 260, 261, 264, 265, 273, 279, 310, 311
  - definite – 239
- referent 110, 111, 116, 122, 124, 126, 127, 130, 132, 134, 135, 138, 139, 152, 153, 155, 156, 228, 231
- referential
  - expression 473
  - function 53
  - nominal phrase 268
- referentiality 264, 287, 446
- referring expression 126
- reflexive 55, 200
  - semi- – 128, 129, 130, 147
- relation 96
- relational 160
  - naturalness 154
  - nominal 147
  - term 104
- relationality 104, 147, 167
- relative
  - junior – 127
  - senior – 127
- relative clause 77, 78, 111, 121, 122, 124, 126, 130, 147, 157, 217, 227-273
  - see* headless
- relative marker 226
- relativisation 87
- relativiser 69, 224
- relatum 122
- rheme 326, 330, 331, 348
- sandhi 161
- scalability 334
- Seinsart 228, 234, 247
- self-converse 119, 157
- semantic
  - see* category
    - analysis 181
    - class 65, 69, 86, 87, 88, 89, 90, 91, 93, 94, 96
    - difference 71, 72
    - exemplar 305, 307, 308, 309, 313
    - frame 96
    - function 92, 95
    - invariant 299, 305, 308, 311
    - molecule 299
    - primitive 293
    - property 180
    - prototype 57, 60
    - shift 96, 98
    - structure 177
    - type 288, 289
- semantics 177, 178, 285
  - see* generative
- semioticity 176, 180
- sentence 176, 179, 432
  - canonical – 291, 293, 302
  - nominal – 30
  - verbal – 30
- sentential functions 47-64
- sequence 430

- shape 217, 228, 229, 230, 231, 235, 236, 242, 243, 244, 245, 247
- similarity 290
- simple past 277
- singleton set 244
- singular 76, 78, 88, 238, 240, 246, 269
- singularity 236, 240, 242
- singulative 233, 234
  - marker 247
- slash
  - combination 183, 184, 186, 195
  - operator 184, 185, 188
  - symbol 184
- space 290
- spatial
  - boundedness 229
  - discreteness 229, 230, 236
  - entity 228
- speaker 153
- speaker-hearer relationship 155
- specificness 237
- speech 290
- speech act 352
  - participant 134, 152, 154
- speed 60
- splitters 67, 76
- splitting 67, 76-79
- state 55, 145, 296, 412
- stativiser 363
- stem
  - paradigm 377
  - transfer 269
  - variation 377
- strategies for sentence structure 47, 49, 53, 57, 59, 60, 61
- stress pattern 225, 239
- structural coding criterion 87, 88, 89
- structuralist linguistics 479
- subclass analysis 82
- subject 5, 12, 18, 19, 24, 33, 58, 178, 192, 193, 197
- subject
  - agreement 22, 23
  - marking 147
  - prefix 116, 136, 137
- subject-referent term 127
- subjunctive 77, 78
- subordinate clause 18, 19, 33, 40, 324
- subordinating conjunction 302
- substance 13
- substantive 290, 445, 446, 448, 452, 468
- substantivised
  - infinitive 271
  - adjective 273
- suffix 409-410
- superlative 79
- superlativity 200
- suppletion 376
- suppletive
  - form 19
  - root 127
- SVO order 192
- syncretism 376
- syndetica 359
- synonym 377
- syntactic
  - see* category
  - see* context
  - analysis 181
  - behaviour 66
  - categorisation 377
  - category inventory 188, 189, 190, 191, 193, 194, 202
  - category tree 187, 188, 189, 190
  - classification 12
  - complexity 14
  - function 3, 5, 12, 13, 15, 16, 19, 21, 27, 32, 397, 432, 479, 481

- nominal 411, 414, 415, 416, 417, 419
- paradigm 375, 376, 377
- pattern 95, 173, 174, 175, 191, 198, 202, 203
- phrase 259
- property 179, 180, 181
- quadruple 432
- relation 433, 440, 445
- rule 185
- slot 260, 261, 262, 264, 265, 274
- structure 173, 177, 178, 183, 184, 185, 196, 202, 378, 432
- tree 178
- triple 432
- unit 429, 432
- unit category 429
- unit ordering 432
- variation 260
- word 429, 431
- syntagmatic
  - constraint 189, 190, 207
  - expansion 17-20, 27
- syntax 176, 177, 178, 259, 269
  - see generative*
  - autonomy of – 177, 196
  - external – 269
  - internal – 269
  - universal – 310
- TAM (tense-aspect-mood) 158, 219, 264, 351, 352, 353, 359, 363, 364, 365
  - categories 116, 124, 130
  - marking 129
  - morphology 145
  - phrase 264, 265
  - possibilities 124
- taxonomy 290
- telicity 147
- tense 12, 13, 22, 40, 51, 55, 56, 59, 86, 89, 90, 182, 363, 365, 397
- term 5, 6, 7, 8, 9, 14, 17, 19, 21, 22, 23, 24, 26, 27, 30, 32, 33, 34, 37, 38
  - head 68
  - modifier 5, 6, 7, 9, 17, 19, 20, 26, 36, 37, 38
- terminology 174, 175
- theme 326, 330, 331, 348
- thing 14, 15, 21, 22, 24, 26, 27, 28, 29, 30, 31, 32, 33, 37, 54, 57, 65, 96, 174, 194, 195, 196, 197, 199, 200, 202, 286, 289, 296
  - abstract – 292
  - concrete – 292
- thing-like concept 287
- time 3, 14, 15, 16, 21, 24, 27, 28, 29, 37, 60, 196, 199, 290, 310
- time-stability 103, 104
- token
  - phrasal – 265, 266
  - syntactic – 259, 261, 263, 264, 267, 271, 276, 279, 280
- topic 193
  - marker 174
- topicalisation 52
- topological field distribution 326, 331, 332
- transitive
  - marking 118
  - prefix 130
  - pronominal prefix set 129
- translation
  - method 479
  - principle 480
- transnumeral 233, 238, 242
- transposition 263, 269, 270, 277
- two-word stage 14
- typological

- markedness 87, 88, 89, 93, 95
- pattern 86
- -universal theory of parts of speech 93
- typology of categories 178
- unit counter 460
- universal
  - absolute – 85, 89
  - conceptual – 304
  - implicational – 89, 90
  - language – 65, 83, 85, 86, 87
  - lexical – 289, 290, 291, 294, 295, 297, 301, 303, 305, 308, 310
  - linguistic – 287
  - semantic – 288, 290
- universal
  - see* grammar
  - concept 298, 307
  - exemplar 289, 290, 297, 298, 299, 300, 301, 302, 303, 304, 305, 310, 311, 312
  - theory of syntactic categories 203
  - -typological theory of parts of speech 83, 87, 90, 94, 96
- utterance 374
- V2 324, 325, 344, 346, 348
- valency 269, 431
- value 60
- verb 6, 7, 8, 9, 12, 13, 22, 27, 29, 30, 33, 37, 40, 47, 49, 51, 52, 58, 60, 65, 66, 68, 69, 71, 72, 74, 75, 76, 78, 79, 84, 85, 88, 89, 90, 93, 95, 97, 98, 103, 106, 113, 123, 155, 160, 174, 204, 259, 261, 262, 264, 276, 285, 286, 287, 288, 294-295, 310, 397, 398, 399, 401, 419, 479
- denominal – 270
- descriptive – 226
- impersonal – 310
- instrumental – 270
- intransitive – 107, 128, 130
- medial – 19
- prototypical – 294
- serial – 7, 19, 25, 38
- stative – 37, 38, 226
- transitive – 104, 107, 130, 144, 148, 155
- verb
  - adjunct 298, 301
  - class 363, 365
  - root 400
- verbal
  - affixation 321, 345
  - category 147
  - characteristic 112, 125, 133, 145-146
  - concept 287
  - morphology 22
  - nominal 413
  - phrase 197, 202, 259, 276, 325, 330
  - prefix 277
  - prototype 295
  - stem 268
  - term 116, 120, 131, 140
- verbalisation 47, 55
- verb-like
  - characteristic 145
  - construction 153
  - expression 154
- verb-noun
  - contrast 30, 32
  - distinction 30, 32
  - neutralisation 30
- veridical 336, 337, 338, 344
  - meaning 322, 336
- veridicality 338

Vlast 324, 348

vocative 114

voice 56, 174

West Coast Functional school 177

word 176, 193, 482

content – 371, 372

function – 371, 372

identification of –s 371, 373

substantival – 447

uninflected – 12

word

– category 430, 432

– paradigm 429

word class

see part(s) of speech

definition of – notions 371

identification of – 371

word class

see part(s) of speech

– distinction 48, 103

– typology 159

word form

– category 387

– formation 376, 378

– identification 427

word-formation 481

word-order correlations 191

X-bar theory 66, 185, 186, 206

X-zero 185

zero 89

zero derivation 270, 274, 275, 277, 278,

280, 281

zero-conversion 174