CAMBRIDGE TEXTBOOKS IN LINGUISTICS

# Grammaticalization

Second Edition

**Paul J. Hopper and**
**Elizabeth Closs Traugott**

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## Second Edition

This is a general introduction to grammaticalization, the change whereby lexical terms and constructions come in certain linguistic contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions. Thus nouns and verbs may change over time into grammatical elements such as case markers, sentence connectives, and auxiliaries. The authors synthesize work from several areas of linguistics, including historical linguistics, discourse analysis, and pragmatics. Data are drawn from many languages including Ewe, Finnish, French, Hindi, Hittite, Japanese, Malay, and especially English.

This second edition has been thoroughly revised with substantial updates on theoretical and methodological issues that have arisen in the decade since the first edition, and includes a significantly expanded bibliography. Particular attention is paid to recent debates over directionality in change and the role of grammaticalization in creolization.

*Grammaticalization* will be a valuable and stimulating textbook for all linguists interested in the development of grammatical forms. Readers in anthropology and psychology will also appreciate the insights it offers into the interaction of language and structure and use.

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## Second Edition

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In memory of
Dwight Bolinger
1907–1992

# Contents

# Figures

# Tables

# Preface to the second edition and acknowledgments

When we wrote the first edition of this book in the early 1990s, our aim was to present an overview of grammaticalization for the benefit of those students of linguistics to whom this was a new or only vaguely familiar framework for understanding linguistic phenomena. We defined grammaticalization as the process whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions. We also characterized it as the process whereby the properties that distinguish sentences from vocabulary come into being diachronically or are organized synchronically. In the last ten years grammaticalization has become a major field of study, and work on the topic has flourished in both "functional" and "formal" frameworks, that is, on the one hand frameworks that privilege the interplay of language structure and use and consider language as both a cognitive and a communicative force, and on the other frameworks that privilege language structure and consider language primarily from the perspective of internalized systems. As work has progressed, it has become clear that the definition of grammaticalization as a "process" has been misleading. To some it has suggested that grammaticalization is conceived as a force with an impetus of its own independent of language learners and language users. This was never intended. Only people can change language. The challenge presented by the kinds of data of central concern to those who work on grammaticalization is that morphosyntactic changes are replicable across languages and across times; furthermore, they have a very strong tendency to go in the same direction, e.g. lexical verb to auxiliary, nominal adpositions to case marker, not vice versa. To avoid further terminological confusion, we now define grammaticalization as the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions and, once grammaticalized, continue to develop new grammatical functions.

In this second edition we have maintained the basic structure and content of the original book, but because grammaticalization has come to be so widely studied in the last decade we have added substantial discussion of recent issues where they seemed germane. Linguistic theory has also undergone some radical changes since the book was originally written; for example, within generative theory rule-based

grammars have been challenged by constraints-based grammars (see developments in Optimality Theory sparked by A. Prince and Smolensky 1997); and issues of the relationship between structure and use have come to be of central concern to most theoretical perspectives on linguistics. We have not attempted to address the variety of issues that form the current theoretical dialog. That would require not only revision, but reconceptualization, of the original book. Instead, we have maintained the main outlines of the original work, deleted some obviously outdated analyses and suggested pointers where relevant to newer ones.

Many terms in linguistics serve two functions, one to describe properties of language (e.g., syntax, morphology, phonology), the other to name the study and theory of that property. The term grammaticalization is no exception. It refers not only to changes observable across time, but also to an approach to language study, one that highlights the interaction of use with structure, and the non-discreteness of many properties of language. In this book we do not advance any particular theory of language, although the framework can be characterized as "integrative functionalist" (Croft 1995) in that we consider linguistic phenomena to be systematic and partly arbitrary, but so closely tied to cognitive and social factors as not to be self-contained. We focus on observations that lead to claims about what sorts of concepts an adequate theory must account for. We discuss the kinds of interpretation of data that flow from the approach of grammaticalization, as well as the kinds of data that one would look for in studying some aspect of a language from this perspective. The study of grammaticalization touches on many of the topics that have been central to work in linguistics, whether synchronic or diachronic, most particularly the domains of morphosyntax and morphology. No attempt is made in this book to cover every topic in an encyclopedic way, nor could it be. Some basic knowledge of linguistics is needed. We assume that readers have at least worked through one of the standard introductory textbooks, and have either had a course in historical linguistics or have carefully read a recent textbook in this field.

Our deepest thanks to the numerous people who contributed directly or indirectly to either the first or the second edition of this book, or both. Among them Luc Baronian, Joan Bybee, Brady Clark, William Croft, Andrew Garrett, A. Gianto, T. Givón, the late Joseph Greenberg, Claude Hagège, Bernd Heine, Suzanne Kemmer, Paul Kiparsky, Christian Lehmann, Douglas Lightfoot, Therese Lindström, John McWhorter, Fritz Newmeyer, John Rickford, Sarah Roberts, Devyani Sharma, Scott Schwenter, Eve Sweetser, Sandra Thompson, and Max Wheeler deserve special mention. Olga Fischer and her students, especially Marije Bogers, Anthony Glass, and Brad Philpot, drew our attention to many points in the first edition that deserved clarification, as did Claire Cowie. We have been especially indebted to the late Suzanne Fleischman and to Nigel Vincent, who commented on drafts of the first edition, and to Roger Lass and Arnold Zwicky,

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In writing this book we debated many points with respect for each other's different views. No two authors covering as wide a range of issues currently open to theoretical and methodological debate as are touched on in this book could expect to agree with every concept put forward, and we are no exception. We have welcomed the inspiration that our differing perspectives have provided, and we hope that this book will encourage further debate in the linguistic community.

# Abbreviations

## Linguistic terms

| | |
|---|---|
| ABL | ablative |
| ABS | absolutive |
| ACC | accusative |
| ADV | adverb |
| AGR | agreement marker |
| AGT | agent |
| AOR | aorist |
| ASP | aspect |
| AUX | auxiliary |
| BEN | benefactive |
| CAUS | causative |
| CL | noun classifier |
| COMP | complementizer |
| COMPL | completive |
| CONJ | conjunction |
| CONTIN | continuative |
| COP | copula |
| DAT | dative |
| DEF | definite marker |
| DEM | demonstrative |
| DET | determiner |
| DUR | durative |
| EMPH | emphatic |
| ERG | ergative |
| FEM | feminine |
| FUT | future |
| GEN | genitive |
| GER | gerundive |

| | |
|---|---|
| ILL | illative |
| IMP | imperative |
| IMPF | imperfect |
| INCL | inclusive |
| INDEF | indefinite |
| INF | infinitive |
| INSTR | instrumental |
| IOBJ | indirect object |
| LOC | locative |
| M | modal |
| MASC | masculine |
| MED | medial |
| NEG | negative |
| NEUT | neuter |
| NF | non-final marker |
| NOM | nominative |
| NP | noun phrase |
| NPrel | anaphoric NP in a relative clause |
| OBJ | object |
| OM | object marker |
| OV | object–verb word order |
| P | particle |
| PART | participle |
| PARTIT | partitive |
| PERF | perfect |
| PL | plural |
| PM | predicate marker |
| PN | personal name |
| POSS | possessive |
| POST | postposition |
| PREP | preposition |
| PRES | present |
| PRO | pronoun |
| PROG | progressive |
| PURP | purposive |
| QUOT | quotative marker |
| RECIP | reciprocal |
| REFL | reflexive |
| REL | relative |
| SG | singular |

| | |
|---|---|
| Srel | relative clause |
| SUB | subordinator |
| SUBJ | subject |
| SUBJUNCT | subjunctive |
| SW | switch-reference marker |
| TNS | tense |
| TOP | topic |
| TRANS | transitive |
| V | verb |
| VO | verb–object word order |
| VP | verb phrase |
| 1 | first person |
| 2 | second person |
| 3 | third person |

## Symbols

| | |
|---|---|
| > | becomes/is replaced by/splits into |
| < | derives from |
| | morpheme boundary |
| | portmanteau morpheme boundary |
| ~ | alternates with |

## Stages of English

| | |
|---|---|
| OE | Old English (*c.* 600–1125) |
| ME | Middle English (*c.* 1125–1500) |
| EMdE | Early Modern English (*c.* 1500–1750) |
| MdE | Modern English (*c.* 1750–1950) |
| PDE | Present-Day English (*c.* 1950– ) |

By convention, vowel length signs have been omitted in Latin and Old English forms.

# 1

# Some preliminaries

## 1.1 Introduction

(1) Bill is going to go to college after all.

What is the relationship between the two instances of *go* in this sentence? The first *go* is usually analyzed as an auxiliary, the second as a main verb. Are they different morphemes that just happen to look and sound alike, that is, are they homonyms? Are they variants of the same morpheme in different contexts, that is, are they polysemous? Is the auxiliary historically derived from the main verb, and, if so, is this kind of derivation cross-linguistically attested?

What permits the pair in (2) but not the (b) sentence in (3)?

(2) a. Bill is going to go to college after all.
b. Bill's gonna go to college after all.

(3) a. Bill's going to college after all.
b. *Bill's gonna college after all.

These questions and many others are characteristic of the study of grammaticalization. As a first approximation, the answer is that the auxiliary which expresses immediate futurity derives historically from the motion verb *go* in a highly specific context, and that the two coexistent forms used to be polysemous. Such meaning–form correlations are found in a wide number of languages around the world.

The term "grammaticalization" has two meanings, one to do with a research framework within which to account for language phenomena, the other with the phenomena themselves. In this respect the term "grammaticalization" resembles not only other terms in linguistics such as "grammar," "syntax," and "phonology," but the terminology of all higher-level concepts in scholarly disciplines. As a term referring to a research framework, "grammaticalization" refers to that part of the study of language change that is concerned with such questions as how lexical items and constructions come in certain linguistic contexts to serve grammatical functions or how grammatical items develop new grammatical functions. This research framework is also concerned with characterizing the subset of cross-linguistically

recurring correlations across time among semantic–pragmatic, morphosyntactic, and (sometimes) phonological changes. It highlights the tension between the fixed and the less fixed in language, between relatively unconstrained lexical (semantic) structure and more constrained syntactic, morphosyntactic, and morphological structure. It provides the conceptual context for a principled account of the relative indeterminacy in language and of the basic non-discreteness of categories. As a term referring to actual phenomena of language, "grammaticalization" refers most especially to the steps whereby particular items become more grammatical through time. Grammaticalization in this sense is part of the wider linguistic phenomenon of structuration, through which combinations of forms may in time come to be fixed in certain functions.

Since Saussure, many linguists have approached language from one of two perspectives: that of its structure at a single point in time ("synchronic") and that of change between two or more points in time (historical or "diachronic"). The synchronic dimension of a language is said to be its system of grammatical units, rules, and lexical items (together with their meanings), that is, its grammar. It is usually conceived as essentially stable and homogeneous. The diachronic dimension, on the other hand, is understood as the set of changes linking a synchronic state of a language to successive states of the same language. The discreteness of categories and rules, and the rigidity of the distinction between the synchronic and diachronic dimensions have been called into question by work on the structured variation to be found in various social contexts, and analysis of discourse and language in use. They are also called into question by the study of grammaticalization.

Grammaticalization likewise has been studied from these two perspectives. The chief perspective is historical, investigating the sources of grammatical forms and the typical steps of change they undergo. From this perspective, grammaticalization is usually thought of as that subset of linguistic changes whereby a lexical item or construction in certain uses takes on grammatical characteristics, or through which a grammatical item becomes more grammatical. The other perspective is more synchronic, seeing grammaticalization as primarily a syntactic, discourse pragmatic phenomenon, to be studied from the point of view of fluid patterns of language use. In this book we will combine these two points of view, but with greater emphasis on the historical dimension.

Our example of *be going to/be gonna* illustrates several factors typical of grammaticalization viewed form the historical perspective:

(a) The change occurs only in a very local context, that of purposive directional constructions with non-finite complements, such as *I am going to marry Bill* (i.e., *I am leaving/traveling in order to marry Bill*). It does not occur in the context of

directionals in which the locative adverb is present, such as *I am going to London* or even *I am going to London to marry Bill.*

(b) The change is made possible by the fact that there is an inference of futurity from purposives: if I am traveling in order to marry, the marriage will be in the future. In the absence of an overt directional phrase, futurity can become salient.

(c) The shift from purposive *be going* (*to* . . .) to auxiliary *be going to* involves reanalysis not only of the *be going to* phrase but of the verb following it. Thus [I am going [to marry Bill]] is rebracketed as [I [am going to] marry Bill]. It also involves a change from progressive aspect to "immediate future."[1]

(d) The reanalysis is discoverable, that is, is manifest, only when the verb following *be going to* is incompatible with a purposive meaning, or at least unlikely in that context, for example, *I am going to like Bill, I am going to go to London.* In other words, the reanalysis is discoverable only because the contexts in which *be going to* can occur have been generalized, or analogised, to contexts that were unavailable before.

(e) Once the reanalysis has occurred, *be going to* can undergo changes typical of auxiliaries, such as phonological reduction. The reduction of the three morphemes *go-ing to* into one (*gonna*) is possible only because there is no longer a phrasal boundary between *-ing* and *to*.

(f) The various stages of grammaticalization of *be going* (*to* . . .) coexist in Modern English, although the change originates in the fifteenth century or perhaps even earlier.

(g) The original purposive meaning continues to constrain the use of the auxiliary: *be gonna* is the future of intention, plan, or schedule. As an original aspectual, it can occur in constructions where a future formed with *will* cannot:

(4) a. If interest rates are going to climb, we'll have to change our plans.
b. *If interest rates will climb, we'll have to change our plans.

This property of persistence of meaning presumably derives in part from the fact that the older *be going* (*to* . . .) for a long time was polysemous with and coexisted with the newer use, and hence allowed reinforcement of older meanings.

(h) The main verb *go* is relatively general in meaning, that is, it expresses any kind of motion away from the speaker, including walking, meandering, running, riding, etc.

(i) As grammaticalization has taken place, some of the original relatively concrete meaning of *go* has been lost, specifically motion and directionality. However, some new meanings have also been added; these are more abstract and speaker-based meanings, specifically temporal meanings based in speaker time. The historical development of the construction will be discussed more fully in Chapter 4.

## 1.2 What is a grammaticalized form?

As is usually the case with words rich in implications, there are a number of different conceptions of grammaticalization. Yet there are central, prototypical instances of grammaticalization which most linguists would recognise, and we start with some of them.

For example, it is usually accepted that some kind of distinction can be made in all languages between "content" words (also called "lexical items," or "contentives"), and "function" words (also called "grammatical" words). The words *example*, *accept*, and *green* (i.e., nouns, verbs, and adjectives) are examples of lexical items. Such words are used to report or describe things, actions, and qualities. The words *of*, *and*, *or*, *it*, *this*, that is, prepositions, connectives, pronouns, and demonstratives, are function words. They serve to indicate relationships of nominals to each other (prepositions), to link parts of a discourse (connectives), to indicate whether entities and participants in a discourse are already identified or not (pronouns and articles), and to show whether they are close to the speaker or hearer (demonstratives). Frequently it can be shown that function words have their origins in content words. When a content word assumes the grammatical characteristics of a function word, the form is said to be "grammaticalized." Quite often what is grammaticalized is not a single content word but an entire construction that includes that word, as for example Old English *þa hwile þe* 'that time that' > *hwile* 'while' (a temporal connective).

### *1.2.1 A preliminary classification of grammatical forms*

Not all grammatical forms are independent words. In most languages, at least some grammatical forms are bound as an affix or other category. Although there is no full agreement on definitions of grammatical forms, in general it is possible to speak of a continuum of *bonding* between forms that has a looser relationship between forms (i.e., independent words) at one end and a tighter relationship (i.e., grammatical affixes attached to stems) at the other. On this continuum there are various "cluster" or "focal areas" of the following nature (cf. Halliday 1961: 249; Bybee 1985; Hammond and Noonan 1988):

(a) Grammatical words with relative phonological and syntactic independence. For example, English prepositions can be found at the end of a clause without a noun phrase, as in *This is where we're at* and *This bed has been slept in.* In this position they have full segmental structure (unreduced vowels and consonants, e.g., [æt], not [ət]) and full prosodic structure (they can take stress).

(b) Derivational forms. Content words themselves often contain meaningful parts, known as derivational forms, that are neither inflections nor clitics

(see below). Many derivational forms add a meaning component without affecting the category in question. The *un-* of *unhappy* adds to the adjective *happy* the meaning 'not,' but does not change the adjectival status of the word. Similarly the *-ling* of *duckling* adds to the noun *duck* the new meaning 'young and small,' but does not change the nominal status of the word. Such derivational morphemes are part of the lexicon and can be called "lexical derivational morphemes." Other derivational forms do change the category of the word. For example, in the word *happily*, the suffix *-ly* derives an adverb from an adjective; in *swimmer*, the suffix *-er* derives a noun from the verb *swim*. Likewise, in the word *reclusive*, the suffix *-ive* derives an adjective from a noun. Because they not only add meaning but also serve to indicate grammatical categories, such "grammatical derivational morphemes" can be considered to serve a role between content and grammatical forms. Derivational morphemes are added to roots or stems, and the derived stems may be hosts for clitics and inflections.

(c) Clitics. These are forms that are not affixes, but are constrained to occurring next to an autonomous word, known as the host (for important treatments, see Klavans 1985; Zwicky 1985a; Halpern 1995). The diachronic process whereby a lexical form becomes a clitic is called "cliticization" (the corresponding verb is "cliticize"). The word clitic is a cover term for two varieties. A clitic that precedes the host is called a "proclitic," e.g., in colloquial English, *'s* in *'s* me 'it's me.' A clitic that follows its host is an "enclitic." Good examples of clitics in English are the *'m* in *I'm*, the *'re* in *you're*, the auxiliaries *'ll, 've* in *we'll, we've*, etc.; and discourse particles in many languages, e.g., in Latin, *-que* 'and':

(5) Conticuere omnes, intentique ora tenebant.
fell-silent all, intent-*que* gazes they-held
'All fell silent and intently held their gaze.' (*c.* 30–19 BC, Virgil, *Aeneid* II, 1)[2]

Clitics may be thought of as forms that are half-way between autonomous words and affixes (Jeffers and Zwicky 1980). They may share properties of both, although it is hard to make generalizations about which features will occur in a given instance. For example, clitics may resemble affixes in forming an accentual unit with the host. In Indonesian, where stress tends to occur on the next-to-last syllable of the word, the enclitic pronoun *nya* 'its' in *warná-nya* 'its colour' affects the stress in the host stem (contrast *wárna* 'colour'). On the other hand, clitics may behave more like independent words in having no effect on accent, as in Spanish *háblame* 'speak [sg.] to me!,' where the accent of the host *hábla* is unchanged by the extra syllable of the enclitic *me*.

(d) Inflections. These are always dependent and bound; that is to say, inflections by definition are always part of another word. Inflections reflect categories and properties of words such as gender, case, number, tense, aspect, and syntactic

relationships. In many languages, inflections are used to show agreement ("concord") in these properties or categories with some other word, e.g., English *this shoe* versus *these shoes*, where the forms of the demonstrative *this/these* reflect the singular/plural contrast in *shoe/shoes*.

### 1.2.2 Clines

Basic to work on grammaticalization is the concept of a "cline" (see Halliday 1961 for an early use of this term). From the point of view of change, forms do not shift abruptly from one category to another, but go through a series of small transitions, transitions that tend to be similar in type across languages. For example, a lexical noun like *back* that expresses a body part comes to stand for a spatial relationship in *in/at the back of*, and is susceptible to becoming an adverb, and perhaps eventually a preposition and even a case affix. Forms comparable to *back of (the house)* in English recur all over the world in different languages. The potential for change from lexical noun, to relational phrase, to adverb and preposition, and perhaps even to a case affix, is an example of what we mean by a cline.

The term "cline" is a metaphor for the empirical observation that cross-linguistically forms tend to undergo the same kinds of changes or have similar sets of relationships, in similar orders. "Cline" has both historical and synchronic implications. From a historical perspective, a cline is conceptualized as a natural "pathway" along which forms evolve, a schema which models the development of forms (see Andersen 2001). Synchronically a cline can be thought of as a "continuum": an arrangement of forms along an imaginary line at one end of which is a fuller form of some kind, perhaps "lexical," and at the opposite end a compacted and reduced form, perhaps "grammatical." Heine and his colleagues have suggested that the particular paths along which individual forms or groups of forms develop be called "grammaticalization channels" (see Lehman 1995[1982]) and the internal structure or relational patterns within these channels be called "grammaticalization chains" (Heine, Claudi, and Hünnemeyer 1991a: 222; Heine 1992). The metaphors "cline," "continuum," "pathway," "channel," and "chain" are to be understood as having certain focal points where phenomena may cluster. Most importantly, they are metaphors for labeling grammatical phenomena, not putative neurological or other elements of the language capacity.

The precise cluster points on the cline (i.e., the labels preposition, affix, etc.) are to a certain extent arbitrary. Linguists may not agree on what points to put on a cline, nor on how to define the cline in a given instance. They also may not agree on whether a particular form is to be placed in the lexical area or the grammatical area of the cline. But the relative positions on a cline are less subject to dispute.

For example, most linguists would agree that there is a "cline of grammaticality" of the following type:

content item > grammatical word > clitic > inflectional affix

Each item to the right is more clearly grammatical and less lexical than its partner to the left. Presented with such a cline, linguists would tend to agree that, in so far as they schematically reflect cross-linguistic generalizations, the points (labels) on the cline could not be arranged in a different order, although individual items may violate the order language-specifically (Andersen 2001). A number of such clines have been proposed, based on the many different dimensions of form and meaning that are found in language. Generally, they involve a unidirectional progression in bondedness, that is, in the degree of cohesion of adjacent forms that goes from loosest ("periphrasis") to tightest ("morphology").

It is often difficult to establish firm boundaries between the categories represented on clines, and indeed the study of grammaticalization has emerged in part out of a recognition of the general fluidity of so-called categories. It has also emerged out of recognition that a given form typically moves from a point on the left of the cline to a point further on the right, in other words, that there is a strong tendency toward *unidirectionality* in the history of individual forms. We will discuss unidirectionality and ways of conceptualizing the cline in some detail in Chapter 5.

### 1.2.3 Periphrasis versus affixation

Often the same categories can be expressed by forms at different places in the clines. Thus in English we have expressions that are "phrasal" or "periphrastic" (literally "occurring in a roundabout fashion") such as (6):

(6) a. have waited (perfect tense–aspect)
b. the household of the queen (possessive)
c. more interesting (comparative)

It is also possible to express tense–aspect, possession, and the comparative through affixes or changes internal to the stem word. In this case the categories are bound to a host and are said to be expressed "morphologically" or "affixally"as in (7):

(7) a. waited (past tense affixed *-ed*); sang (past tense signaled by internal change: contrast *sing*)
b. the receptionist's smile (possessive affix *-s*)
c. longer (comparative *-er*)

The distinction between the periphrastic and morphological expression of a category is important for the study of grammaticalization because of two diachronic

tendencies. One is for periphrastic constructions to coalesce over time and become morphological ones. While this and other tendencies are discussed in more detail later, especially in Chapter 6, a couple of examples follow:

(a) Definite nouns are marked in many European and other languages with an article that is separate from the noun, for example, English *the newspaper*, French *la rue* 'the street,' German *die Stadt* 'the city,' etc. In such languages definiteness is marked periphrastically (cf. English *the five yellow newspapers*, where the article is at some distance from the noun). But in some languages this sign of definiteness is an affix, which can usually be shown to derive from an earlier definite article or demonstrative. Thus in Istro-Romanian[3] the Latin demonstrative *ille* 'that' now appears as a suffix on nouns marking both definiteness and case, as in:

(8) gospodar-i-lor
boss-PL-DEF:GEN
'of the bosses'

Here *-i* marks plural and *-lor* is the definite genitive plural suffix deriving from Latin *illorum*, the masculine genitive plural of *ille*. Similarly in Danish, *-en* in *dreng-en* 'the boy' and *-et* in *hus-et* 'the house' are definite singular markers for common gender and neuter nouns respectively, and have their origin in earlier postposed demonstratives (cf. Old Norse *úlfr-inn* 'wolf-the' from **úlfr hinn* 'wolf-that'). In the modern languages they cannot be separated from the preceding stem.

(b) Various tenses and aspects of verbs are formed either with auxiliary verbs (i.e., periphrastic tense–aspect) or with verbal suffixes (i.e., morphological tense–aspect). Thus in Hindi the present tense is formed periphrastically by a verb stem plus the verb to *be:*

(9) mãĩ kursii par baiṭhaa hũũ.
I chair on sit: MASCSG be:1SG
'I sit on a chair.'

In Swahili, on the other hand, basic tenses such as the future are formed morphologically, with prefixes on the verb:

(10) Wa-ta-ni-uliza.
they-FUT-me-ask
'They will ask me.'

Morphological tense–aspect formations can often be shown to have developed out of earlier periphrastic ones. The Romance languages supply numerous examples of this, such as the Italian future *cantaremo* 'we will sing' or the French future *(nous) chanterons* from Latin *cantare habemus*, literally 'we have to sing.' We discuss this kind of development in the Romance languages in Section 3.3.1.

The second diachronic tendency that makes the periphrasis/bondedness distinction important is an example of what is known as "renewal" – the tendency for periphrastic forms to replace morphological ones over time. Where a long historical record is available, the process of renewal can be seen to occur repeatedly. The French future form just mentioned, for example, is the inflectional form (*nous*) *chanterons* 'we will sing.' But its Latin source, *cantare habemus*, was a periphrastic future that eventually replaced an older morphological future, *cantabimus*, after competing with it for several centuries. This form in turn evidently contains the verb **b*$^{h}$ *umos* 'we are,' inherited from Indo-European, and can be reconstructed as an earlier periphrastic construction **kanta b*$^{h}$ *umos*. French *nous chanterons* is itself being replaced by *nous allons chanter*, literally 'we are going to sing.' Something like the following sequence of changes can therefore be established:

| (11) | **Pre-Latin** | | **Latin** | | **French** |
|---|---|---|---|---|---|
| | *? | | | | |
| | *kanta b$^{h}$ umos | > | cantabimus | | |
| | | | cantare habemus | > | chanterons allons chanter > ? |

At each attested stage two (or more) constructions compete (typically separated from one another by some nuance of meaning such as 'we will' versus 'we are about to'), and eventually the periphrastic one wins out, undergoes coalescence of the two elements that comprise it, and may in turn be replaced by a new periphrastic form (Hodge 1970 provides examples of the renewal by periphrasis from several language families).

The terms "renewal" and "replacement" are somewhat problematic because they may suggest functional identity over time, and even gaps to be filled. In fact, however, it is not only the forms *cantabimus* and *cantare habemus* that differ; their exact semantic functions and syntactic distributions differ too, in so far as the overall set of tense options is necessarily different once the two forms coexist (other changes were also occurring elsewhere in the system, further reducing any potential identity). Unfortunately our available linguistic vocabulary or "metalanguage" for expressing the relationship between earlier and later linguistic phenomena is poor. We will not attempt to change it here, but will follow custom and use terms such as "replacement" and "renewal," on the understanding that there is no exact identity over time (and, as will be discussed in Section 5.4.3, there are no gaps to be filled).

## 1.3 Some further examples of grammaticalization

We turn now to some relatively detailed examples of grammaticalization to illustrate several of its characteristics, and some of the problems of defining instances of it uniquely.

### *1.3.1* Lets

An initial example will be chosen from contemporary standard English also known as Present-Day English (or PDE for short). We begin with this example because it illustrates vividly that grammaticalization is an everyday fact of language. It results in not only the very familiar constructions of language such as *be going to*, but also many of the highly structured, semi-autonomous "formal idioms" of a language that make it unique, but are often regarded as peripheral (Fillmore, Kay, and O'Connor 1988).

In PDE there is a construction involving a second-person imperative with the verb *let:*

(12) a. Let us go. (i.e., release us)
b. Let yourself down on the rope.
c. Let Bill go. (i.e., release Bill)

The understood subject of *let* is *you*. The objects of *let* in (a), (b), and (c) are all different: *us, yourself, Bill*, and may be passivized, e.g.:

(12) d. We were let go.

Alongside the ordinary imperative construction with *let* in (12a-c) there is a construction sometimes called an "adhortative" (involving urging or encouraging), as in:

(13) Let's go to the circus tonight.

Quirk, Greenbaum, Leech, and Svartvik (1985: 829) refer to this construction as a "first-person imperative." Here the subject of *let* is understood as 'I' as in something like 'I suggest that you and I . . .' *Us* is also the subject of the dependent verb rather than the object of *let*, and can therefore not be passivized: (12d) is the passive of (12a), not of the first part of (13).

Quirk *et al.* note the spread of *let's* in very colloquial English to the singular of the first person:

(14) Lets give you a hand. (i.e., let me give you a hand)

(We will represent the form as *lets* when the subject is other than the first-person plural.) Quirk *et al.* describe the *lets* here as "no more than an introductory particle" (1985: 830). In some varieties of English, the first-person-plural inclusive subject *us* of *lets* has been reinforced by *you and I* as in:

(15) Let's you and I take 'em on for a set.
(1929, Faulkner, *Sartoris* III.186; *OED* **let** 14.a)

It has even been extended beyond first-person subjects of the dependent verb. The following examples are from Midwestern American speakers:

(16) a. Lets you and him fight.
b. Lets you go first, then if we have any money left I'll go.

While (16a) was perhaps jocular (a third party egging on two others), the context of (16b) was quite neutral. In other instances there is no second- or third-person subject pronoun, and *lets* simply conveys the speaker's condescending encouragement, e.g., in addressing a child or a truculent person:

(17) a. Lets wash your hands. (Cole 1975: 268)
b. Lets eat our liver now, Betty.

The development of the *lets* construction illustrates a number of characteristics of grammaticalization. Among these are:

(a) (12) shows that a full verb *let* 'allow, permit' has altered its semantic range in some way. We will suggest that grammaticalization in its early stages often, perhaps always, involves a shift in meaning (Chapter 4; see also Traugott 1989; Heine, Claudi, and Hünnemeyer 1991a). Furthermore, as mentioned in connection with *be going to*, this kind of shift occurs only in a highly specific context, in this case of the imperative *Let us*... A first approximation would be to say that the earlier idea of permission or allowing has become extended in one part of its paradigm to include a further one of suggesting or encouraging someone to do something. The sense of *let* has become less specific and more general; at the same time it has become more centered in the speaker's attitude to the situation. This new construction has been available since the fourteenth century (Traugott 1995).

(b) (16) shows that the range of possible subjects of the verb dependent on *lets* is being extended from first-person plural to other persons. This was presumably made possible by the fact that *we/us* in English may be interpreted as inclusive of the addressee ('I and you') or exclusive of the addressee ('I and another or others'). So long as the distribution of *let's* is consistent with first-person-plural subjects in the dependent verb (e.g., 'let's indulge ourselves'), it may still be useful to analyze it as *let* + *us*. But this distribution has now spread to other persons, as suggested by example (14), *Lets give you a hand* (said by one individual to another), where *lets* is singular. As mentioned in connection with *be going to*, earlier meanings and functions typically persist. Thus (13–17) coexist with (12). Furthermore, the semantic changes proceed by small steps (permission to suggestion, first to second to third person).[4]

(c) A first-person-plural pronoun *us* became cliticized (*let's*), and from the word-plus-clitic complex a single word was formed, *lets*. As suggested above, so long as the distribution of this form is consistent with the first-person-plural subjects of the dependent verb, it may still be useful to analyze it as a cliticized

form of *us*. But when this distribution spreads to non-first-person-plural subjects, we are not synchronically justified in continuing to do so. The final *s* of *lets*, then, is losing its status as a separate morpheme, and is in the process of becoming a simple phonemic constituent of a (monomorphemic) word. The historical trajectory:

(let) us > (let)'s > (let)s

illustrates a more general shift of

word > affix > phoneme (cf. Givón 1979: 208–9; Hopper 1994)

(d) Once the monomorphemic stage has been reached, then the form becomes subject to further reduction. Since [ts] is often reduced in rapid speech to the sibilant, it is not surprising that *lets* [lɛts] often becomes *lets* [lɛs]. It even goes further and in very colloquial speech is cliticized and attached to the following verb: *sgo*, *sfight*.

(e) Like other emergent constructions, *lets* in some sense fixes, or routinizes, a meaning or discourse function which was formerly freer (see Hopper 1987). It singles out one combination (in this case, *let* + *us*) from what was once a more extensive paradigm of equivalent forms, as in (18), and specializes it in a newly emerging function, the adhortative:

(18) Let him speak now or forever hold his peace.

This new function is provisional and relative rather than permanent and absolute; *lets* may not survive. However, for now a distinctive new grammatical resource has entered the language and is available to speakers for the building of interactive discourse.

(f) A final comment about the development of *lets* is that, although the stages are clearly very local and appear somewhat marginal, nevertheless they are part of a typological change affecting English. This is a shift which has been in progress for over two thousand years from an essentially "object–verb" system (as in *her saw*) with case and verb inflections, in other words, affixal constructions, to an essentially "verb–object" system (as in *saw her*) with prepositions and phrasal verb constructions, in other words, periphrastic constructions. We will discuss word-order shifts in more detail in Section 3.4.1. Here it must suffice to mention that in Old English, as in some other older Indo-European languages, the adhortative was expressed by the subjunctive, as shown in (19) (though a phrasal form with *utan* also existed).

(19) Cild binnan ðritegum nihta sie gefulwad.
child within thirty nights be: SUBJUNCT baptized
'Let a child be baptised within thirty nights.' (*c.* 690, Law Ine 1.1)[5]

The development of *lets*, then, is to be seen as among the class of innovations that are leading to a phrasal expression of the modalities of the verb, replacing an earlier inflectional expression. It is part of the very general change from a morphological way of expressing a function to periphrasis discussed in Section 1.2.3. The rise of the numerous auxiliary and auxiliary-like verbs and expressions of Modern Spoken English (such as *may*, *be going to*, *keep V-ing*, and others) is symptomatic of the same trend, which has been ongoing in English for many centuries (see Krug 2001).

### *1.3.2 A West African complementizer*

Our examples so far have for the most part illustrated the development of verbs into grammatical markers of the kind usually associated with verbs, specifically tense, aspect, and mood. We turn now to a well-known example of a verb being grammaticalized into a connective, in this case a complementizer that introduces a finite complement clause. A finite complement clause is equivalent to an English *that*-clause in such constructions as:

(20) I know that her husband is in jail.

The verb which has the position of *know* in such sentences is called the "matrix verb," and the clause introduced by the complementizer *that* is the "complement clause."

Lord presents data from a number of African and Asian languages in which a locutionary verb meaning 'say' has come to function as a complementizer. Exotic as it may seem, such a construction is by no means unknown in English, cf.:

(21) *If/Say* the deal falls through, what alternative do you have?

We will cite examples from Lord's work on languages of West Africa, all of them related members of the Kwa group of Niger-Congo spoken in Togo and Ghana, especially from Ewe (the examples that follow are from Lord 1976: 179–82).

The process leading to the grammaticalization of a 'say' verb into a complementizer evidently begins when a general verb meaning 'to say' is used to reinforce a variety of verbs of saying in the matrix clause. In Ewe, for example, if the matrix verb is the general verb *bé* 'say,' no further complementizer is needed:

(22) Me-bé me-wɔ-e.
I-say I-do-it
'I said, "I did it."/I said that I did it.'

However, if some verb of saying other than *bé* is the matrix verb, *bé* must be used as a complementizer:

(23) Me-gblɔ bé me-wɔ-e.
I say say I-do-it
'I said that I did it.

(where *gblɔ* is a different verb meaning 'to say').

The next stage is one in which *bé* comes to be used as a complementizer after a whole range of matrix verbs, including, for example:

gblɔ 'say'
ɳlɔ 'write'
lɔ̃ ɖé édzi 'agree' (lit. 'accept reach top')
xɔse 'believe'
nyá 'know'
bu 'think'
vɔ̃́ 'fear, be afraid'
kpɔ̃́ 'see'
ɳlɔ 'forget'
se 'hear, perceive'
ná 'make sure'

The verbs included are verbs of speaking, cognition, and perception. Since these are verbs which in most languages can have objects that are propositions (i.e., clauses), there is an obvious syntactic and semantic relationship between them and 'say.' Even so, the meaning and morphology of the 'say' verb is essentially lost in the process of grammaticalization as a complementizer. For example, in (24) we see that *bé* may no longer take verbal affixes such as person markers (compare *me-dí* 'I-want'), nor may it productively take tense–aspect markers.

(24) Me-dí bé máƥle awua ɖewó.
I-want say I-SUBJUNCT-buy dress some
'I want to buy some dresses.'

Furthermore the original meaning of 'say' in such sentences is not easy to recover. Although some of its original context is maintained (it remains a form that introduces a noun clause), it has become available to many more contexts. From being a verb that introduces something said, it has become generalized to introducing other kinds of clauses, such as reports of things seen or thought.

As with English *be going to* and *lets*, the Ewe example shows not only a semantic but also a structural adjustment. Not only does the verb 'say' extend and perhaps even lose its original meaning of saying, but a construction originally consisting of two independent clauses is reanalyzed as a matrix verb plus a complement clause introduced by a complementizer. For example, (25) is reanalyzed as (26):

(25) Megblɔ bé [mewɔe].
I-say say I-do-it
'I said I did it.'

(26) Megblɔ [bé mewɔe].
I-say [say I-do-it]
'I said that I did it.'

We will return later to fuller discussion of reanalysis in Chapter 3. For the present, it is important to recognize that both semantic and structural reanalysis are major mechanisms in grammaticalization. We return in Chapter 7 to further consideration of the role of grammaticalization in clause combining.

### *1.3.3 Agreement markers*

Our two examples have illustrated grammaticalization as the change whereby lexical items or phrasal constructions can come in certain contexts to serve grammatical functions. We now turn briefly to an example of the way in which already grammatical items can be used with more grammatical functions.

A frequently occurring change is the development of personal pronouns into agreement markers. In Latin there was a demonstrative stem *ill-* (inflected for case, number, and gender) pointing to location near third persons, in other words, it was a distal deictic. In French the forms of this demonstrative have developed along two lines. The fully stressed form became the pronoun *il*. The unstressed form became the article *le*. As a pronoun, *il* signals number (singular) and gender (non-feminine). It contrasts with *elle*, which is singular but feminine. In standard French *il* and *elle* serve personal pronoun functions only. Thus we find:

(27) Le garçon est venu hier soir. Il est danseur.
the boy is come yesterday evening. he is dancer
'The boy came yesterday evening. He is a dancer.'

(28) La jeune fille est venue hier soir. Elle est danseuse.
the girl is come yesterday evening. she is dancer
'The girl came yesterday evening. She is a dancer.'

But in non-standard French *il* has come to be an agreement marker. It does not fill a NP slot; instead it is bound to the verb and does not signal gender, as in:

(29) Ma femme il est venu.
my:FEM wife AGR has come
'My wife has come.' (Lambrecht 1981: 40)

## 1.4 Grammaticalization and language structure

The examples we have sketched share such characteristics as the following:

(a) earlier forms may coexist with later ones (e.g., English *let*, Ewe *bé*);

(b) earlier meanings may constrain later meanings and/or structural characteristics (*bé* in Ewe occurs after verbs of perception, cognition, and saying). Such examples emphasize that language development is an ongoing process, and one that often reveals itself as change that is only incompletely achieved at any given stage of a language.

Ultimately, too, examples such as these suggest more general consequences for linguistic theory and even for our perspective on language itself. Examples such as Ewe *bé* challenge some standard descriptive and theoretical linguistic notions. One is that of categories. Is Ewe *bé* a verb or a complementizer, and what criteria do we apply in determining this? Are sentences such as (22)–(23) examples of direct speech or of reported speech? Is the clause following *bé* strictly speaking subordinated (embedded) as in PDE, or is it more loosely attached to the preceding clause? Do we need in our analyses to "stop the film" and fix the grammar of a language as we investigate its structure, or do we need to view "grammar" as a provisional way-station in our search for the more general characteristics of language as a process for organizing cognitive and communicative content?

## 1.5 Grammaticalization and the directionality of language change

The theory of grammaticalization as we have presented it in this preliminary chapter raises a number of important issues that cannot be discussed in detail here. One of these issues that has loomed large in recent debates over grammaticalization involves the robustness of the claim that there is directionality in grammaticalization. Examples like the reanalysis of a verb of motion as a future tense auxiliary (found in a number of languages), as in *I am going to need a sweater*, suggest a general principle at work. The principle that has come to be known as unidirectionality is an assertion about the change

less grammatical > more grammatical

that is fundamental to grammaticalization. Unidirectionality is a strong hypothesis that is based on observations about change, observations that lead to the conclusion that grammatical forms do not in general move "uphill" to become lexical, whereas the reverse change, whereby grammatical forms are seen to have their origins in lexical forms, is widespread and well documented.

Unidirectionality is a generalization derived from observations about language change in the same way that universals are derived from observations about language systems. Unidirectionality is in fact a widely attested characteristic of change. Potentials for change such as stop > affricate > fricative, the nasalization of vowels before nasal consonants, the word-final devoicing of obstruents, and many other phonetic changes are so commonly observed that they have the status of universals. Such changes can even be quite specific; if we find that one dialect of a language has [h] in positions corresponding to the velar fricative [x] in another dialect, most linguists would unhesitatingly assume a change [x] > [h] rather than the reverse, and would base their study of the relationship of the two dialects on this assumption until incontrovertible evidence forced them to amend it. Occasional counterexamples may exist, but they do not lead to the inference that [h] > [x] and [x] > [h] are events of equal probability, still less to the conclusion that change is random and that the study of change is noncumulative. The existence of counterexamples alerts linguists to the need for caution, and serves as a reminder that, like language systems, language change is not subject to exceptionless physical laws, and that diachronic universals, like synchronic ones, are observed tendencies rather than theoretical absolutes (see e.g. Greenberg, Ferguson, and Moravcsik 1978; Croft 1990). The typical paths of grammaticalization can guide the study of change in morphosyntactic structure in the same way that the identification of natural phonetic processes guides the study of phonological change, and can allow us to ascertain the more promising of alternative hypotheses about the origins of a given grammatical form and perhaps to track the stages in its emergence. As with any theoretical postulate, the frequent discovery of counterexamples and a failure to accommodate them within reasonable extensions of the theory could eventually invalidate it.

Like the study of universals, then, unidirectionality is an empirical as well as a theoretical matter. It is subject to question through the discovery of counterexamples, and to debate about its status in the theories surrounding language change. What kinds of counterexamples are there, and what do opponents and defenders of grammaticalization say about them? We return to discussion of these debates in Chapter 5.

## 1.6 Conclusion

The concepts of grammaticalization have now become part of the standard vocabulary of many linguists working in both synchronic and historical fields, and it is assumed as a useful and robust perspective in numerous descriptive studies of individual languages and language families. However, as in any branch of linguistics, not all those who work on grammaticalization conceptualize it in exactly the

same way. For us it is a two-pronged branch of linguistics: (i) a research framework for studying the relationships between lexical, constructional, and grammatical material in language, diachronically and synchronically, both in particular languages and cross-linguistically, and (ii) a term referring to the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions and, once grammaticalized, continue to develop new grammatical functions.

The bibliography of monographs, edited collections, and journal articles that adopt some aspect of grammaticalization as a given is now so extensive as to preclude anything like an exhaustive account of it. In the next chapter we will present an outline of the history of grammaticalization and a survey of some recent work, especially as it pertains to the rest of this book.

# 2 The history of grammaticalization

## 2.1 Introduction

Grammaticalization is the study of grammatical forms, however defined, viewed not as static objects but as entities undergoing change. It has had many practitioners, has been characterized in many different ways, and has occupied at various times both central and marginal positions in linguistics. In this chapter we will survey briefly the thought of some of the major figures in the early study of grammaticalization, mention some of the contemporary linguists who are interested in the subdiscipline, and briefly summarize some of the more recent developments. Other surveys of the history of grammaticalization can be found in C. Lehmann (1995 [1982]) and Heine, Claudi, and Hünnemeyer (1991a).

## 2.2 Earlier research on grammaticalization

The term "grammaticalization" itself was apparently coined by the French linguist Antoine Meillet, an Indo-Europeanist who at one time had been a student of Saussure. In a well-known definition, Meillet writes of "the attribution of grammatical character to an erstwhile autonomous word"[1] ("l'attribution du caractère grammatical à un mot jadis autonome"; Meillet 1912: 131). Yet Meillet's ideas on the origins of grammatical forms have predecessors in earlier speculations that were often rooted in assumptions about the evolutionary development of human speech.

Perhaps the most sophisticated of these speculations about the origins of grammar was that proposed by the German philosopher and humanist Wilhelm von Humboldt (1767–1835). In a published lecture entitled "On the genesis of grammatical forms and their influence on the evolution of ideas" ("Über das Entstehen der grammatikalischen Formen und ihren Einfluß auf die Ideenentwicklung") given in 1822 he suggested that the grammatical structure of human languages was preceded by an evolutionary stage of language in which only concrete ideas could

be expressed. Grammar, he suggested, evolved through distinct stages out of the collocation of concrete ideas (Humboldt 1825).

At the first stage, only things were denoted, concrete objects whose relationships were not made explicit in utterances but had to be inferred by the listener. In modern terms, we might designate this stage as a "pragmatic" or "discourse-based" stage (Givón 1979: 223). Eventually certain of the orders in which the objects were presented became habitual, and this fixing of word order introduced a second stage (we might nowadays call it "syntactic"). At this stage, some words began to waver between "material" (i.e., concrete) and "formal" (i.e., structural or grammatical) meanings, and some of them would become specialized for functioning in more relational ways in utterances. In the third stage, these functional words became loosely affixed to the material words; in modern terminology this might perhaps be called a stage of "cliticization." In this way "agglutinative" pairs arose, dyads consisting of a material word and a relational word. In the fourth stage these agglutinative pairs became fused into synthetic, single-word complexes. There were now stem and (inflectional) affixes that contained simultaneously material and grammatical meanings; we might think of this as a "morphological" stage. At this fourth stage, too, some of the function words would continue their lives as purely formal indicators of grammatical relationships. The functional life of words was reflected in their forms and meanings; during long usage meanings became lost and sounds were worn down.

It is no coincidence that Humboldt's four stages correspond quite closely to a typology of languages that was in the air during the first decades of the nineteenth century. According to this typology, there were three basic types of language: Isolating (Humboldt's stage II), Agglutinative (stage III), and Inflectional or Synthetic (stage IV). Humboldt's proposal can be thought of as an account of these types in evolutionary terms, supplemented by an assumed pre-stage (Humboldt's stage I). He eventually developed this idea into a series of further speculations about language typology and the relationship between language and cultural evolution. (A useful account of Humboldt's later ideas on language can be found in Humboldt 1988 [1836], and R. Harris and Taylor 1997 [1989]: 171–84.)

By the end of the nineteenth century a clear tradition in the study of grammaticalization had been established, lacking only the name itself. A picturesque account of the origins of grammatical forms and their evolution is to be found in the survey of linguistics by the German neogrammarian Georg von der Gabelentz (1891). Gabelentz (1891: 241) invites his readers to visualize linguistic forms as employees of the state, who are hired, promoted, put on half-pay, and finally retired, while outside new applicants queue up for jobs! Forms "fade, or grow pale" ("verblassen"); their colors "bleach" ("verbleichen"), and must be covered over with fresh paint. More grimly, forms may die and become

"mummified" ("mummifiziert"), lingering on without life as preserved corpses (1891: 242).

Gabelentz articulated many of the insights basic to work on grammaticalization. He suggests that grammaticalization is a result of two competing tendencies, one tendency toward ease of articulation, the other toward distinctness. As relaxed pronunciations bring about sound changes that "wear down" words, distinctions become blurred. So new forms must step in and take over the approximate function of the old ones. For example, the Latin first-person-singular future tense of a verb such as *video* 'I see,' *videbo*, is formed with a suffix *-bo* which was once *$b^h$ $w\bar{o}$*, a first-person-singular form of the verb 'to be' used as an auxiliary. An old periphrastic construction, that is, a complex of a main verb and an auxiliary verb (*vide* + *$b^h$wo*), was collapsed into a single inflectional form. But later this form too "wears down" and is replaced by new periphrastic forms such as *videre habeo* 'I have to see.' Somewhat later, this idea was to be articulated again by Meillet under the rubric of "renewal" ("renouvellement").

A second insight developed by Gabelentz is that this is not a linear process, but rather a cyclical one. Whereas for Humboldt's generation synthetic (inflectional) languages like the classical Indo-European languages represented an evolutionary endpoint, Gabelentz noted that the process of recreation of grammatical forms is recurrent, and that the conditions for the cycle are always present in languages. Moreover, even the idea of a cycle is an oversimplification. Gabelentz speaks instead of a spiral, in which changes do not exactly replicate themselves but parallel earlier changes in an approximate manner.

Gabelentz's work, unlike Humboldt's, is informed by the awareness of geological timespans, which made it psychologically possible to think of multiple cycles of linguistic change. It also reflects an expanded knowledge of the variety of human languages and of historical texts, especially in the Indo-European languages that the neogrammarians and their predecessors had studied so energetically, now for two or three full generations. Yet Gabelentz's discussion of the origins of grammatical forms and their transformations covers only a couple of pages in his entire book. Although the germs of later work on grammaticalization are contained here, it was Antoine Meillet who first recognized the importance of grammaticalization as a central area of the theory of language change. Meillet was also the first to use the word "grammaticalization," and the first linguist to devote a special work to it.

Meillet's use of the term "grammaticalization" to designate the development of grammatical morphemes out of earlier lexical formatives is clearly descended from Humboldt's and Gabelentz's insights. It was also anchored in a more positivistic view of language, which stressed regularity in linguistic change and systematicity in synchronic description. As Meillet himself noted, the first generation of

Indo-Europeanists had speculated intensely about the origins of grammatical forms. But their results had been random and unreliable. Moreover, they had insisted on placing these results in a "glottogonic" context, that is, the context of a supposed evolutionary line that would lead back to the actual origins of language. But this line of investigation had now fallen into disrepute. Meillet showed that what was at issue was not the origins of grammatical forms but their transformations. He was thus able to present the notion of the creation of grammatical forms as a legitimate, indeed a central, object of study for linguistics.

In his article "L'évolution des formes grammaticales" (1912), Meillet describes how new grammatical forms emerge through two processes. One is the well-known fact of analogy, whereby new paradigms come into being through formal resemblance to already established paradigms. (An example of analogy in recent English would be the replacement of the plural *shoen* by *shoes* through analogy to such established plurals as *stones*.) The second way in which new grammatical forms come into being, Meillet suggested, is through grammaticalization, "the passage of an autonomous word to the role of grammatical element" (1912: 131).

Meillet illustrates the synchronic result of this process with the French verb *être* 'to be,' which ranges in meaning from a full existential ontological sense, as in *je suis celui qui suis* 'I am the one who is [lit. am],' to a somewhat less full locative sense in *je suis chez moi* 'I am at home,' to an almost redundant sense in *je suis malade* 'I am ill,' *je suis maudit* 'I am cursed,' and to a purely grammatical function as a tense–aspect auxiliary in *je suis parti* 'I left,' *je me suis promené* 'I went for a walk.'

The most significant, and remarkable, part of this fundamental article is Meillet's confident assertion: "These two processes, analogical innovation and the attribution of grammatical character to a previously autonomous word, are the only ones by which new grammatical forms are constituted. The details may be complex in any individual case; but the principles are always the same" (1912: 131). Later in the same article, Meillet goes even further. Analogy can only operate when a nucleus of forms has already emerged to which new forms can be assimilated. So analogy is ruled out as a primary source of new grammatical forms. Therefore, "the only process left is the progressive attribution of a grammatical role to autonomous words or to ways of grouping words" (1912: 132). In every case where certainty is possible, Meillet contends, this is the origin of grammatical forms. Nothing stands in the way of assuming that when allowance has been made for analogical extension the same kind of source can ultimately be attributed to forms of unknown or uncertain origin also.

Considering that during the neogrammarian period all investigations of grammatical morphology had been essentially investigations of analogy, Meillet's statement was sweeping and radical. Writing of the transformation of autonomous

words into grammatical roles, he says: "The importance [of this] is in fact decisive. Whereas analogy may renew forms in detail, usually leaving the overall plan of the system untouched, the 'grammaticalization' of certain words creates new forms and introduces categories which had no linguistic expression. It changes the system as a whole" (1912: 133). "Grammaticalization," then, is seen as a change which affects individual words. But it is evidently also meant to be extended to phrases. Indeed, the combining of words into set phrases and their eventual amalgamation is presented in the first part of the article as a defining feature of the event. In the French future represented by *je vais faire* 'I will do,' literally 'I am going to do,' *vais* no longer contains any perceptible sense of 'going.' In *je ferai* 'I will do,' the fusion has gone even further, with no analytic trace remaining of the original Latin phrase *facere habeo* 'I have to do.' It is a loss, Meillet suggests, of expressivity. A novel way of putting words together becomes commonplace ("banal"). In the extreme case, the phrase even ceases to be analyzable as containing more than one word, but its members are fused together ("soudé") as one. This phrasal collocation is itself usually a replacement for an already existent form which has become commonplace. Consequently, grammaticalization tends to be a process of replacing older grammatical categories with newer ones having the same approximate value: inflected futures (*ama-bo* 'I shall love') are replaced by periphrastic futures (*amare habeo* 'I have to love' > 'I shall love'), which in turn are fused (Fr. *aimerai* 'I shall love'), and so on.

At the end of the article he opens up the possibility that the domain of grammaticalization might be extended to the word order of sentences (1912: 147–8). In Latin, he notes, the role of word order was "expressive," not grammatical. (By "expressive," Meillet means something like "semantic" or "pragmatic.") The sentence 'Peter slays Paul' could be rendered *Petrus Paulum caedit*, *Paulum Petrus caedit*, *caedit Paulum Petrus*, and so on. In modern French and English, which lack case morphemes, word order has primarily a grammatical value. The change has two of the hallmarks of grammaticalization: (i) it involves change from expressive to grammatical meaning; (ii) it creates new grammatical tools for the language, rather than merely modifying already existent ones. The grammatical fixing of word order, then, is a phenomenon "of the same order" as the grammaticalization of individual words: "The expressive value of word order which we see in Latin was replaced by a grammatical value. The phenomenon is of the same order as the 'grammaticalization' of this or that word; instead of a single word, used with others in a group and taking on the character of a 'morpheme' by the effect of usage, we have rather a way of grouping words" (1912: 148). We see, then, that in this initial study of grammaticalization, Meillet already points to applications of the term that go far beyond the simple change from lexical to grammatical meaning of single words. Indeed, if we pursue his argument to its

logical conclusion, it is difficult to see where the boundaries of grammaticalization could convincingly be drawn. If the fixing of word-order types is an example of grammaticalization through constant usage, could not all constructions which have been called "grammatical" constructions be said to have their ultimate origins in such habitual collocations? Evidently, how far we shall be prepared to extend the notion of "grammaticalization" will be determined by the limits of our understanding of what it means for a construction to be "grammatical" or have a grammatical function. We will suggest in Chapter 3 that, at least at this stage in our understanding of grammaticalization, word-order changes are not to be included, although they are deeply interconnected with it.

Meillet also anticipated other themes in the study of grammaticalization which are still at issue. One of these is how grammaticalization comes about. He attributes grammaticalization to a loss of expressivity in frequently used collocations, whose functions may then be rejuvenated through new collocations filling more or less the same role. Yet often a "loss of expressivity" seems insufficient to capture what happens in grammaticalization. Some of his own illustrations challenge such a motivation. For example (1912: 138–9), the Modern German word *heute* 'today' can be traced back to a presumed Old High German phrase *hiu tagu*, the instrumental of two words meaning 'this day' (compare Gothic *himma daga* and Old High German *hiu jâru* 'this year [instr.]', Modern German *heuer*). It is, first of all, a little startling to find a change of this kind discussed under the rubric of grammaticalization, since *heute* might be more appropriately thought of as illustrating the emergence of a new lexical item rather than of a grammatical formative. The change in Old High German from **hiu tagu* to *hiutu* is a change only from an adverbial phrase to an adverb, and it is questionable whether the later form is less meaningful ("expressive") than the earlier. Yet there is surely a difference in Modern German between *heute* and *an diesem Tage* 'on this day' that needs to be characterized in some way. Evidently some different way of talking about meaning change is needed. We return to these issues and a better understanding of the relationship between grammaticalization and lexicalization in Section 5.6.

Accompanying this loss of expressivity is a supposed weakening ("affaiblissement") of phonological form and of concrete meaning (1912: 139). Meillet's example is the development of the Modern Greek future tense morpheme *tha*, whose origin is in an older construction *thelô ina* 'I wish that' (with *ina* from a still earlier *hína*). The change included the following stages (1912: 145):

thelô ina > thelô na > thena > tha

and the semantic development is from 'wish, desire' to 'future tense.' It is not difficult to see "weakening" in the phonological process, since there is undeniably a shortening and hence a loss of phonological substance. But it is not so obvious

that the concomitant semantic change should also be seen in the same way. Like all the writing on grammaticalization at his time, and much since then, Meillet's account of grammaticalization in general is couched in terms which stress deficits of various kinds: loss, weakening, attrition. Such metaphors suggest that for all his linguistic sophistication there is still a slight residue of the "classical" attitude toward language in Meillet's thought, the attitude that equates change with deterioration.

Still, this first full-length paper on grammaticalization, in which the term itself is proposed, is astonishingly rich in its insights and the range of phenomena which are analyzed. Subsequent work on grammaticalization has modified, sometimes quite radically, Meillet's views, and many more substantive examples have been described, but time and again the germs of modern ideas on grammaticalization are to be found, implicitly and often explicitly, in this initial paper.

## 2.3 Research on grammaticalization from the 1960s to the 1990s

After the work of Meillet in the first two decades of the century, the topic of grammaticalization was taken up mainly by Indo-Europeanists. Many other scholars who saw themselves as historical linguists, but not necessarily Indo-Europeanists, did not concern themselves with grammaticalization as a subdiscipline or even as a topic in its own right. The term is consistently overlooked in the textbooks of synchronic and historical linguistics of the period. Indeed the tradition of what C. Lehmann has called "amnesia" about grammaticalization extends up to the present, for the word does not appear in the index of Hock's *Principles of Historical Linguistics* (1991 [1986]), even though some of its principles do, nor does it figure in recent textbooks of linguistics such as Finegan and Besnier (1989). Only very recently do we find the leading historical textbooks, such as McMahon (1994), Trask (1996) and Campbell (1999) devoting significant space to grammaticalization.

In the mid twentieth century "mainstream" linguistics was strongly synchronic in its approaches and assumptions, which meant that historical factors, including grammaticalization, were of secondary interest. Language change came to be seen as sets of rule adjustments, beginning with one stage and ending with another, but there was little interest in the gradual steps that must have been involved in between: "the treatment of change as the change in rules between synchronic stages isolates the description of change from the change itself" (Ebert 1976: viii–ix). The only significant studies of grammaticalization during this period were done by Indo-Europeanists such as Kuryłowicz (especially 1964, 1976 [1965])

and Watkins (1964) who worked outside the dominant theoretical paradigm. But their work, unfortunately, was read almost exclusively by other Indo-Europeanists. Significantly, Meillet's student Benveniste, in an article "Mutations of linguistic categories" written in 1968, found it necessary to repeat much of what Meillet had said in 1912 concerning the grammaticalization of auxiliary verbs out of lexical verbs such as 'have, hold.' Benveniste coined a new word, "auxiliation," to refer to this process. Even though he used several of the very same examples which had been proposed by Meillet (e.g., the Modern Greek *tha* future from an earlier *thelô ina*), at no point in the paper did he explicitly refer to Meillet's work or use the term "grammatic(al)ization" or its equivalent.

That such an influential linguist as Benveniste could appear to be starting afresh in the study of the origins of grammatical categories indicates the extent to which Meillet's insights had become submerged by twentieth-century structuralism. We have seen that grammaticalization presents a challenge to approaches to language which assume discrete categories embedded in fixed, stable systems. It is therefore not surprising that grammaticalization again appears as a major theme of general (as opposed to specifically Indo-European) linguistics in the context of the questioning of autonomous syntactic theory which occurred in the 1970s. During this decade the growing interest in pragmatics and typology focused attention on the predictable changes in language types. Linguists thereby (largely unconsciously) revived the same line of investigation that had been dropped earlier in the century, a line which went back at least to Humboldt. An early paper by Givón perhaps began this revival (Hopper 1996: 220–2). Entitled "Historical syntax and synchronic morphology: an archeologist's field trip," it announced the slogan "Today's morphology is yesterday's syntax" (Givón 1971: 413), and showed with evidence from a number of African languages how verb forms that are now stems with affixes could be traced back to earlier collocations of pronouns and independent verbs.

If one of the main tenets of twentieth-century structuralism, especially as developed in the United States, was homogeneity, another was the arbitrariness of language, that is, its alleged independence from external factors such as the nature of things in the world (the referents of language). Saussure had drawn attention to the arbitrariness of the sign, for example, to the total independence of a word such as *dog* of the animal it names. But he also stressed the fact that arbitrariness is limited by associations and "relative motivations." These include word compounding as in *twenty-five*, derivational affixation as in French *pommier* 'apple-tree' (*pomme* 'apple' + *-ier*), *cérisier* 'cherry-tree' (*cérise* 'cherry' + *-ier*), and inflectional paradigms such as Latin *dominus, domini, domino* 'master-NOM, master-GEN, master-DAT.' Indeed, he regarded grammar, the set of structural rules, as setting limits on the arbitrariness and the chaotic nature of language (1986 [1922]: 130).

One name given to the principle that ensures non-arbitrariness is "iconicity." Iconicity is the property of similarity between one item and another. The philosopher Peirce made a useful distinction between imagic and diagrammatic iconicity.[2] Imagic iconicity is a systematic resemblance between an item and its referent with respect to some characteristic (a photograph or a sculpture of a person are imagic icons). Diagrammatic icons are systematic arrangements of signs. None of the signs necessarily resembles its referent in any way, but, crucially, the relationship among the signs mirrors the relationship among the icon's referents: "those [icons] which represent the relations ... of the parts of one thing by analogous relations to their own parts are diagrams" (1931: Vol. 2, Part 277). For example, the model of language change in Chapter 3 is an iconic diagram of the relationship between grammars of different generations of speakers. It is diagrammatic iconicity which is of chief importance in linguistics, and which has suggested significant insights into the organization of language and into grammaticalization in particular. A very well-known example of diagrammatic iconicity in language is the tendency for narrative order to match the order of events described; if the order is not matched, then some special marker or "diacritic" (usually a grammatical form) must be used. Thus Caesar's famous *Veni, vidi, vici* 'I came, I saw, I conquered' is a much-cited example of the way in which order of mention mirrors order of action described (see, e.g., Jakobson 1964 [1960]); any other order would require complex structures such as 'Before I conquered, I came and I saw.' Another well-known example of diagrammatic iconicity in language is the way in which politeness (social distance) is typically reflected in language by complex morphology and formal vocabulary (often itself complex in structure), as exemplified by *Good morning* (versus *Hi!*), *Would you please pass the butter* (versus *Can I have the butter?/Pass the butter!*).

Although iconicity was a major topic in much European linguistics, especially in the approach known as "semiotics" or "semiology," it was largely ignored as a principle in American linguistics in the first three quarters of the twentieth century, when interest was focused on the arbitrariness of language. Attention to iconicity was, however, renewed by several linguists working with issues germane to grammaticalization, most notably Jakobson (1966), Haiman (1980, 1983, 1985a), and Givón (1985), who laid the foundations for much recent thinking on the subject. The value of the principle of iconicity is most apparent in the context of cross-linguistic work, and it is not coincidental that the period when iconicity came to be recognized again was also a period of interest in typology of languages.

This was a period, too, of intense interest in language universals, and some linguists began applying the idea of grammaticalization to general problems of synchronic description that had arisen in the course of the search for these universals. The work of Li and Thompson was especially influential among those working

on historical issues. In their studies of serial-verb constructions in Chinese and other languages they showed that verbs could be reanalyzed as prepositions and case markers, and thus revived interest in the question of how categories come into being. For example, according to Li and Thompson (1976a) in seventh-to-ninth-century Chinese a "verb" *ba* occupied an ambiguous status between verb and prepositional case marker. In the example that follows, these two possibilities are suggested by two different translations of the same sentence:

(1) Zuì bǎ zhū-gēn-zǐ xì kàn.
drunk *ba* dogwood-tree careful look
'While drunk,
(i) I took the dogwood tree and carefully looked at it.' (*ba* = 'take')
(ii) I carefully looked at the dogwood tree.' (*ba* = accusative case)
(8th century AD, Dù-fu poem; cited in Li and Thompson 1976a: 485)

Such contexts, Li and Thompson argued, provide the staging for a reanalysis of the former "verb" *ba* 'take' as a marker of the direct object of the verb and the collapsing of what had once been a sequence of two clauses (interpretation (i)) into a single clause (interpretation (ii)).[3]

Li and Thompson's work on word order and especially on topicalization showed, as Meillet's had done, that syntactic as well as morphological development was governed by constraints analogous to or even identical to morphological changes identified as instances of grammaticalization. Consider, for example, the distinction between a "topic" such as the initial noun phrase in (2), as opposed to the initial noun phrase in (3):

(2) That new yacht of his, he has spent a fortune on it.
(3) That new yacht of his has cost him a fortune.

In the first sentence, *that new yacht of his* is said to be a "topic," while in the second sentence the same noun phrase is a "subject." At this time there was considerable interest among linguists in arriving at a definition of the notion of "subject" that would be cross-linguistically valid. One of the chief obstacles was that in many languages the "subject" of a sentence was little more than a noun phrase in a very loose relationship to the verb (for instance, in some languages the sentence 'fire engines last night not have sleep' would be the normal way of saying 'I couldn't sleep last night because of the fire engines').

A number of properties, depending on the language involved, might distinguish topics from subjects. For example, there might be verb agreement between subject and verb but not between topic and verb; sometimes subjects but not topics could be referred to by a reflexive pronoun in the same clause. Moreover, in some languages there appeared to be no or very few topics, but a strongly developed notion of subject, while in other languages the topic appeared to be the

usual role of a primary noun phrase. These facts had often been noted, but Li and Thompson's work, by placing them in the context of grammaticalization, revealed the diachronic relationship between the two categories. The difference between a "topic" and a "subject" was hypothesized to be one of degree of grammaticalization only: "Subjects are essentially grammaticalized topics . . ." (Li and Thompson 1976b: 484). This work suggested to many linguists at the time that a diachronic perspective might offer more than merely an interesting historical comment on synchrony; synchronic "facts" were indistinguishable from the diachronic and discourse pragmatic process they were caught up in (see, for example, Bolinger 1975).

Greenberg's empirical cross-linguistic study of word order (Greenberg 1966a) was foundational for the language universals movement. In this work a number of absolute and dependent ("implicational") generalizations about syntax were claimed, such as a statistical correlations between verb-final word order, postpositions, and genitive preceding possessed noun in the possessive construction. Clearly, a diachronic perspective on these universals was possible; not only could changes in word order be understood typologically, but synchronic syntax and morphology could be seen as the temporary – and not necessarily stable – reflexes of ongoing shifts. Other cross-linguistic work by Greenberg that was seminal for work in grammaticalization included his study of the development of demonstratives into articles and ultimately gender markers (noun classifiers) via agreement markers (Greenberg 1978a), and of numeral systems and their structure in terms of the order of elements in the numeral phrases, and their syntactic relation to the noun head (Greenberg 1978b). The first of these was primarily historical in focus, the second primarily synchronic, but both highlighted the importance of a dynamic approach to language structure.

To return to our brief history of work in grammaticalization, Givón's book *On Understanding Grammar* (1979) was a highly influential, if slightly idiosyncratic, summing up of the decade's thought on these matters. It firmly placed all linguistic phenomena in the framework of "syntacticization" and "morphologization" (terms which Givón preferred to "grammaticalization"), and emphasized the essential functional dependency of linguistic rules and categories. The forms of speech, Givón proposed, were to be viewed as being located on clines and as shifting between such poles as child/adult, creole/standard, unplanned/planned, pragmatic/syntactic. In each pair of these, the first is labile or "loose," the second fixed or "tight," and movement – i.e., change – is generally in the direction of the "tighter" pole. He proposed (1979: 209) a path of grammaticalization of the type:

discourse > syntax > morphology > morphophonemics > zero

Givón's work distilled for the growing community of workers in grammaticalization some of the highly relevant research on morphologization in pidgins and creoles such as that represented by Bickerton (1975), Sankoff (1980), and, in child language acquisition, by Slobin (1977). Unfortunately, a fuller integration of sociolinguistic and developmental research with research on grammaticalization still remains to be worked out.

The last decades of the twentieth century were a period in which cross-linguistic projects flourished. The large computerized data banks that were developed owed much to the original inspiration of the Stanford Project on Language Universals, headed by Ferguson and Greenberg, which culminated in Greenberg, Ferguson, and Moravcsik's *Universals of Human Language* (1978), a four-volume set of papers, many of them on topics central to grammaticalization. Other more recent projects include two in Cologne, one on Language Universals and Typology, headed by Seiler and disseminated through the publication *Arbeiten des Kölner Universalien-Projekts*, the other on Grammaticalization in African Languages headed by Heine and disseminated through *Afrikanistische Arbeitspapiere*. Especially influential has been a survey of the morphology associated with the verb headed by Bybee, initiated in the early 1980s at the State University of New York at Buffalo. At first a data base of fifty languages was used (exemplified by Bybee, *Morphology: a Study of the Relation between Meaning and Form*, 1985); later it was expanded to over seventy languages (exemplified by Bybee, Perkins, and Pagliuca, *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*, 1994). In the early 1990s a typological study of the European languages (*Eurotyp*) was headed by König of the Free University of Berlin, the results of which are being published in a series of nine volumes. Among other cross-linguistic projects at the time of writing are two at Max Planck Institutes, one headed by Levinson at the Max Planck Institute for Psycholinguistics in Nijmegen, the other by Comrie at the Max Planck Institute for Evolutionary Anthropology in Leipzig.

## 2.4 Recent trends in research on grammaticalization

The 1980s saw grammaticalization (also frequently called "grammaticization") assuming a significant place as a topic in its own right in the research of a number of linguists. A very important monograph from the earlier part of the decade was C. Lehmann's *Thoughts on Grammaticalization: a Programmatic Sketch* (published as a working paper in 1982 and then revised as a monograph in 1995). It was the first modern work to emphasize the continuity of research from the earliest period (roughly, Humboldt) to the present, and to

provide a survey of the significant work in grammaticalization up to that time, with emphasis on historical linguistics. By its comprehensiveness and its historical perspective this book provided a useful antidote to the apparent assumption of many linguists of the time that the concept of grammaticalization had been newly invented. Furthermore, Lehmann laid out a set of "parameters" according to which degrees of grammaticality could be measured synchronically and diachronically. Three parameters are associated with each of Saussure's two axes: that of selection in one position or slot (the "paradigmatic axis") and that of combination in sequence (the "syntagmatic axis").

Of relevance on the paradigmatic axis are:

1. the "weight" or size of an element (Lehmann refers to "signs"); weight may be phonological (Lat. *ille* 'that' has more phonological weight than the French article *le* that derives from it) or semantic (the motion verb *go* is thought to be semantically weightier than the future marker *go*) – "Grammaticalization rips off the lexical features until only the grammatical features are left" (1995: 129);

2. the degree to which an element enters into a cohesive set or paradigm; e.g., Latin tense is paradigmatically cohesive whereas English tense is not (contrast the Latin with its translation in *amo* 'I love,' *amabo* 'I will love,' *amavi* 'I have loved');

3. the freedom with which an element may be selected; in Swahili if a clause is transitive, an object marker must be obligatorily expressed in the verb (given certain semantic constraints), whereas none is required in English.

Of relevance on the syntagmatic axis are:

4. the scope or structural size of a construction; periphrasis, as in Lat. *scribere habeo* 'write:INF have:1stSg', is structurally longer and weightier and larger than inflection, as in Ital. *scriverò*, 'I shall write';

5. the degree of bonding between elements in a construction (there is a scale from clause to word to morpheme to affix boundary, 1995: 154); the degree of bonding is greater in the case of inflection than in that of periphrasis;

6. the degree to which elements of a construction may be moved around; in earlier Latin *scribere habeo* and *habeo scibere* could occur in either order, but in later Latin this order became fixed, which allowed the word boundaries to be erased.

As these few examples have shown, the parameters are correlated. Historically, one can measure the degree of correlation among the parameters for some individual construction (e.g. *scribere habeo*). Synchronically, one can arrange a variety of historically unrelated elements with similar function on these parameters (e.g., expressions of possibility such as *possible that, maybe, may*). Many studies of grammaticalization have been written assuming the correctness of these parameters, though as we shall see, some have been questioned, especially 1 in

so far as it pertains to semantic weakening or "bleaching", 3 in so far as it suggests that "obligatorification" is a necessary, and 6 in so far as it suggests that grammaticalization necessarily involves increased fixing on the syntagmatic axis. Some scholars appear to assume (contra Lehmann) that if a form has not become semantically bleached, "obligatorified," and bonded, then it has not undergone grammaticalization. But the term "grammaticalization" is applicable to many situations in which these changes are less than categorical. To take an extreme case, French *pas* "negative particle" has ousted all of its competitors except one, *point*. We would not want to deny that *pas* (once a lexical noun 'step') is now grammaticalized as a negative marker simply on the grounds that speakers can still choose *point* (once 'dot, point' and now an emphatic negative particle) in its place, as in *elle ne m'a point aidée* 'she didn't help me a bit' versus *elle ne m'a pas aidée* 'she didn't help me.' Since historical processes are always ongoing, and furthermore are not deterministic (i.e., they can always be abandoned) we will often not see a completed instance of grammaticalization, only one in progress, and therefore such claims are suspect.

Heine and Reh's book *Grammaticalization and Reanalysis in African Languages* (1984) was perhaps the first to address an entire linguistic area (Africa) synchronically from the point of view of grammaticalization. It was a convincing demonstration of the power of grammaticalization theory as a tool of descriptive linguistics and especially of the wide range of linguistic facts that grammaticalization could characterize. It provided not only a classification of the phenomena to be addressed, with copious examples, but also an index of the typical pathways of grammaticalization discovered by the authors, particularly with respect to morphosyntax and morphophonology. It goes without saying that most of these phenomena are not restricted to Africa, but have counterparts elsewhere in the world. Heine has spearheaded exhaustive extensions of the index first to additional African languages (see Heine *et al.* 1993) and subsequently to the languages of the world (Heine and Kuteva 2002).

Both Lehmann's and Heine and Reh's books focused on morphosyntax, with relatively little attention to meaning. In the 1980s and especially the 1990s increasing attention was paid to semantics and pragmatics as researchers built on Givón's (1979) hypothesis about discourse > syntax > morphology > morphophonemics > zero or explored the cognitive underpinnings of semantic change. Debate concerned the role of metaphor and metonymic association in the flow of speech (see Chapter 4). In her seminal book, *The Future in Thought and Language* (1982), on the development of modals of obligation to markers of epistemic stance and future tense in Romance languages, Fleischman's crucial insight was that morphology, syntax, and semantics all interconnect in ways that lead to patterned,

non-random change. Traugott (1982) suggested that there are semantic/pragmatic factors in grammaticalization that lead to unidirectionalities of change, specifically tendencies leading from concrete meanings to more abstract ones, and in particular to ones grounded in the speaker's assessment of connections between propositions. Concurrently work went forward in cognitive linguistics, drawing attention not only to semantics but also to (largely synchronic) metaphors. Sweetser's book *From Etymology to Pragmatics* (1990) suggested ways in which relationships among polysemies of modals (especially *may*) and connectives (especially *but* and *if*) might be conceptualized metaphorically. In 1991, Heine, Claudi, and Hünnemeyer published *Grammaticalization: a Conceptual Framework* (1991a). The data are primarily African, but the focus is on pragmatic and cognitive factors that motivate grammaticalization, and the meaning changes that forms may undergo as they grammaticalize. For example, the authors regard "metaphorical abstraction" as one of the means by which we organize the world around us. Various relatively abstract concepts such as time, cause, manner, personal quality, and relationship need to be expressed; more concrete linguistic "vehicles" are pressed into service to express them. Thus, time concepts are typically expressed in terms of more readily apprehensible space concepts (a "long" time, a "short" time, etc.), mental activities like thinking are expressed in terms of physical activities (to think "hard", etc.), and so on. Those metaphorical abstractions that lead to the emergence of new structures, e.g., adverbials or prepositions, are among the main kinds of cognitive processes that lead to grammaticalization according to Heine, Claudi, and Hünnemeyer (1991a: 41–5).

As mentioned at the end of Section 2.3, Bybee's large-scale project on morphology, primarily verbal, has been a prominent and highly influential source of ideas and data. She and her collaborators crucially see grammaticalization as both semantic and formal in nature. Among implications for cross-linguistic work on grammaticalization is the claim that grammatical morphemes or "grams" can be studied not only as language-specific phenomena, but also as "gram-types" that are substantive universal categories analogous to "voiceless dental stop" in phonetics (Bybee, Perkins, and Pagliuca 1994: 149).[4] They tend to be polysemous in similar ways across languages, and to undergo similar paths of development as a result of human discourse and interaction: "they reflect the metaphorical processes that are based on human cognitive make-up, and they reflect the inferences that humans commonly make when they communicate" (p. 302).

A two-volume collection of papers arising out of a 1988 conference organized by Givón, and edited by Traugott and Heine under the title *Approaches to Grammaticalization* (1991), addresses a wide spectrum of themes, many of which are still of current concern to a wide range of linguists working from the perspective

of grammaticalization, and many of which will be elaborated in the following chapters, for example:

(a) Can diachronic and synchronic approaches to grammaticalization be reconciled, or is a new approach required?
(b) Is grammaticalization a continuous or discontinuous process?
(c) To what extent is grammaticalization the result of discourse pragmatic forces?
(d) What constraints are there on the choice of concepts and forms serving as the input to grammaticalization?
(e) When can incipient grammaticalization be recognized?
(f) Is grammaticalization a unidirectional phenomenon?
(g) What phenomena in language are not examples of grammaticalization?

Of these, question (f) about unidirectionality came to take center stage at the turn of the century. As a testable hypothesis, unidirectionality attracted efforts to provide counterexamples. A chapter in Newmeyer (1998) entitled "Deconstructing grammaticalization" laid out some of the theoretical assumptions of this enterprise. A special number of *Language Sciences* (Campbell 2001a) was devoted to attacking the entire premises of grammaticalization in articles with such provocative titles as "What's wrong with grammaticalization?" (Campbell 2001b), and "Is there such a thing as grammaticalization?" (Joseph 2001). The bulk of the arguments was devoted to the discussion of a small number of cases in which a reversal of unidirectionality can be argued, some of these, however, such as the English possessive *'s*, being themselves quite controversial. On the other side, strong support for the hypothesis of unidirectionality was put forward in a special number of *Linguistics* edited by van Kemenade (1999a), and in papers such as Haspelmath (1999a), the title of which was "Why is grammaticalization irreversible?" We return in Chapter 5 to the controversies engendered by these papers. During the period under review, a new word gained prominence: "exaptation," the deployment of bits and pieces of lexical and morphological material pressed into service as grammatical formatives (Lass 1990, 1997; Vincent 1995). Did exaptation present a challenge to the theses of grammaticalization and unidirectionality, or was it simply what would be expected from the usual premises of grammaticalization – the creation of grammatical out of previously non-grammatical forms? The related concept of "phonogenesis" (Hopper 1991, 1994), the creation of new phonological material out of the random extinction of morphemes, also entered the vocabulary of grammaticalization.

We will here indicate some additional significant theoretical trends, the more important of which will be taken up later. As various theories of syntax have

developed, and interest in historical morphosyntax and especially grammaticalization has increased, the relationship of grammaticalization to reanalysis has been discussed at length – are they the same thing, are they different, and if so does grammaticalization "fall out from" reanalysis (see, among many others, Abraham 1993; I. Roberts 1993a; Tabor 1994a; A. Harris and Campbell 1995; Haspelmath 1998; Newmeyer 1998; van Kemenade 1999b)? What is the relationship between morphosyntactic change and lexicalization (C. Lehmann 1989a, 2002)? What are the differing roles of semantics and pragmatics in language change (Traugott and Dasher 2002)? What are the boundaries of grammaticalization (Giacalone Ramat and Hopper 1998)?

A particularly strong movement in recent years has been the integration of grammaticalization with the notion of "usage-based" structure. The term is owed to Langacker (1987), and found echoes in the thought of several linguists at that time who were growing uncomfortable with sentence analyses based on the linguist's private introspection. Thus, Hopper (1987) envisaged grammar as an emergent property of usage rather than a static autonomous entity. Himmelmann (1992, 1997) drew on this idea in characterizing the constituency of nominal groups and of deictic systems. Du Bois (1985, 1987) argued for a discourse origin of certain well-established morphological meanings such as the ergative/absolutive case. Haiman (1994) drew a parallel between actions that become ritualized through repetition and linguistic expressions that lose their novelty and become automated through frequent use, thus pointing out close similarities between language change and change in other aspects of human communicative behavior. Croft (2000) highlighted the replication of "utterances, more precisely the replication of linguistic structures in utterances in language use" (2000: 7) across speakers and communities through time. Many of the papers in Bybee and Hopper (2001), from a conference held at Carnegie Mellon in 1999, investigated frequency of forms and juxtaposition of forms (the "proximity" model) as a causal mechanism of change. These studies typically focused on the collocations of particular forms and the formation of constructions with particular lexical items. In similar vein, Krug (1998) argued specifically for attention to "string frequency" as a prime motivating force in change and the emergence of categories. Scheibman (2000) describes the correlation between frequency and combinations of *don't* in conversation, as in *dunno* 'don't know.'

One outcome of this direction has been a tendency to see grammaticalization (and grammar) in terms of collocations of specific items rather than generalized changes, in other words to identify the possible beginnings as well as the ends of grammatical constructions. C. Lehmann (1991) noted the emergence of new prepositions in German through prepositional constructions that occurred in

specific textual contexts, e.g., *im Vorfeld* 'on the eve of' always suggested an imminent newsworthy event or journey. Hopper (1994) likewise discussed incipient grammaticalization in specific idiomatic contexts. Bybee, in a number of publications (e.g., Bybee 2001, but also going back as far as Hooper [Bybee] 1976), reasoned that much change, especially that relevant to grammaticalization, was a strictly mechanical matter, the slurring together of frequently juxtaposed forms. Since it is particular words, not abstract classes, that undergo this development, Bybee too saw change, and therefore structure itself, as beginning in specific contexts.

Much of this work was made possible by the burgeoning of corpus linguistics in the 1990s, which in turn owed its impetus to new technology – computer-aided phonetic analysis replacing mechanical sound spectography, massive electronic corpora with high-speed search software and funded projects based on them, which allowed large bodies of texts to be scanned for repetitive patterns and gradual grammatical changes. Historical corpora such as the Helsinki Corpus of historical English texts (cf. Rissanen *et al.* 1993) and the Toronto Old English lexicon and its associated corpora (Cameron *et al.* 1986–) were significant tools. In addition, the construction of many corpora of written and spoken modern English gave insights into the role of frequency in contemporary usage. Among written corpora are the Brown Corpus of American English (Frances and Kucera 1961), and the Lancaster–Oslo/Bergen Corpus of British English (see Johansson, Leech, and Goodluck 1978); these and the Helsinki Corpus are among many databases combined in the International Computer Archives of Modern English (ICAME). Precisely transcribed conversational corpora such as the Santa Barbara Corpus of Spoken American English (see Chafe, Du Bois, and Thompson 1997) and the British National Corpus (of spoken and written British English) (BNC) have provided crucial insights into conversation. A good many studies of the past decade have drawn upon such synchronic corpora to argue for the "emergence" of types of constructions that become visible only through the close quantitative study of usage rather than through individual introspection. Among many such studies can be mentioned Laury (1997) on the emergence of a definite article in Finnish and Krug's work on emergent auxiliaries in English (Krug 2000, 2001). A significant body of research on the narrowing gap between "grammar" and conversational usage that has characterized recent linguistics is represented by Ochs, Schegloff, and Thompson (1996). Several proposals were in the air also concerning an emergent relationship of broader syntactic phenomena to natural conversational discourse, such as relative clauses (Fox and Thompson 1990) and constituency itself (Lerner 1996; Clancy *et al.* 1996; Ono and Thompson 1994). The relationship of such studies to the nature of grammaticalization remains to be worked out.

The general problem of characterizing language change – especially, but by no means exclusively, change in meaning – continued to occupy researchers. This direction has meant that researchers have had to rely increasingly on languages whose histories are well attested and understood, such as English (and some others, such as Chinese, French, German, and Japanese). Because there is so much material on the history of English, and much of the considerable body of research on the details of the history of English has implicit and explicit relevance for grammaticalization, theoretical points have been reasoned for with detailed historical data especially from English. To mention just a few of very many studies on English: Traugott (1995) postulated, on the basis of diachronic data, a cline of grammaticalization of the type:

Clause-internal Adverbial > Sentence Adverbial > Discourse Particle

arguing (as does Brinton 1996 with respect to different data) that discourse markers like clause-initial *in fact* and *indeed* are members of grammatical categories because they are operators on discourses and serve grammatical functions akin to topic and focus (see also Fraser 1988 on the grammatical category status of discourse markers). Van Kemenade (1999a) was devoted to many theoretical and substantive questions of historical English morphosyntax, as was Fischer, Rosenbach, and Stein (2000), which presented several case studies of grammaticalization in the history of English. The introduction to the latter (Fischer and Rosenbach 2000) is a useful and judicious summary of the state of thinking in the field.

Other areas of the world have, however, not been neglected, and in recent years too, many linguists have presented studies of individual languages, language families, and linguistic areas, and the closely related topic of creoles, from the perspective of grammaticalization, e.g., Fernandez-Vest (2000) for Balto-Finnic; Bisang (1996) for Southeast Asia; Bruyn (1995), Baker and Syea (1996), Turchetta (1998), and Romaine (1999) for creoles; Frajzyngier (1996a) for Chadic; Hook (1991) for Indo-Aryan; Aikhenvald (2000) for South America; Sun (1996) and Shi (2002) for Chinese; Dasher (1995) and Ohori (1998) for Japanese; Clancy *et al.* (1996) for Japanese and Chinese, among many others. Many of these continued the comparative tradition begun by Heine and Reh in the 1980s for Africa of studying trends and parallel developments in linguistic-cultural areas from the perspective of grammaticalization. A number of longer monographs based on grammaticalization also appeared, such as Haase (1994), presenting universals of honorifics as the "grammaticalization of politeness," and Kilian-Hatz (1995), a description of the grammar of the African language Baka as the product of grammaticalization. The latter book could be seen as an application of the earlier method of "historical grammar" of Indo-European languages to the structure of an unwritten language.

As this survey has suggested, the past decade has seen a rich expansion of interest in grammaticalization, with both a wide range of descriptive studies and a vigorous debate about questions of theory and principles. Inevitably, "grammaticalization" has been understood and theorized in a number of different ways. Our aim in the remainder of this book is to develop a synthesis of current thinking on grammaticalization that will provide the basis on which further work can be built. It is to this task that we now turn.

# 3

# Mechanisms: reanalysis and analogy

## 3.1 Introduction

We turn now to some central concerns in any discussion of language change, with focus on those that are particularly important for an understanding of grammaticalization. In particular, we attempt to answer the questions: what motivates change, what mechanisms lead to grammaticalization, what are its probable "paths" of progression through time, and what are its end results? Particular changes do not have to occur, nor do they have to go through to completion, though some degree of change is inevitable. As elsewhere in this book, therefore, we will be referring to phenomena that make change possible or facilitate it, sometimes singly, sometimes together, not to factors that are absolute or obligatory. In this chapter we consider two general mechanisms by which grammaticalization takes place: reanalysis primarily, and analogy secondarily. In Chapter 4 we will discuss speaker/hearer asymmetries and processes of meaning production and perception that motivate the operation of these mechanisms, and also some semantically motivated mechanisms including metaphor and metonymy. The unidirectionality of paths of change will be the subject of Chapters 5, 6, and 7. In Chapter 8 we will discuss grammaticalization in the context of the development of creoles.

Reanalysis and analogy have been widely recognized as significant for change in general, most especially morphosyntactic change. In reanalysis, the grammatical – syntactic and morphological – and semantic properties of forms are modified. These modifications comprise changes in interpretation, such as syntactic bracketing and meaning, but not at first change in form. Reanalysis is the most important mechanism for grammaticalization, as for all change, because it is a prerequisite for the implementation of the change through analogy. Analogy, strictly speaking, modifies surface manifestations and in itself does not effect rule change,[1] although it does effect rule spread either within the linguistic system itself or within the community.

For a very simple example of the difference between the two mechanisms, consider the difference between the compounding in Old English of the phrase *cild* 'child' + *had* 'person, condition, rank' into *childhad*, 'childhood' or *biscop*

'bishop' + *had* to *biscophad* 'bishophood' on the one hand, and the extension of *hood* to new environments, such as *falsehood* in Middle English. *Cildhad* and *biscophad* illustrate at least two instances of reanalysis: first two independent nouns come to function as one (compounding), then the second comes to be used as a derivative morpheme representing an abstract state (semantic and morphological change). *Falsehood* illustrates analogy: once *-hood* had come to be used as a derivative morpheme it no longer required association with a word referring to a person, and could be extended to new contexts, in this case an adjective referring to an abstract concept. In cases like this, the word boundary of the root, e.g. *false*, is reanalyzed as a morpheme boundary to allow derivation.

## 3.2 Some background assumptions about change

This is not the appropriate context for discussing principles of language change in detail. For fuller accounts of these principles, see Anttila (1989 [1972]), Hock (1991 [1986]), McMahon (1994), and more specifically on syntactic, morphological change, A. Harris and Campbell (1995), and on phonological change Kiparsky (1988). However, before we proceed, some initial comments on language change will be helpful in clarifying certain assumptions behind the material to follow.

First, when we speak of change, what is thought to be changing? We speak loosely of "language change." But this phrase is misleading. Language does not exist separate from its speakers. It is not an organism with a life of its own; rather each speaker has to learn that language anew. Change is replacement (Hoenigswald 1966), on the understanding that "replacement" does not entail strict identity of an earlier function or category with a later one (see discussion at the end of Section 1.2.3). However, in so far as language is characterized by an abstract set of rules independent of language users, the rules (or set of rules) can be said to change.

Different models of rule change have been suggested. The one most influential in the last four decades has been the generative model. This model privileges rule change in terms of high-level global organization and of the whole set of rules (the "grammar") over individual rule changes. Furthermore, it assumes that in general, or as an idealization, major changes (called "restructurings") can occur only in the discontinuity of transmission from one generation to another, in particular during the process of child language acquisition in a homogeneous speech community. The factors that enable this transmission are twofold: universal capacities for language and universal reasoning processes that language users bring to the output of the earlier grammar.

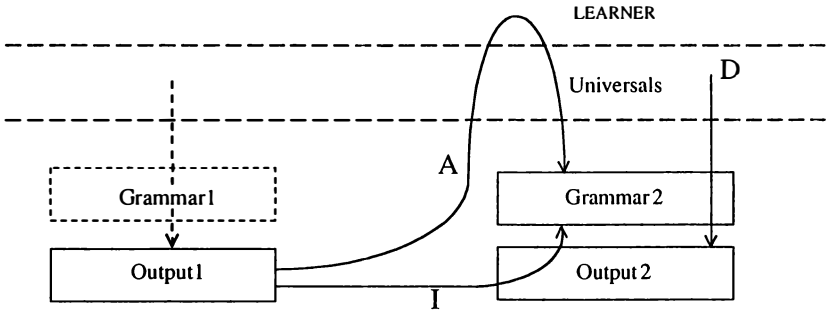


Figure 3.1 *Model of language change (Anttila 1989: 197)*

An early characterization of such rule change was modeled in Andersen (1973: 778), and modified by Anttila (1989 [1972]: 197); it is shown in Figure 3.1. In this model, Grammar1 is the internalized set of rules in an individual. This speaker's verbal output (Output1) is determined by Grammar1. In a later generation the language learner, endowed with certain universal capacities for language, hears Output1. Using the universal linguistic capacities or "Laws," and universal reasoning processes, the learner infers an internalized grammar which may be different from that of the earlier speaker, in which case it is termed Grammar2 (for the differences among the inferences, and the types designated by I, D, and A, see Section 3.2.1 immediately below). This internalized grammar is verbalized by Output2 which is different from Output1 because it is the verbalization of a different grammar.

The model is a useful one for conceptualizing change, and will serve our purposes in this book provided it is understood in the light of assumptions about grammaticalization rather than the more rigid generative ones to which it has largely been adapted. However, attention should be drawn to some of the assumptions that were original to the model or that have been made about it in subsequent years. We focus on issues regarding the types of inferences in language acquisition, who the language learner is (child or adult), what needs to be learned (how much is genetically endowed), and how innovation spreads.

### 3.2.1 *Induction, deduction, abduction*

In this section we consider some basic logical principles of reasoning, known as induction, deduction, and, most importantly for change, including grammaticalization, abduction. An idealized artificial language, for example, a computer language, can be thought of as a coding device in which ready-made ideas are converted into symbols that serve one and only one function. Here a principle

of "one form – one meaning" operates, and every "utterance" conveys an unambiguous message. Such transparency is not found in human language. This is partly because in real-world languages a small set of units and constructions must serve a much larger set of functions, owing to memory and parsing limitations. Moreover, language is a social institution, and one of its important functions is to maintain social networks and sustain interest in a verbal interaction. Therefore indirectness (such as is found in politeness phenomena), metaphor, and other non-literal meanings are an essential part of language. "One form – one meaning" would in these circumstances be dysfunctional. For example, *Do you mind not smoking in here?* can serve as a request for information, or a command to stop smoking in the guise of an inquiry. After extensive use as an indirect command it can be felt as too "routine," hence too close to *Please stop smoking*, and therefore can be substituted in some circumstances by a lengthier paraphrase like *Would you mind awfully if I were to ask you not to smoke in here?* Part of the human ability to understand and use language is the ability to reason from the form of what is said to the intent of what is said, as well as from the string of sounds that occurs as input to the structure behind that input.

Logicians focused until recently on two types of reasoning: induction and deduction. If human language were an artificial language then these logics might suffice. However, neither of these logics accounts adequately for indirectness, expressivity, or change. For this a third type of reasoning, "abduction," first identified by C. S. Peirce (1965 [1931]), needs to be considered. The importance of abduction for language change has been stated particularly clearly by Andersen (1973). The following is based on Andersen's main points (especially 774–86; see also Anttila 1989 [1972]: 196–8).

Types of reasoning are exemplified by three propositions that constitute a syllogism:

The Law (e.g., All men are mortal)
The Case (e.g., Socrates is a man)
The Result (e.g., Socrates is mortal)

Deductive reasoning applies a law to a case and predicts a result (e.g., *All men are mortal, Socrates is a man, therefore Socrates is mortal*). Strictly speaking, the conclusion asserts nothing that is not given in the premises; furthermore, if the premises are true, then the conclusion is also. Inductive reasoning proceeds from observed cases and results to establish a law (e.g., *Socrates is a man, Socrates is mortal, therefore all men are mortal*).

Abductive reasoning is different, although it is often confused with inductive reasoning: "Abduction proceeds from an observed result, invokes a law, and infers that something may be the case. E.g. given the fact that Socrates is dead, we may

relate this fact to the general law that all men are mortal, and guess that Socrates was a man" (Andersen 1973: 775). Even if the premises are true, the conclusion need not be so: one may match the wrong result with the law. Perhaps Socrates is not a man but a lizard, a wrong conclusion but nevertheless one that is compatible with the other two premises. The law may be an established truth, or it may be a tentative generalization. Peirce was interested in abduction because, although he saw it as a weak form of reasoning (indeed, it can lead to logical fallacy), he also saw it as the basis of human perception and as the only kind of reasoning by which new ideas could originate.

Andersen, and many linguists after him, have regarded abduction as essential to development of cultural patterns, including language. Of the process itself, Andersen says: "In acquiring his [sic] language, a learner observes the verbal activity of his elders, construes it as a 'result' – as the output of a grammar – and guesses at what that grammar might be" (1973: 776). The guesses are processes of reasoning based on universal principles, the basic goal being the construction of a grammar (the case) that in some way conforms to the observed data (the result). Abduction is the predominant mode of reasoning in language learning (Anttila 1989 [1972]: 197). It is constantly tested out by the process of induction (the matching of a hypothesis to the data) and by deduction (the production of new utterances based on the hypothesis). In Figure 3.1 the curved arrow from Output1 through Universals models abduction (A). The straight arrow from Universals through Grammar2 to Output2 models deduction (D), and the curved arrow from Output1 through Output2 to Grammar2 models induction (I).

### 3.2.2 *Who is the language learner?*

Andersen writes throughout his (1973) article of "language learners," without specific commitment to the age of these learners. Many researchers have interpreted "language learners" as children, most especially children in the first two or three years of life. This interpretation goes back a long way. In the early part of the twentieth century, Hermann Paul (1920) was particularly concerned with developing a theory of the relationship between child language acquisition and "evolutive" change, that is, change that is regarded as only minimally affected by outside factors, such as conquest, demographic changes, or migrations. In the early 1960s child language acquisition was accorded a central theoretical place in generative theory, whether synchronic or diachronic, because it was seen as the potential locus for insights into learnability, that is, into the human-specific cognitive factors that make language possible (see especially Chomsky 1965; and, with respect to language change, Halle 1964; Lightfoot 1991, 1999). According

to this view, the discontinuity between adults and children enables major changes, but the discontinuities within a person's life do not.

However, it is becoming increasingly widely accepted among sociolinguists and researchers on language acquistion that people continue to develop language skills throughout their lives, and also to innovate. As early as 1982, Bybee and Slobin, studying children's acquisition of verb forms such as *send-sent, sing-sang-sung*, and their innovations, such as *think-thunk*, concluded that: "There is nothing particularly special about the relation between small children's innovative forms and morphophonemic change. The innovations of older children and adults, although perhaps rare, where they can be elicited, may also serve as predictors of change" (Bybee and Slobin 1982: 36–7). This position has been confirmed and elaborated on in e.g. Labov (1994), and Ravid (1995). Furthermore, there is increasing awareness that it would be "very difficult to demonstrate, beyond reasonable doubt, which of the many innovations observed in child language... will actually be accepted by speech communities and become linguistic changes" (Milroy 1992: 204). This is particularly true in the case of historical data from the past, because it is written and does not reflect child language directly. Although children may in part play a role in language change, there is growing evidence that young adults play a significant one as well. Both groups innovate and the spread of innovations appears to occur at any age. However, the role of the "developmental imperative" among adolescents to display knowledge of and use the linguistic marketplace appears to be especially important in maintaining and replicating innovations across communities (see Eckert 1988, 1997, 2000; Milroy 1992; Chambers 2003; Labov 2001).

The hypothesis that child language acquisition is the crucial factor bringing about change has been linked with a tradition of calling change within a relatively homogeneous community that is brought about by child language acquisition "internal change," as opposed to "external change" brought about by contact, but the first is ultimately no more "internal" than the latter – it does not happen "in" the language, or "in" the grammar, only in transmission (see Section 3.2.4). It has also been linked with a tradition at least since Halle (1964) that the child is primarily an interpreter, making hypotheses about the linguistic system, rather than an active producer of language. However, since it is only from evidence of production that we can assess what may have been innovated, it is crucial to conceptualize the language acquirer as an active producer as well as passive processor of language. Like the hypothesis that child not adult language acquisition drives change, the sharp distinction between "internal" and "external" change has recently been called into question as increasing attention is paid to variation and language users' access to strategic use of multiple styles and possibly grammars (Kroch 1994). It seems preferable to refer to change that arises out of contact and affects multiple

subsystems of a language as "contact-induced," and to other changes as "natural" (Thomason and Kaufman 1988) or "evolutive" (Paul 1920; Andersen 1973).

### 3.2.3 The question of genetic endowment

Although the model in Figure 3.1 does not force the issue, it was designed to characterize a grammar of relatively fixed structure at any one period, and uniformity of input. Such assumptions, as we have seen, are challenged by the study of grammaticalization (and of sociolinguistics). The model does crucially claim that there are universal laws of some kind, but, as a model, it does not specify what kinds of laws they are. Andersen speaks of them as: "the properties of [the learner's] constitution that completely determine the nature of linguistic structure, and hence the relation between a grammar and its output" (Andersen 1973: 776). The key phrase here is "completely determine." The hypothesis is that human beings are born with a set of constraints on what possible language structures can be, and ways in which they can vary.

Refinement of this hypothesis has been the major focus of much recent generative theory. One widely accepted model that has been proposed is that all human beings are genetically endowed with Universal Grammar (UG) (see, e.g., Chomsky 1981). This UG is conceived as consisting of two components: unchanging "principles" that characterize the fundamental structure of language and restrict the class of attainable grammars, and "parameters" that define the space of possible variation and are fixed by experience. Differences between languages across geographic and social space or across time are conceived as being the result of different settings of the parameters in the process of language acquisition. Lightfoot (1991) elaborated on the idea of principles and parameters for change, and argued that changes from one generation to another are the result of the fact that different learners select different possibilities from among a restricted set of structures that are genetically encoded. Specifically, he hypothesized that children contribute to language learning (and hence to change) at least a "disposition to learn." This disposition was conceived as a selective one: "an organism experiences the surrounding environment and selects relevant stimuli according to criteria that are already present internally" (1991: 2). Such a selective disposition was contrasted to an "instructive" one, which is essentially flexible and modifiable by outside stimuli. In this account of motivations for language change, the child is conceived as an LAD (language acquisition device), a processor of systems, a kind of passive logic machine with a very rich language-specific genetic endowment.

In recent years the doctrine of innateness (nativism) has come under attack from several quarters. Sampson (1997) surveys critically the entire range of evidence that has been put forward for innateness. Tomasello (1999) presents

a case for language as a cultural artifact elaborated through increasingly intricate social interactions. Deacon (1997) sees language as constantly in flux and adapting itself for optimal learnability to "children's spontaneous assumptions about communication, learning, social interaction, and even symbolic reference" (Deacon 1997: 109).

Typically, anti-nativists reason that language is not an isolated and specific neural capacity but is derivable from more general human cognitive endowments. From this perspective the universal component, far from being seen as one that will "completely determine the nature of linguistic structure," is seen as characterizing broader properties of the human constitution (see Greenberg 1990). It can be explained by reference to human cognition and the human communicative goals that language serves (Givón 1989). If there is a structural residue, it consists at the most of a broad propensity to distinguish the categories noun and verb, but even this division probably reflects a practical communicative necessity. Tomasello argues (1999: 41–5) that structural complexity in language emerged through grammaticalization as a response to the growing sophistication of the human social environment during the modern period of *Homo sapiens*. Language evolution went in step with the cognitive expansion brought about by the necessity to explain, predict, and control the behavior of conspecifics (Tomasello 1999: 24–5). Such a view is consistent with the idea of the language learner as engaged in strategic interaction as a producer of language, a negotiator seeking to get people to do things with words, not just a purveyor of information. This is the approach we adopt in this book.

### 3.2.4 *Innovation versus spread*

When considering Figure 3.1 in the light of the claim that it is rules that change, not languages, a distinction needs to be made between change and spread of the change, understood as replication or spread of innovations from the individual to the group (Weinreich, Labov, and Herzog 1968; Croft 2000; see Lichtenberk 1991a, for discussion from the point of view of grammaticalization). When an innovated form B enters the grammar alongside of an older form A, it does so abruptly: an Ewe language user either does or does not use *bé* as a complementizer (see Section 2.2). However, the spread of the complementizer analysis across verbs of locution and cognition is gradual; this kind of spread through the linguistic system is called "generalization" and will be discussed in fuller detail in Section 5.2. Spread across linguistic contexts is to be further distinguished from spread across genres and social groups. For example, each individual reanalysis of a verb of locution or cognition could potentially have its own trajectory through social space, though often there will be cumulative effects from one change to another.

As indicated above, Andersen's model has been understood as designed to reflect changes in the abstract grammars of individual language users of different generations. The problem is that "one swallow doth not a summer make," and one change in the grammar of an individual does not constitute what we think of as a change in "a language." From the viewpoint of generative grammar, there is no such thing as "a grammar of Old English," or "a grammar of Present-Day English," only grammars of individuals; therefore, when we use such expressions as "change in the grammar of X" we are essentially using "a convenient fiction permitting the statement of certain generalizations and ignoring certain types of variation" (Lightfoot 1991: 262). But this leaves the question of how to think about the sometimes significant differences that can be observed over time. The answer from the generative perspective is that, however abrupt a change may appear to be in models such as that in Figure 3.1, once the change has occurred, it is the aggregations of gradual changes across time that give the impression of "changes in the language." Sometimes these aggregations spread rapidly across a community, leading to what appear to be "major changes" (for example, radical shifts in word order, loss of case morphology, the rise of a new category such as syntactic auxiliary verb, all of which are discussed later in this book).

In an effort to refocus attention away from "major changes" and onto breaking down diachronic development into its "smallest appreciable constituent steps," Andersen points out that:

> each and every step in such a development is an innovation, not only the initial act, through which a new linguistic entity comes into being. It is through innumerable individual acts of innovation – of acceptance, adoption, and acquisition – that any new entity gains currency and enters into competition with traditional entities in the usage of a linguistic community. (Andersen 1989: 14)

This approach is highly consonant with grammaticalization.

Another way to think of what constitutes a change is to think of grammars not of the individual but of the speech community: "The grammars in which linguistic change occurs are grammars of the speech community" (Weinreich, Labov, and Herzog 1968: 188). This approach too ultimately leaves us with unresolved questions such as what is the status of "grammar of the speech community"? More importantly, though, studies of language use in communities and spread through them have highlighted an important distinction "between evidence of social variation among children that may reflect simple exposure, as in class and ethnic differences, and evidence of the *social use* of variation" (Eckert 1999: 11, italics added).

We need well-coordinated long-term studies of language acquisition by children during pre-puberty and by adults of all ages that pay attention to those areas of

linguistic change of interest to historical researchers before the empirical questions raised by hypotheses about the relationship between language acquisition and language change can be adequately understood. In any event, the nature of historical records generally makes it difficult to pinpoint where change originated and how it spread. Clearly, historical records are in writing, and therefore not a direct reflection of what small children (or even most adults) did with language in the days before widespread literacy. Study of tape recordings over the last century should help in this endeavor, but when we are dealing with older periods of the language we are necessarily dealing with changes that have come down to us in written form, even if we look to personal letters, drama, and other texts types that are likely to be minimally institutional (and therefore "standardized") in character.

A crucial question is, when can we say that a change has taken place? Although caution is ideally always exercised, in practice many linguists tend to see a single example of a change that later spreads to other texts and other constructions as a "first example of change X." This approach naturally follows from thinking of change in terms of differences in the grammars of individual language users. It must be remembered, of course, that writers and speakers expect to be understood. A first attestation therefore may not mean a first use, but rather an early example of a form that has already gained some social acceptance in the speech community. Some innovations catch on and are reproduced by other users of the language, and may eventually be recognizable as rule changes. Others are not found in subsequent documents, and are identified as "nonce" forms or even scribal errors. Methodologically it is convenient to have some criteria by which we can conventionally say that a rule change has occurred. We will say that a rule change has occurred if (a) it has evidently spread from the individual and has been accepted by a group, and (b) the constraints of the former linguistic environment are no longer obligatory. The following illustrative example concerns the use of the verb *will-* as a tense auxiliary in ninth-century Old English (OE).

In (1), *wolde*, the past tense of *will-* 'want,' occurs in a context that suggests it can only have been meant as a marker of later time (equivalent to Present-Day English *would* for *will* in reported speech):

(1) Þa Darius geseah þæt he overwunnen beon wolde, þa wolde
when Darius saw that he overcome be would, then wanted
he hiene selfne on ðæm gefeohte forspillan
he him self in that battle kill-INF
'When Darius saw that he would be overcome, he wanted to commit suicide in that battle.' (*c.* 880, Orosius 3 9.128.5)

Does (1) exemplify a change at least in the grammar of the language user who wrote this passage, if not in the "convenient fiction of the grammar of Old English"? The two criteria we have suggested point to rule change as having occurred. First, the rate of use of *wolde* in the sense of 'would' increased in Old English. Secondly, the meaning change exemplified here is consistent with a rule change. As will be discussed in more detail later, *will-*, the ancestor of Present-Day English *will*, as in *She will run for Governor*, was a main verb meaning 'intend,' as in *She willed herself to succeed.* As such, *will-* was originally followed by a volitional verb (one denoting an activity carried out deliberately). In the example, however, *overwunnen beon* 'to be defeated' is clearly not the intention of the agent. So a former obligatory constraint on the use of *will-* is no longer operative. Therefore (1) appears to be a legitimate early example of a structure that signals a rule change at least in the individual writer even though it appears only rarely elsewhere at this time (the ninth century).

Similarly we know that *let's* (< *let us)* has begun to be grammaticalized when the limitation to the permission context (i.e., 'allow us') no longer holds. When this constraint was removed, the paradigmatic relationship of the first-person-plural pronoun to other pronouns and nouns no longer held, and the stress on *us* in *let us* could be reduced.

The assumption that Grammar1 and Grammar2 are relatively fixed has some undesirable consequences. For instance, it is often assumed that a rule or form A is replaced directly by a different rule or form B. Consider Ewe *bé*. From the fixed-grammars model it might appear that a later generation abruptly replaces the earlier generation's lexical V meaning 'say' with a particle meaning 'that' (along with accompanying changes in syntactic structure) and that, for the language learner, the earlier meaning and structure have disappeared altogether. But, as we have seen in connection with *let's*, older and newer forms coexist for individual speakers as well as for communities over time. Indeed, A probably never "becomes" B without an intermediary stage in which A and B coexist:[2]

(2) $$A > \left\{ \begin{matrix} B \\ A \end{matrix} \right\} > B$$

Such coexistence, which Hopper (1991) has called "layering," may last several hundred or more years, as in the case of Ewe *bé* or English *be going to*. Alternatively, it may be quite short, as in the case of the brief development and demise during Middle English of "regressive" aspectual verbs *stint* and *fin* (meaning approximately 'leave off V-ing,' 'stop V-ing') (Brinton 1988: 151). We will discuss the phenomenon of layering in greater detail in Section 5.5.

One final point about the assumptions behind the model worth mentioning is that the focus on universals privileges the uniformity of rule types and reasoning types across languages and times. Indeed, what has come to be called the "uniformitarian principle" (Labov 1974; Romaine 1982) is an essential ingredient of most work in historical linguistics. According to this principle, the linguistic forces that are evidenced today are in principle the same as those that operated in the past. Operationally, this means that no earlier grammar or rule may be reconstructed for a dead language that is not attested in a living one. There is no reason to believe that grammaticalization did not occur in languages spoken ten thousand years ago in much the same way as it does now.

Whatever our model for change, we need to consider the ways or "mechanisms" by which change takes place and the factors that enable them to occur. In the remainder of this chapter we focus on the principal ways in which grammaticalization may occur.

## 3.3 Reanalysis

In reanalysis, the hearer understands a form to have a structure and a meaning that are different from those of the speaker, as when [*Hamburg*] + [*er*] 'item (of food) from Hamburg' is heard as [*ham*] + [*burger*]. Sooner or later someone substitutes the word *cheese* or *beef* for *ham*; but this substitution is merely the symptom of a change that has already occurred silently. The reanalysis itself is covert until some recognizable modification in the forms reveals it. The *hamburger* example illustrates reanalysis in a single lexical item; but syntactic sequences may also be reanalyzed. In current English, for example, the sequence *try and VERB* has under some circumstances been reanalyzed as Auxiliary + Verb, as *I'll try and contact her.* 'Try' in this use is distinct from 'try' in *They have tried and failed to contact her*, as well as from *I'll try to contact her.* In *I'll try and contact her*, there is evidence that *try and* is stored as a single word:

(i) The *and* is intonationally and phonetically bound to *try* ('try-ən').

(ii) Only *try*, not *tried, trying, tries*, is possible (e.g., not **He tries and contacts her*).

(iii) Adverbs may not intervene between *try* and *and* (e.g., *I'll try hard to contact her*, but not **I'll try hard and contact her*).

Moreover, the meaning of *try and* is more modal-like than *try to.* It signals the agent's inability to achieve the complement verb and the speaker's lack of confidence in the agent's success (Hopper 2002).

In a major paper on syntactic change, Langacker defined reanalysis as: "change in the structure of an expression or class of expressions that does not involve any immediate or intrinsic modification of its surface manifestation" (1977: 58). From this perspective, reanalysis involves a change in constituency, hierarchical structure, category labels, grammatical relations, and cohesion (type of boundary) (A. Harris and Campbell 1995: 61). Very often a single instance of reanalysis will show several of these characteristics correlated with one another, as is the case with *try and* in the preceding paragraph. The examples of grammaticalization in Chapter 1 are all examples of reanalysis that involve changes in constituency (rebracketing of elements in certain constructions), and reassignment of morphemes to different semantic-syntactic category labels: *be going to* from *be* + main verb + progressive aspect + purposive preposition to tense marker; *let us* from main verb + object to modal particle; and Ewe *bé* from main verb to complementizer.[3] Another example of several types of change is the reanalysis of a construction consisting of a head noun and a dependent noun (3a) as a (complex) preposition and head noun (3b):

(3) a. [[back] of the barn] >
b. [back of [the barn]]

The change from (3a) to (3b) probably did not happen in one step, but rather is the outcome of a set of smaller changes. The point here is that the change illustrates the first three of the five characteristics mentioned above. The rebracketing is an instance of constituency change (what goes with what). The change in head noun status is an instance of hierarchical structure change (what is dependent on what). The reinterpretation of the noun *back* as an adposition in a complex prepositional construction is an instance of category label change. Changes in grammatical relations are illustrated by the development of subject out of topic mentioned in Section 2.3 and by the requirement in English that clauses have grammatical subjects. An example of the latter is the change from (4a) to (4b) (multiple negation was the norm in Old English; the many intermediate steps between (4a) and (4b) are omitted):

(4) a. Ðonne ðam menn ne lyst nan god don
when that-DAT man-DAT not wishes no good do-INF
(*c.* 1000, ÆLS (Memory of Saints) 297; cited in Allen 1995: 86)
b. when the man doesn't wish to do any good

Changes in degree of cohesiveness have been illustrated by *be going to* > *be gonna*, *let us* > *let's* > *lets*. In both cases, a formerly separable morpheme has become fused with the one that preceded it. Such changes always involve rebracketing

(i.e., change in constituency), but not all changes in rebracketing involve changes in cohesiveness. The type most often associated with grammaticalization is fusion.

In every instance of reanalysis we can posit that it is the result of abduction. In some contexts two interpretations were possible, that is, there was at least the potential for ambiguity (also called "opacity") that allowed for the structure to continue to be analyzed as before, and for a new analysis to be innovated, and then to coexist with the earlier analysis.[4] For example, given a reanalysis such as was illustrated in (3), the abduction account of what has happened here is as follows. A hearer has heard the "output" (3a) (the "result"), but assigns to it a different structure (3b) (the "case") after matching it with possible nominal structures (specified by the "laws"). The conclusion is not identical with the original structure of which (3a) is a manifestation, but is nonetheless compatible with (3a) in that the surface string is the same. The structural differences provide the potential for different subsequent developments. Both analyses continue to exist, but with different meanings. The abduction account of the reanalysis illustrated in (4) is considerably more complex because it requires intermediary stages involving a variety of factors, among them word-order change and case loss, and will not concern us here (for detailed accounts of word-order changes from Old to Middle English, see, e.g., Fischer 1992; Allen 1995).

Below we give rather more detailed examples of reanalysis, with focus on the kinds of reassignments that occur. Both examples involve morphosyntactic change, although the first, the development of the Romance future, pertains primarily to morphology, and the second, the development of English modal auxiliaries, to syntax.

### 3.3.1 *The French inflectional future*

The history of the Romance future has been much discussed (for fuller accounts, see especially Fleischman 1982; Pinkster 1987; I. Roberts 1993b). We will be reviewing specifically the development from Latin of inflectional forms in French such as *je chanterai* 'I will sing.'

As mentioned in Chapter 2 in connection with Meillet's views on word order as a kind of grammaticalization, Latin was a language of essentially object–verb word-order structure, but allowed a range of orderings to convey different rhetorical strategies (e.g., the three orders cited by Meillet of *Petrus Paulum caedit*). It had verbal inflections for past, present, and future, as well as other temporal relations. As mentioned in Chapter 1, the future was an inflection that combined person, number, and tense:

(5) cantabo
sing-1SG:FUT
'I will sing'

The question is how phrasal constructions like (6), consisting of an infinitive and a form of the verb *habere* 'to have,' came to compete with and eventually replace constructions like (5):

(6) Haec habeo cantare.
these have-1SG:PRES sing-INF
'I have these things to sing.'

It was constructions like the one in (6) which were reduced, in various ways in the various Romance languages, to form the new inflectional future illustrated by French *je chanterai*.

The verb *habere* 'to have' in Latin was a verb of possession and belonging. It was a transitive verb and could originally introduce only a nominal object. In many contexts it did not have the strict meaning of possession, but rather had a more general locative meaning of 'belonging, being in presence of,' etc. (for the cross-linguistic interrelationship of locative–possessive–existential, see Lyons 1968; Clark 1978; Heine 1997: Chapter 5). In some contexts, especially those in which the object was modified by a gerundive, for example (7), this verb acquired a sense of obligation, or at least future orientation, presumably transferred from the gerundive, which itself once expressed obligation.

(7) Aedem habuit tuendam.
house had look: after-GER
'He had a house to look after.'
(*c.* 40 BC, Cicero, *Ver.* II.1,130; cited in Pinkster 1987: 208)

Thus if I have a house to look after, I may have obligations to look after it, and I may have future purposes, such as living in it, passing it on to my descendants, etc. Pinkster (1987) suggests that *habere* + infinitive originated as an alternative to *habere* + gerundive, most particularly in contexts of verbs of speaking:

(8) a. Quid habes dicendum?
what have-2SG say-GER
'What do you have to say?'
b. Quid habes dicere?
what have-2SG say-INF
'What do you have to say?'

The first instance, according to Pinkster, of *habere* with an infinitive is in the context of a verb of speaking that introduces a sentential complement:

(9) Multos ferro, multos veneno (occidit); habeo enim
many dagger-INST, many poison-INST (killed); have-ISG even
dicere quem... de ponte in Tiberim deicerit.
tell-INF someone... from bridge in Tiber threw
'Many he killed by the dagger, many by poison; I can even give you an example of one man whom... he threw from the bridge into the Tiber.'
(*c.* 40 BC, Cicero, S. *Rosc.* 100; cited in Pinkster 1987: 206)

In (9) and several other examples like (10), the 'have'-verb precedes the infinitive, and is separated from it:

(10) De re publica nihil habeo ad te scribere nisi...
about matter public nothing have-1SG:PRES to you write-INF except...
'I have nothing to write to you about the commonwealth[5] except...'
(*c.* 40 BC, Cicero; cited in Fleischman 1982: 121)

But later a different order is also attested, in which the 'have'-verb follows the infinitive directly:

(11) Haec cantare habeo.

Although the changes are assumed to have occurred between the third and sixth centuries AD, most of the attested examples come from later texts. Examples include:

(12) a. ...et quod sum essere habetis
...and what be-1SG be-INF have-2PL
'and what I am, you have to/will be'
(seventh-century inscription; cited in I. Roberts 1993a: 234)

b. Et si interrogatus fueris, quomodo dicere
and if asked be-2SG:PERF:SUBJUNCT, how say-INF
habes? Veritatem dicere habeo.
have-2SG:PRES:SUBJUNCT? truth say-INF have-1SG:PRES
'And you, if you are asked, what do you have to/will you say?
I will have the truth to say/I will speak the truth.'
(715, *Cod. Dipl. Long, Siena*; cited in Fleischman 1982: 59, I. Roberts 1993a: 234)

From the perspective of reanalysis, the important fact is that constructions like (12) contain a main verb *hab-* and an infinitive complement, in a structure of the type: [[dicere] habeo], and in contexts that can be understood to be obligative or at least future oriented. If one is asked what one can say, the inference can be that one ought to say it. In such contexts, provided the forms are adjacent, a language user could be led by abduction to interpret the input string not as representing two underlying clauses, but rather as being bracketed together in a structure of the

type [dicere habeo]. The result is a hierarchic change such that *dicere* is no longer subordinate to *habeo*.

Once this reanalysis had occurred, further changes were possible. These include fusion across morpheme boundaries, phonological attrition, and semantic reanalysis to a future-tense marker,[6] as illustrated by (13):

(13) Iustinianus dicebat: 'Daras.'
Justinian said: 'give:2SG:FUT' (< dare habes)
(seventh-century Fredegario; cited in I. Roberts 1993a: 234)

We may therefore posit a development in French of the kind sketched in Section 1.2.3:

(14) Classical Latin [[cantare] habeo] >
Late Latin [cantare habeo] >
French [chant-e-r-ai]

Similar changes occurred in some other Romance languages including Spanish, but at different periods. Some contemporary varieties of Romance either show no evidence of the kinds of changes mentioned here, e.g., some Southern dialects of Italian, or else show different individual histories. For example, the Sardinian future appears to have developed directly out of word-order structures of the type *habeo cantare*. In this language the verb 'to have' is *aere*, and the first person form is *appo*:

(15) L'appo a fakere
It-aere-1SG to do-INF
'I will do it' (I. Roberts 1993a: 235, citing Jones 1993)

The Sardinian development demonstrates clearly that no change has to occur. However, given other changes in the language, if it occurs, there are certain likely ways in which the change will proceed.

### 3.3.2 *The English modal auxiliaries*

We turn now to an example of reanalysis with far wider-reaching ramifications than the development of the French inflectional future. The development of the English auxiliaries was one of the first topics to draw the attention of generative linguists working on syntactic change (see Traugott [Closs] 1965; Lightfoot 1979). It has been the focus of numerous studies since then, among them Plank (1984), Denison (1993), Warner (1993), Krug (2000). Originally conceived as a prime example of syntactic change, it is clearly also an instance of grammaticalization. It concerns change in the status of lexical verbs such as *may, can, must, do* such that they become auxiliaries, in other words, recategorization.

In Middle English around 1380 (as represented by texts by Chaucer and Wycliffe) and in the fifteenth century (as represented by the Paston Letters and other texts) the following kinds of constructions were available:

(i) Question inversion and negation without *do*:

(16) a. 'Felistow', quod sche, 'thise thynges, and entren thei aughte in thy corage?'
'Do you feel', she said, 'these things, and do they enter at all into your feelings?'
(*c.* 1380, Chaucer, *Boethius*, I.iv.1)

b. it aperteneth nat to a wys man to...
'it does not suit a wise man to...' (*c.* 1380, Chaucer, *CT*, Melibee 2170)

(ii) Transitive clauses consisting of verbs like *can* or *may* followed by an object NP, as in (17), or a *to*-infinitive complement as in (18):

(17) She koude muchel of wandrying by the weye.
'She knew a lot about travel.' (*c.* 1390, Chaucer, *CT*, Prol. A. 467)

(18) any man þe whiche hadde mowȝt to scapen þe deth
'any man who had been able to escape death'
(*c.* 1382, *W. Bible* 2 Par. 20.24 [*MED* **mouen** IIb])

(iii) Modal verbs in past participle form, like *mowȝt* in (18).

(iv) Sequences of modal verbs:

(19) No-þing to hafe is sum-tyme of need, bot noȝt to may will haue is of grete vertew.
'To have nothing is sometimes a necessity, but to desire [lit. to be able to will to have] nothing is a great virtue.' (1434, Misyn ML 128/8 [*MED* **mouen** 10a])

By Early Modern English of the early sixteenth century, constructions like those in (17)–(19) had become almost non-existent, and *do*-constructions were rapidly replacing those in (16). For detailed studies of the development of *do* and how to model it, see Kroch (1989a,b).

One widely accepted way of thinking about the changes at the time of writing is as follows. In Old English all verbs, including the precursors of *can, could, may, might, must, shall, should, will, would, do*, and *did* behaved similarly with respect to properties such as the following: they were negated by a preceding *ne*, and they inverted to clause-initial position in questions. However, some verbs were morphologically distinct; these were in the main the premodals and *be*-verbs. For example, the negative fused with forms of several of the premodals and *be*, e.g. *ne wille* 'not intend' appeared as *nille* (see PDE *willynilly* < *will I, nill I*), *ne wæs* 'not was' appeared as *næs*. The premodals were also for the most part preterit-presents, which means that at an earlier stage in Indo-European the present tense had been formed with the morphology of past tense; semantically these verbs expressed completed action resulting in present state ('have come to be X'). During the

Middle English period several changes occurred, including the development of a new negative, *not* (< *na wiht* 'no thing'), which appeared after the verb as in (16b), and the use of past tense premodals like *would, might, could, must* with present tense meaning. By the early sixteenth century a radical change occurred with respect to most verbs other than the premodals *do* and *be*; their use in negative and interrogative sentences like (16a,b) began to decline rapidly, or they came to be used in stylistically restricted contexts. Furthermore, as far as the premodals were concerned, a sufficient number of individual changes had occurred that transitional constructions of the type (17)–(19) were also disappearing. In terms of reanalysis, what was originally one category of verbs had been reanalyzed as two: main verbs and auxiliaries. By the eighteenth century a further change had occurred: *do, did* became obligatory in interrogative sentences like (16a) and favored in negative sentences like (16b) (Kroch 1989b). This had the effect, at least in standard varieties of English, of maximizing the distinction between the new categories of modal (and also other auxiliaries like *be* and *have* in passive, perfect, and similar constructions) on the one hand and main verbs on the other. Together the changes, most especially the development of auxiliary *do*, had consequences for the texture of English that make it very different not only from earlier stages but also from several other European languages, including French and German.

An important aspect of the development of the modals (and all the auxiliaries) in English is that there was a cluster of factors that set the scene for the reanalysis (the special morphology of the verbs in question, the meaning of the modals, which had to do with states of mind such as intention, desire, permission and ability), word-order changes, etc. Another is that it demonstrates well how different degrees of detail in analysis can engender different ways of interpreting data. When Lightfoot first published work on the development of modals in 1979 only the broadest outlines of the changes were understood. The characterizations he proposed were at a level so general that they obscured many of the more fine-grained properties that a perspective from grammaticalization would focus on. For example, he initially saw the sixteenth-century changes in the modals (and other auxiliaries) as being part of the same change as the later one involving *do*, partly because the first change, although far advanced, was not entirely entrenched at the time the second was gaining ground. This led him to write of "a sudden, cataclysmic, wholesale restructuring" (i.e., reanalysis) (Lightfoot 1979: 122). However, when a close look is taken at individual verbs, we soon discover that the changes occurred in different verbs at different times (a point accepted in Lightfoot 1991). Furthermore, some of the changes are still ongoing. Consider, for example, the set of verbs known as "quasi-modals": *be to, dare to, need to* and *ought to*, some of which do and some of which do not require *do* in negatives and questions, e.g., *You needn't go, Do you need to go, *Need you go, *You don't ought to leave, ?You oughtn't to leave, Ought*

*you to leave?* (see Krug 2000). Extreme positions are rarely right; this is clear in the case of the modals. It is true that each had its own history; but it is also true that some fairly radical changes occurred in the sixteenth and seventeenth centuries. Small changes accumulated and, interacting with other changes going on elsewhere in the system, such as word-order changes, led to large-scale shifts (called "parametric changes" in the generative literature, e.g., Lightfoot 1991). Grammaticalization was involved at all stages: erstwhile lexical items (premodals that were main verbs and *do*) in certain linguistic constructions acquired grammatical status as auxiliaries. The changes involved reanalysis of constituent, hierarchy, and category status. To some extent they also involved analogy, as will be discussed in Section 3.5 below. Before turning to analogy, however, we pause to emphasize that not all reanalysis is a case of grammaticalization.

## 3.4 The independence of reanalysis and grammaticalization

Meillet appears to have identified reanalysis with grammaticalization. However, although many cases of reanalysis are cases of grammaticalization (including those discussed above), not all are. Consider, for example, compounding, a reanalysis involving the weakening and often loss of the boundary between words or morphemes. Sometimes the result is a derivative morpheme like *-hood;* often a relatively analyzable form arises, such as *bo'sun* from *boat* + *swain* 'man,' *hussy* from *house* + *wife* 'woman,' *fishwife* from *fish* + *wife* 'woman,' *sweetmeat* from *sweet* + *meat* 'food' (Anttila 1989 [1972]: 151). *Swain, wife, meat* have not been reanalyzed as grammatical morphemes, nor do they seem destined to be. The effect seems to be primarily on the lexicon, not the grammar, and is called "lexicalization." Here then, we have a case of reanalysis without necessary grammaticalization.

Sometimes reanalysis results in a change that has grammatical effects, but nevertheless involves a shift from grammatical to lexical structure, rather than from lexical to grammatical structure (the norm for grammaticalization). Examples are the use of *up, down, ante*, etc. as verbs or nouns, cf. to *up the ante, to ante up, what a downer*. The change whereby a non-lexical form like *up* becomes a fully referential lexical item is called "conversion." It is relatively uncommon, but instances can be found in most languages. A rather different instance is the development in English of *bus*, a borrowed Latin dative plural that has been detached from the adjective stem *omni-* (*omnibus* 'for all') and promoted to nominal status. Since the form derives from a borrowing, and the Latin paradigm of case inflections is virtually inaccessible to most English speakers, the development of an inflection into a noun illustrated by *bus* has status only as a unique innovation, not as a regular type of change.

Another case of reanalysis leading to the autonomy of an earlier affix, this time one that resulted from sound change, is that of the emphatic particle *ep* in Estonian (Campbell 1991: 291). At an earlier stage the particle was a bound clitic, cf. Finnish *-pa*, *-pä*. By regular phonological change, the final vowel disappeared, leaving *-p*, cf. *päällä* 'on (top of)' > *pääll*, and *päälla-pä* 'right on (top of)' > *päällä-p*. The vowel of the clitic *-pä* had originally required vowel harmony; with the loss of the vowel of the clitic, the vowel harmony rule no longer applied, and the emphatic form became *peallep*. The emphatic *peallep* no longer had any transparent relationship to the non-emphatic *päälla*. *Pealle-p* was reanalyzed as *peal-ep*. Later-*ep* was reinterpreted as an autonomous particle, and came to precede the word it emphasized. Reanalysis here led to the development of new independent particles, which themselves then could become subject to grammaticalization. We will discuss issues of this kind further in Section 5.6.

More widely attested cases of reanalysis that call into question the identification of reanalysis with grammaticalization include word-order changes, which we discuss immediately below. These can have major effects on the morphosyntactic organization of a language, but do not exemplify the unidirectionality typical of grammaticalization. It is best, then, to regard grammaticalization as a subset of changes involved in reanalysis, rather than to identify the two (Heine and Reh 1984; Heine, Claudi, and Hünnemeyer 1991a; I. Roberts 1993a; A. Harris and Campbell 1995). Whereas grammaticalization always involves reanalysis, many clear cases of reanalysis do not result in grammaticalization.

### 3.4.1 Word-order change

Langacker's major paper on reanalysis (1977) focuses on boundary creation, shift, and loss, but does not include discussion of word-order changes. However, the latter involve changes in constituent order. As we will see below, word-order changes can have far-reaching effects on grammatical rules as well as on the texture of a language.

As mentioned in Section 2.2, Meillet, at the end of his path-breaking article (1912), suggests that words are not the only sources of grammatical expression: word-order changes may be too. He compares word orders that signal nuances of meaning (what we would call pragmatic meanings), such as alternative word orders in Latin, with grammatical word orders that signal the syntactic cases subject and object, as exemplified by Present-Day English. Meillet therefore included word-order changes among instances of grammaticalization in the sense of reanalysis. Others have suggested that word-order changes are the outcome of grammaticalization (e.g., Claudi 1994). The question for us here is whether word-order changes, which exemplify a kind of reanalysis, also exemplify grammaticalization, as

Meillet suggests, or whether they are to be considered as types of reanalysis that do not necessarily involve grammaticalization. To anticipate, word-order changes may be the outcome of, as well as the enabling factors for, grammaticalization in the narrower, prototypical sense used in this book of the change by which lexical items and constructions used in certain contexts come to mark grammatical relations. Word-order changes are not unidirectional. Therefore, they should not be identified with grammaticalization in the narrower sense. However, given a broader definition of grammaticalization as the organization of grammatical, especially morphosyntactic material, they cannot be excluded from consideration.

For our purposes it is important to stress that word-order changes can have a profound effect on the grammatical structure and the morphological texture of the language, because different constituent orders are typically associated with VO and OV languages. VO languages include those with the order VSO (verb–subject–object), e.g., Hebrew, Masai, and Welsh, and SVO, e.g., English, Malay, and Swahili. Among the OV (verb-final) languages are Basque, Japanese, and Quechua (for more combinations and discussion of word-order typologies, see Greenberg 1966a; Vennemann 1975; W. Lehmann 1978a; Hawkins 1983; Dryer 1991, 1992; and papers in Li 1975; van Kemenade and Vincent 1997). VO languages tend to be prepositional; adjectives, relative clauses, and possessives follow the noun; the auxiliary precedes the main verb, and the question particle marking yes–no questions occurs in initial position in the clause. By contrast, verb-final languages tend to show the order in reverse: they are postpositional; adjectives, relative clauses, and possessives precede the noun; the auxiliary follows the main verb, and the question particle tends to appear in final position in the clause. Some sample constructions are shown in (20):

(20)

| **VO** | **OV** |
|---|---|
| saw him | him saw |
| in house | house in |
| man old that | that old man |
| hat of man | man's hat |
| has been killed | killed been has |
| whether he left? | he left whether? |

There is no "ideal" OV or VO order language. Instead, there are languages which may have predominant OV or VO order, or which may exhibit properties of both. This is because coding is constantly in flux, and because there are competing motivations in creating discourse (see Section 4.1). For example, "topicalization" typically moves material to the beginning of a clause, bringing information to attention and deroutinizing it. On the other hand, routine word orders serve as "normative structures" in the everyday flow of communication. Useful discussion

can be found in Vincent (1979) on "iconic" versus "symbolic" orders, and Haiman (1985a: Chapter 6), on three conflicting principles: (i) what is old information comes first, what is new information comes later in an utterance; (ii) ideas that are closely connected tend to be placed together; (iii) what is at the moment uppermost in the speaker's mind tends to be the first expressed. More recent work on "information packaging" includes E. Prince (1981), Vallduví (1992), Chafe (1994), Lambrecht (1994), Kiss (1995), Birner and Ward (1998).

In some languages, OV order favors the development of inflections, though by no means all languages with OV order are inflectional (Li and Thompson 1974). When they arise, inflections tend to be derived from prior lexical items. An example is provided by the development of the French future, illustrated above. When VO order arises from OV order, the change will often be accompanied by the innovation of new phrasal ("periphrastic") ways of coding what at an earlier stage was coded inflectionally. The history of English modals illustrates among many other things the replacement of certain subjunctive inflections by periphrastic expressions. We suggested in Section 1.3.1 that the development of *lets* in place of a subjunctive expression may also be an instance of the larger change of English from OV to VO.

If inflections develop in OV languages, they typically do so via reanalysis of enclitics or bound forms through boundary loss, fusion, and phonological attrition of already bound forms. By contrast, when new periphrastic constructions arise in the shift from OV to VO, they typically develop through reanalysis of lexical items as grammatical ones. They are examples of what Meillet called "renouvellement" – renewals of old functions (at first possibly more expressive ways of saying the same thing). These periphrastic constructions may themselves in turn become inflections (prefixes rather than postfixes). Because they derive in different ways, and at different times, the resources used in the development of OV and VO orders may look very different from a relatively synchronic point of view. For example, there is no form–meaning, i.e., "cognate," relationship between the inflectional or clitic genitive *-s* in English and the preposition *of* that partly replaced it. Nor is there any cognate relationship between the OE inflectional subjunctive (typically *-e(n)*) and *might, should*, etc.

The relevant factors for the selection of lexical forms as grammatical ones are semantic suitability, inferences (both "logical" and "conversational") from context, and potential constructional ambiguities arising from such inferences. Such factors will be discussed in the next chapter. Cross-linguistic studies suggest that there are no constraints depending solely on word order that delimit the lexical resources that can be used in the development of grammatical items. This argues against word-order change as an example of grammaticalization in the narrower sense of reanalysis of lexical forms as grammatical ones.

We give here an example of the same lexical item giving rise to both inflection and to periphrasis (but in local constructions with different word orders). We turn again to Romance. As we have seen, the Late Latin verb *habere* 'to have' was reanalyzed in postverbal (OV) position as a future inflectional marker. As Romance languages developed, a new periphrastic complex perfect construction emerged alongside of the future inflection, replacing the earlier perfect inflection -*v*-; e.g., *probavi* 'I have tried' was replaced by *habeo probatum*. This complex perfect, like the future, arose out of a *habere* construction, but in this case it originated in a construction consisting of an inflected form of *habere* 'to have' and a past participle that agreed with the object of *habere* (see, with somewhat different interpretations, Benveniste 1968; M. Harris 1978; Fleischman 1982; Vincent 1982; Pinkster 1987).

In Late Latin both the future and the perfect occur in both OV and VO orders. Thus we find:

(21) a. cantare habeo ~ habeo cantare (OV ~ VO)
b. probatum habeo ~ habeo probatum (OV ~ VO)

The type *cantare habeo* has been illustrated in (12), the type *habeo cantare* (with intervening material) in (9), (10), and (15). The type *probatum habeo* may be illustrated by (22a,b) and *habeo probatum* by (23):

(22) a. Promissum habeo... nihil sine eius
promised-NEUT:SG(?) have-1SG... nothing:NEUT:SG without his
consilio agere.
advice do-INF
'I have promised to do nothing without his advice.'
(sixth century, Gregory of Tours; cited in Fleischman 1982: 120)

b. Quae cum ita sint, de Caesare satis hoc
which since thus be-SUBJUNCT, about Caesar enough this
tempore dictum habeo.
time said have-1SG
'Under the circumstances, I shall regard what I have said of Caesar as sufficient at present.'
(*c.* 40 BC, Cicero, *Phil.* 5,52; cited in Pinkster 1987: 204)

(23) Metuo enim ne ibi vos habebam fatigatos.
Fear:1SG for lest there you have-IMPF-1SG tired
'For I fear that I have tired you.'
(early fifth century, Augustine; cited in Fleischman 1982: 120)

Both the future and the perfect eventually became fixed units and involved reanalysis of an inflected form of the independent verb *hab-* as dependent on the non-finite verb with which they occurred. They differ in that the path from *habere* to the future was via an obligative or future-oriented sense of the verb, whereas

the path from *habere* to the perfect was via the locative-possessive-existential in transitive contexts of cognitive and sensory states. Furthermore, in French the first became an inflection and the second remained as a periphrasis (though as we saw in connection with (15), the future remained a periphrasis in Sardinian). It appears that in French the future was grammaticalized while OV was still the chief word order for this construction, and that the perfect was grammaticalized later when the shift to VO had already taken place (Fleischman 1982:121), but in Sardinian the future was grammaticalized after VO had become the chief word order.

So far, we have discussed only shifts from OV to VO, both at the general level of verb phrase constituent structure and at the more local level of individual morphosyntactic changes. Before leaving the subject of word order, it is important to point out that a shift from OV to VO or vice versa never occurs independently of other factors, both linguistic and historical. Some of the linguistic factors involved have been noted in Mithun (1995); she shows how in an originally SOV family that includes Caddoan, Siouan, and Iroquoian, divergence in word order came about through a variety of means. These included, according to the language or language group: the development of third-person pronominal prefixes, the rise of case marking, and proliferation of noun incorporation, each of which served to dislodge a once rigid verb-final word order. Of historical factors, by far the most important is language contact, which often results in the adoption of new word-order patterns and changes in typological affiliation. An early study of this phenomenon was Bach's (1970) analysis of verb-final word order in Amharic, an Afro-Asiatic language that could be expected to show VO word order. Bach argued that certain linguistic rules of Amharic still required the positing of underlying VO word order, and attributed the superficial verb-final word order to the influence of neighboring Cushitic languages. Small-scale changes of this type can often be directly observed, as for example the shift in Estonian compounds from modifier–head to head–modifier order through Russian influence on the media (Hint 2000); Russian is an Indo-European SVO language, while Estonian is a Uralic language in transition between an earlier SOV and a newer SVO type.

## 3.5 Analogy/rule generalization

As we have seen, Meillet made a distinction between the development of new grammatical forms and arrangements on the one hand, and analogy on the other. The first, which he called grammaticalization, is the result of what we now call reanalysis. As we have defined it, reanalysis refers to the replacement of old structures by new ones. It is covert. Analogy, by contrast, refers to the attraction of

extant forms to already existing constructions, for example, the attraction of Ewe verbs of locution and cognition to the complementizer construction, modeled after *bé*. It is overt. In essence reanalysis and analogy involve innovation along different axes. Reanalysis operates along the "syntagmatic" axis of linear constituent structure. Analogy, by contrast, operates along the "paradigmatic" axis of options at any one constituent node (Jakobson and Halle 1956).

When Meillet was writing, there was a rather narrow, local interpretation of analogy, which was defined as a process whereby irregularities in grammar, particularly at the morphological level, were regularized. The mechanism was seen as one of "proportion" or equation. Thus, given the singular–plural alternation *cat–cats*, one can conceive of analogizing *child–children* as *child–childs* (as indeed occurs in child language):

(24) cat: cats = child: X
X = childs

Or, as actually occurred in the history of English, given *stan–stanes* 'stone–stones,' *shoe–shoen* 'shoe–shoes' was analogized to the form now used in PDE:

(25) stone: stones = shoe: X
X = shoes

The difficulty with the formula of proportion is that it gives no account of why one member of the pair is selected as the model. Since Meillet's time, a wide range of analogical processes has been identified (see Anttila 1977, and, for a summary, Kiparsky 1992). Kuryłowicz (1945–9) pointed to some tendencies regarding selection of the model, for example, the tendency to replace a more constrained with a more general form, not vice versa. Two decades later Kiparsky (1968) sought to redefine analogy in phonology as rule extension, thereby giving a formal account of the fact that analogy is not random in language change. He views analogy as generalization or optimization of a rule from a relatively limited domain to a far broader one. Of course, neither analogy as originally conceived nor rule generalization are required to go to completion: we still have *foot–feet*, *mouse–mice* alongside of *stone–stones*, and also *run–ran* alongside of *love–loved*.

Only reanalysis can create new grammatical structures. However, the role of analogy should not be underestimated in the study of grammaticalization. For one, the products of analogy, since they are overt, are in many cases the prime evidence for speakers of a language (and also for linguists!) that a change has taken place. Consider the development of the Romance perfect again. In (23) (repeated and reglossed here for convenience as (26)), accusative plural agreement is overt and determinable (*vos*... fatiga*tos*):

(26) Metuo enim ne ibi vos habebam fatigatos.
fear-1SG for lest there you:ACC:PL have-1SG tired-ACC:PL
'For I fear that I have tired you.'

However, in (22a, b) there is indeterminacy whether there is or is not agreement, since zero neuter singular (*nihil* 'nothing' in (22a), *satis* 'enough' in (22b)) is the "default" gender/number marker in Latin. With these constructions there is potential for reanalysis, but we recognize that the perfect has arisen only when there is overt and therefore determinable lack of agreement between object and participle (PART) as in:

(27) Haec omnia probatum habemus.
those:ACC:PL all-ACC-PL tried-PART(?) have-1PL
'We have tried all those things.'
(sixth century, Oribasius; cited in Fleischman 1982: 120)

So long as constructions occurred which were ambiguous between adjectival participials and perfects, e.g., (26), it was not possible to tell whether reanalysis had occurred or not, except perhaps by inference from the context. Specifically, the agreeing participial, which originated in a passive adjectival form, permits the understood subject of the participial to be the subject of either the sentence or of some other entity. For example, in (26) the agent of the act of tiring could either be the subject 'I', as the translation 'I fear that I have tired you' suggests (i.e., perfect), or some other, unspecified, individual(s), as in 'I fear I have/see you tired' (i.e., participial). By contrast, the perfect requires that the understood subject of the participle is the subject of the sentence (Vincent 1982). It is only when clear instances of non-agreement, e.g., (27), occur, that we can find definitive overt evidence for the structure change. These unambiguously non-agreeing forms presumably arose by analogy (= rule generalization) from neuter singular contexts to other contexts.

A well-known example of the cyclical interaction of reanalysis, analogy (= generalization), and reanalysis is the development of negation in French. The sequence of changes must have been as follows (Hock 1991 [1986]: 194; Schwegler 1988):

I. Negation was accomplished by placing the negative particle *ne* before the verb.

II. A verb of motion negated by *ne* could optionally be reinforced by the pseudo-object noun *pas* 'step' in the context of verbs of movement:

(28) Il ne va (pas).
he not goes (step)
'He doesn't go (a step).'

III. The word *pas* was reanalyzed as a negator particle in a structure of the type *ne Vmovement (pas)*.

IV. *Pas* was extended analogically to new verbs having nothing to do with movement; i.e., the structure was now *ne V (pas)*:

(29) Il ne sait pas.
he not knows not
'He doesn't know.'

V. The particle *pas* was reanalyzed as an obligatory concomitant of *ne* for general negation: *ne V pas*.

VI. In the spoken vernacular *pas* came to replace *ne* via two stages: *(ne) V pas* (reanalysis of *ne* as optional), *V pas* (reanalysis by loss of *ne*), resulting in:

(30) Il sait pas.
he knows not
'He doesn't know.'

In the case of the French negator *pas*, we would not know that reanalysis had taken place at stage III without the evidence of the working of generalization at stage IV The reanalysis at stage VI would not have been possible without the generalization, since *pas* would have been too constrained by its original semantics of 'step.'

Although analogy is best viewed as generalization of a rule or construction, in practice it is often useful to maintain the term "analogy" when referring to certain local surface developments. For example, Mikola (1975: 170–2) describes the development in Samoyedic (Uralic) of locative postpositions out of older locational nouns, which were themselves preceded by a noun in the genitive, as in:

(31) Proto-Samoyedic *mäto-n + in
tent-GEN + top
'the top of the tent'

The suffixed *-n* of the Uralic genitive came to be reanalyzed as an initial consonant on certain postpositions which were being grammaticalized out of nouns with meanings such as 'upper surface':

(32) mäto + nîn
tent + onto
'onto the tent'

This change began as a typical case of reanalysis of morpheme boundaries: [mäto-#n##în] > [mäto-##nîn]. The reanalysis in turn yielded entire families of postpositions with an initial *n-*, the cognates of which may have initial vowels in other Uralic languages. We may speak of the generalization of *n-* here, but it is not

Table 3.1 *Grammaticalization of VO word order in English between AD 1000 and AD 1500*

| | *c.*1000 | *c.*1200 | *c.*1300 | *c.*1400 | *c.*1500 |
|---|---|---|---|---|---|
| Accusative object before verb | 52.5% | 52.7% | 40+% | 14.3% | 1.87% |
| Accusative object after verb | 47.5% | 46.3% | 60−% | 85.7% | 98.13% |

*Source:* based on Fries (1940: 201)

a case of rule generalization, only of spread of *n-* in word formation (for a similar example from Maori, see Section 6.2.4).

So far we have considered analogy from the point of view of generalization of types of linguistic structure. There is, however, another important perspective on analogy: that of generalization through patterns of usage, as reflected by the frequency with which tokens of these structures may occur across time. We will be citing several recent examples of studies of frequency in subsequent chapters. Here we discuss an older, well-known example to introduce the method: Fries's (1940) study of word-order change in English in which the establishment of verb–object word order was traced through text counts at intervals of one hundred years. Among the relevant statistics concerning the position of the accusative object for the period AD 1000 to 1500 as presented by Fries are the figures in Table 3.1.

This method of analysis is a quantitative one. Quantitative analyses can be done taking various variables into account, such as spread across communities, or styles, or genres. The analysis by Fries that we have quoted, however, addresses only the variable of object before verb versus verb before object. In any quantitative analysis the linguist ideally takes a representative sample of texts at regular intervals over several centuries and traces the changes in form and meaning of a particular construction as a function of frequency of use in discourse. The kind of change characterized by the formula A > A/B > B is viewed not from the point of view of types of construction (e.g., OV > VO, or periphrastic future > affixal future), but from the point of view of tokens (how often are OV and VO used over time, how often are periphrastic and affixal future used over time?). The quantitative diachronic method captures the progressive aggregation of instances of the newer B construction at the expense of the older A construction. In the case of Old English word order, the A construction is verb-final word order and the B construction is verb-initial word order. Typically, as here, the initial stage is already one of variation, and the final exemplified stage may still be in variation. Such quantitative studies highlight the gradualness of the spread of changes.

It should be mentioned that the gross numbers resulting from simple counts of pre- and postverbal objects such as are illustrated by Fries's figures conceal complex word-order adjustments involving differences such as those between pronoun

and noun, definite and indefinite NP, heavy and light NP, independent and dependent clause, and so forth. A more complete explanation of word-order change in Old and Middle English would include accounts of the structure of the clause as a whole, including the kinds of subjects that occur in the clause and where, the kinds of object that occur after or before the verb, whether the verb in preobject position happens also to be in V2 position or not, and so forth (see Bean 1983; Pintzuk 1999; papers on English in van Kemenade and Vincent 1997, for some representative studies).

## 3.6 The differential effects of reanalysis and analogy

From the perspective outlined here, reanalysis and analogy (generalization) are distinctly different mechanisms and have different effects. Reanalysis essentially involves linear, syntagmatic, often local, reorganization and rule change. It is not directly observable. On the other hand, analogy essentially involves paradigmatic organization, change in surface collocations, and in patterns of use. Analogy makes the unobservable changes of reanalysis observable. The interaction of reanalysis and analogy can be represented for the development of *be going to* from directional phrase to future as in Figure 3.2.

Stage I is the stage of the progressive with the directional verb and a purposive clause. Stage II is that of the future auxiliary with a verb of activity; it is the result of reanalysis. Stage III is that of the extension via analogy of the directional class of verbs to all verbs, including stative verbs. And Stage IV is the stage arising out of reanalysis of the complex auxiliary to a single morpheme *gonna*. Stages I, III, and IV all still coexist in PDE. In the next chapter we will discuss some further extensions of the distinctions between reanalysis and analogy, specifically with respect to meaning changes.

While much current research makes the type of distinction outlined here, it should be noted that it is most useful at the macrolevel, highlighting major shifts such as the OV > VO word order, or the development of auxiliaries discussed above. As work has progressed on defining the small steps of change that lead to such radical changes, and models of syntax using networks rather than rules have been developed, the sharpness of the distinction has been brought into question (e.g., Tabor 1994a,b). One of the problems has already been alluded to – evidence for reanalysis is largely found because of analogical generalization. Another issue is that analogy in the sense of rule generalization is itself a type of reanalysis, since under rule generalization the linguistic contexts in which a rule may operate are extended or reanalyzed. This is covert in the sense that structural contexts are highly abstract. Yet another issue is that where we have

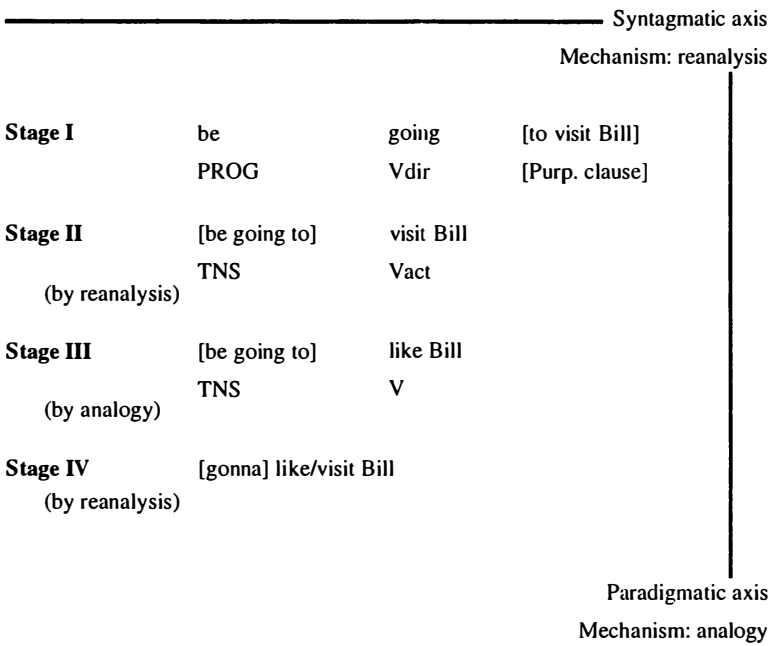


Figure 3.2 *Schema of the development of auxiliary* be going to

rich textual records, as in the case of the history of English and other European languages, or of Japanese and Chinese, corpus research reveals often minuscule differences between texts across time. Ultimately one might want to ask whether everything is not reanalysis. Nevertheless, the distinction is a useful heuristic for thinking about innovation (reanalysis) versus spread across the linguistic system (analogy). From this perspective we can say that reanalysis and analogy are the major mechanisms in language change. They do not define grammaticalization, nor are they coextensive with it, but grammaticalization does not occur without them. The subset of changes that are particular to grammaticalization are those that over time involve reanalysis of lexical items and constructions as functional categories. We will discuss this unidirectionality of change more fully in Chapter 5.

## 3.7 Conclusion

In this chapter we have discussed the mechanisms of reanalysis and analogy, and have shown that both play a crucial role in grammaticalization, though neither is coextensive with it. Furthermore, reanalysis is the dominant mechanism driving it. We have also outlined some fundamental assumptions about language

change, most particularly that it arises as a result of language acquisition by adults as well as children, and that it occurs because of abduction, the reasoning by which learners guess at systems. Much of the focus of this chapter, then, has been on perception. A dominant theme in work on grammaticalization since the 1970s has been the role of production in language change, most especially of ways in which speakers and hearers negotiate discourse strategies, and it is to this issue that we now turn.

# 4 Pragmatic factors

## 4.1 Introduction

Although it is possible to describe change in terms of the operation of successive strategies of reanalysis (rule change) and analogy (rule generalization), the important question remains why these strategies come about – in other words, what enables the mechanisms we have outlined, most especially those involved in grammaticalization.[1] It is tempting to think in terms of "causes" and even of "explanations" in the sense of "predictions." However, the phenomena that give rise to language change are so complex that they will perhaps never be understood in enough detail for us to state precisely why a specific change occurred in the past or to predict when one will occur and if it does what it will be (Lass 1980). Rather than referring to "causes" or "explanations," we speak more cautiously of motivations or enabling factors, understanding always that we are referring to potential and statistically preferred, not absolute, factors (see, among many others, Greenberg 1978b; Romaine 1982; Croft 2000; Maslova 2000).

As mentioned previously, among motivations for change three have been widely discussed in recent years. Of greatest interest within generative linguistics has been the role of language acquisition, especially child language acquisition. Sociolinguists, by contrast, have tended to focus attention on the role of communities and different types of contact within them. Of special interest to those working on grammaticalization has been the role of speakers and hearers negotiating meaning in communicative situations.

Here we put forward arguments for the view that there are a number of competing motivations which can all in some sense be said to be examples of maximization of economy or "simplicity": basically they can be summarized as maximization of efficiency via minimal differentiation on the one hand, and maximization of informativeness on the other. On this view, hearers play a major role in change because they process input in ways that may not match the speaker's intentions. But speakers also play a major role in enabling change, because in producing speech they have communication as their goal, and therefore are always in search of ways to guide the hearer in interpretation. In an ideal communicative situation,

speakers take responsibility for success in communication and seek to meet hearers' attempts "to integrate new information with information that is already accessible" (Blakemore 1990). However, differences in what is actually accessible in the communicative situation based on differences in age, social background, culture, attention, or other factors may over time cumulatively lead to change. Furthermore, the motivations of simplicity and informativeness are inevitably in competition in the individual language user (see, e.g., Du Bois 1985; Bates and MacWhinney 1989), and therefore the development of language involves conflict and problem solving (Dressler 1985).

There are great difficulties in defining the notion of economy in anything like rigorous terms. We know very little about what does and does not take "effort" in producing or interpreting utterances, and still less about what would constitute economy of mental effort on either speaker's or hearer's behalf, although we probably know more about simplicity of perception than of production. Nonetheless, there seem to be useful, if sometimes intuitive, notions involved.

In considering the hearer's role, it is usually assumed that the hearer will seek the most unambiguous interpretation, and furthermore that the hearer is actively engaged in interpreting (usually abducing) input, whether as a child or an adult in the process of language acquisition. It is therefore not surprising that work on hearer motivations focuses on perception, and on meanings interpreted from the linguistic data which is the input to the acquisition process. However, it is also possible to think of hearers as the targets of speakers' output. From this perspective, hearers motivate speakers' intent to be informative and clear.

In considering the speaker's role, it has been customary to think of the tendency to reduce the speech signal, e.g., via rapid speech, a process resulting in "signal simplicity." The reduction of *be going to* to *be gonna* is an example. Signal simplification typically results from the routinization (idiomatization) of expressions. Rather than find different ways of saying approximately the same thing, speakers will repeat expressions they have heard before, even if they are in competition with other expressions, perhaps in the interest of sounding "with it." Well-known recent examples include the use of *you know, be all*, etc. Such routinized, or idiomatized, expressions can be stored and used as simple units. Naturally they are more frequent in discourse than expressions created and used "on the fly," which may indeed be novel, once.

Idiomatization of expressions tends to lead to reduction and simplification of the signal. With this process in mind, Langacker has said: "It would not be entirely inappropriate to regard languages in their diachronic aspect as gigantic expression-compacting machines" (1977: 106). However, compacting, obliteration of boundaries, and reduction of redundancy is balanced in normal language situations by the introduction of new and innovative ways of saying approximately the same thing.

These new and innovative ways of saying things are brought about by speakers seeking to enhance expressivity. This is typically done through the "deroutinizing" of constructions, in other words, through finding new ways to say old things. Expressivity serves the dual function of improving informativeness for the hearer and at the same time allowing the speaker to convey attitudes toward the situation, including the speech situation. This very process of innovation is itself typically based on a principle of economy, specifically the economy of reusing extant forms for new purposes (Werner and Kaplan 1963; Slobin 1977). To return to our example of the extension of *be going to* to the intentional future: the directional phrase has been reused; it is more substantive (phonologically longer) and therefore more accessible to hearers than, e.g., *'ll* or even *will*. As a future it is also more based in the speaker's subjective attitude and perspective on what is being talked about than is its locational counterpart.

While the competition between motivations has been a major topic of research, individual researchers have tended to be interested in different subaspects of the complex balance between creativity on the one hand and routinization on the other. Therefore studies of grammaticalization have taken different paths. A focus on hearers' tendency to reanalyze abductively may correlate with work on morphosyntactic changes in grammaticalization (e.g., Langacker 1977). A focus on speakers' expressive use of language to get a point across may correlate with work on lexical origins of grammaticalization, especially on pragmatic enrichment of lexical items in the early stages of grammaticalization (e.g., Heine, Claudi, and Hünnemeyer 1991a,b; Traugott and König 1991). A focus on speakers' tendency to economize may correlate with work on routinization, and frequency (e.g., Givón 1979, 1991b; Hopper 1987; Krug 1998, 2001; Bybee and Scheibman 1999; Bybee 2002). These approaches are, of course, not necessarily contradictory, although they do sometimes lead to different views of what should or should not be considered a case of grammaticalization. Any comprehensive study of a particular set of grammaticalization changes that lasts over long periods of time and involves continued grammaticalization must ideally take cognizance of all three kinds of approach.

Before concluding this section, we should note that the claim that grammaticalization (and indeed language change in general) is motivated by speaker–hearer interactions and communicative strategies is a claim that change is goal-directed. For example, Heine, Claudi, and Hünnemeyer claim that "grammaticalization can be interpreted as the result of a process that has problem solving as its main goal" (1991a: 29). There has been a tendency in American linguistics to distrust arguments about goal-directedness, partly on the grounds that they cannot be empirically proven, partly because the important research question has until recently been considered to be how language is understood out of context. Arguments

based on mechanisms for change, and on (passive) capacities for language, have been privileged over arguments based on purposes to which language is put. For example, Bybee has argued that the development of morphology is spurred on by spontaneous processes whereby semantic functions that are similar are subsumed under closely related grammatical functions (Bybee 1985: 204; see also Bybee, Perkins, and Pagliuca 1994: 297–300). These processes are in Bybee's view cognitive rather than communicative.

Part of the problem with the concept of goal-orientedness is that it is often discussed in terms of "need" or set goals, in other words, in "teleological" terms. Clearly "communicative need" is not a plausible motivation in most cases of grammaticalization, since not all languages express the same grammatical functions, and even less do they express the same grammatical functions in the same way. Furthermore, to assume that as an older system becomes eroded it may cease to function at an adequate level of communicative coherence and therefore must necessarily be revitalized (as suggested by Givón 1982: 117, cited in Bybee 1985: 202) is to posit a stage of language such as is unknown, in other words it violates the uniformitarian principle and is not empirically supported by the data. Most emphatically, languages are not goal-oriented. We agree that "the view which ascribes language a will of its own, a sort of conscious control over its own future, seems to us gratuitous and untenable. It remains true, however, that language is a communicative tool at the disposal of its speakers, to whom the attribution of an independent will and volition is considerably less controversial" (Vincent 1978: 414). The position we take is that users may be consciously or unconsciously goal-oriented (see Keller 1994 for a detailed account of goal-orientedness in language change that is not teleological in the sense mentioned above). In speaking of communicative strategies and problem solving in the course of speaker–hearer interaction, we refer not to filling gaps, but rather to strategies used by speakers and hearers in producing and understanding the flow of speech as it is created. These speakers have intentions, and their intentions may lead to change over time. However, barring cases of "language engineering," e.g., attempts to legislate against use of the derivative *-man*, or exclusive use of *he* as a generic pronoun, speakers for the most part do not intend to change the language. On the contrary, many would like to prevent change if possible.

## 4.2 Inferencing and meaning change

The discussion in the preceding section has made reference to various motivations such as economy, efficiency, clarity, expressivity, and routinization. Such motivations are issues of usage and speaker–hearer purposes, and can be

called "pragmatic," that is, they have to do with the relationship between language and the contexts in which it is used, including other instances of language, most especially the meanings that arise from this relationship (Levinson 1983, 2000).

Since pragmatics by definition deals with meanings beyond structure, many linguists working in the tradition of formal grammars for a long time excluded pragmatics from consideration in accounting for motivations for change. Many also excluded the meanings usually treated by lexical semantics, that is, components of sense and their relation to the objects to which they refer. For example, in discussing the syntactic changes involved in the development of the modals, Lightfoot (1979) argued that syntactic change was autonomous, i.e., independent of semantic or pragmatic motivations. He attempted to show that the modals "underwent very many changes in their syntax and in their meaning but... these changes seem to have proceeded quite independently of each other" (1979: 100). Indeed, he went on to say: "it does not seem possible to define a class of modals (and therefore of preterite-presents) on semantic grounds" (1979: 103). Such an approach is a natural consequence of conceptualizing significant change as resulting from children's attempts to seek cues to grammar as a computational system (see, e.g., Lightfoot 1999), rather than as a strategic one.

The approach from "autonomous syntax" has been called into question by many linguists working on grammaticalization. This follows inevitably from the interest in changes whereby a lexical item becomes a grammatical one, because a lexical item by definition has semantic as well as syntactic, morphological, and phonological properties. But it also follows from the concern that a theory which regards semantic change as independent of morphosyntactic change provides no reasoned account for the extensive evidence that grammaticalization affects similar classes of lexical items in similar ways across a wide number of languages. This point was made especially cogently by Bybee and her colleagues in various studies of verbal morphology (e.g., Bybee 1985; Bybee and Dahl 1989) and by Heine and his colleagues in various studies of nominal morphology (e.g., Heine, Claudi, and Hünnemeyer 1991a); valuable resources for putative examples (not all with empirical historical support) of cross-linguistic and cross-categorial grammaticalization include Heine *et al.* (1993) and Heine and Kuteva (2002).

Indeed, much work on grammaticalization since the early 1980s has focused extensively on the kinds of meaning changes involved in grammaticalization and the cognitive motivations behind them. For some, the meaning changes are regarded as semantic, e.g., "semantic change leads to the development of grammatical meaning" (Bybee and Pagliuca 1985: 59). For others it is mainly pragmatic (Traugott and König 1991). For some it is thought to be motivated primarily by metaphorical processes (Claudi and Heine 1986; Sweetser 1990), for others it is thought to be motivated by associative or "metonymic" as well as metaphorical processes

(e.g., Traugott and König 1991; Heine, Claudi, and Hünnemeyer 1991a). The position we take here and will elaborate on in subsequent chapters is that meaning changes and the cognitive strategies that motivate them are central in the early stages of grammaticalization and are crucially linked to expressivity. Furthermore, the meaning changes are initially pragmatic and associative, arising in the context of the flow of speech. At later stages, as grammaticalization continues and forms become routinized, meaning loss or "bleaching" typically occurs, but even so, older meanings may still continue to constrain newer, "emptier" ones.

Before we proceed, a few words about some of the widely accepted ideas concerning semantics and pragmatics may be helpful.

### 4.2.1 Semantics and pragmatics

There is a vast literature on semantics and pragmatics but as yet little consensus on exactly where the boundaries between the two areas lie, or even whether there are indeed boundaries. Nevertheless, there is a pre-theoretical sense in which it is clear that a distinction needs to be made between the sentence (semantic) meaning of *Can you pass the salt?* (= 'Are you able/willing to pass the salt?'), the expected response to which would be *Yes* or *No*, and the utterance (pragmatic) meaning (= 'Please pass the salt'), the expected response to which is the non-linguistic action of passing the salt. For purposes of this chapter, it must suffice to note that we believe that linguistic theory should eventually provide an integrated account of semantics and pragmatics.

It is useful to distinguish between that part of semantics that concerns lexical, phrase, and sentence meaning, and that part of pragmatics that concerns inferences about linguistic meaning based on contextual assumptions such as the cooperativeness of participants in a conversation. The view of the relationship between semantics and pragmatics we adopt here is as follows (Levinson 1983, 2000; Green 1996 [1989]). Semantics is primarily concerned with meanings that are relatively stable out of context, typically arbitrary, and analyzable in terms of the logical conditions under which they would be true. Pragmatics, by contrast, is primarily concerned with the beliefs and inferences about the nature of the assumptions made by participants and the purposes for which utterances are used in the context of communicative language use. It concerns both speakers' indirect meaning, beyond what is said, and also hearers' interpretations, which tend to enrich what is said in order to interpret it as relevant to the context of discourse (Sperber and Wilson 1995[1986]). Many of the beliefs and inferences which are the subject of pragmatics are thought to be cognitively universal, in other words, not learned or arbitrary. Furthermore, they are rarely if ever subject to analysis in terms of truth.

### 4.2.2 Relationships between senses of a form: homonymy and polysemy

An issue on which there is little agreement across various subfields of linguistics is exactly how to characterize the relationship between the various senses of a form. One approach is to maximize difference and homonymy (same form, unconnected different meanings). Rejecting the traditional literary practice of grouping together all related meanings that can be associated with a single phonological form, McCawley (1968: 126) suggested that there is no a priori reason for grouping items together in a dictionary: one could take the notion "lexical item" to mean the combination of a single semantic reading with a single underlying phonological shape, a single syntactic category, and a single set of specifications of exceptional behavior with respect to rules. He argued that *sad* in the two meanings displayed in (1) should be analyzed as two separate items:

(1) $Sad_1$: 'experiencing sadness, said of a living being'
$Sad_2$: 'evoking sadness, said of an esthetic object'

Likewise, from this perspective the *can* of ability and possibility and permission are unconnected semantically. Another approach is to maximize similarity and monosemy (same form, same meaning). For example, Groefsema (1995) argues that the various meanings of the modals are so indeterminate that they should be analyzed as sharing a unitary underspecified meaning; from this perspective, there is one *can*. A third approach is to argue that certain forms share conceptually related meanings (polysemy) (e.g., G. Lakoff and Johnson 1980; Sweetser 1990). Bybee, for example, suggests that there is one form *can* in PDE with related meanings:

(2) a. Mental ability: e.g., I can read German.
b. Physical ability: e.g., I can swim a mile.
c. Root possibility: e.g., This word can be used in many contexts.
d. Permission: e.g., I can take books out for two weeks. (Bybee 1988: 256)

It is often argued that the fine, sometimes minimally discrete, meaning distinctions between various stages of grammaticalization or between focal clusters on a cline call for a theory in which different meanings may be closer or more distant (see G. Lakoff 1987 on the concept of "networks" of polysemies; and, from a different perspective, Kemmer 1993b on semantic maps of related terms within the domain of voice). For example, mental and physical ability are more closely related to each other than to permission among the polysemies of *can*.

In general, from the perspective of grammaticalization it is methodologically essential to assume polysemy if there is a plausible semantic relationship, whether or not the forms belong to the same syntactic category, because otherwise relationships between more and less grammaticalized variants of the same form cannot be

established, either diachronically or synchronically. What constitutes a "plausible semantic relationship" has until fairly recently been a matter of considerable debate. Drawing on Haiman, especially (1985a), Croft (1990) discusses a useful heuristic for the distinction between the homonymy of *two, to, too* (all [tu]), and the polysemy of the directional and recipient meanings of *to* in *I drove to Chicago, I told the story to my brother*. He suggests that a major criterion is evidence from cross-typological comparison: "if many diverse languages independently have the same pattern of 'homonymy,' then the meanings are closely related" (p. 166). *Two, to, too* do not tend to be expressed by the same form cross-linguistically; this, in addition to their lack of historical relatedness, provides evidence that they are homonymous in English. However, directional and recipient *to* are frequently, indeed typically, expressed by the same form cross-linguistically (cf. also *-lle* in Finnish). This, together with their historical relatedness, provides evidence that they are polysemous.

There has been a long history in linguistics of concern about the notion of polysemy. For example, Bolinger has said: "the natural condition of language is to preserve one form for one meaning, and one meaning for one form" (Bolinger 1977: x, cited in Haiman 1985a: 21). This concern presumably stems from the "scientific" approach to language which is the foundation of linguistics. To oversimplify, from this point of view the optimal language would be one in which every meaning was distinct, just as every numeral is distinct (the "idealized language" we referred to in Section 3.3). However, such "optimality" would clearly in actual fact be dysfunctional since there are far too many meanings for the brain to remember individual expressions for them. "One form – one meaning" is an ideal on the dimensions of choice of form and the motivation to maximize information. It is balanced and offset by another optimality, that of associating like forms with like meanings, in other words, of developing polysemies (Haiman 1985a). Since grammaticalization comprises the set of changes whereby structural relationships and associations among them are given grammatical expression, it is not surprising that it typically involves polysemy.

### 4.2.3 *Conversational and conventional inferencing*

With regard to pragmatics, we are particularly interested in those inferences that are made in linguistic contexts from one clause or constituent to another, or even from one utterance to another. These are in principle implicational inferences (in the linguistic jargon called "implicatures") of the type characterized by Grice (1975) as "conversational." Grice suggested that such inferences are computable on the basis not of lexical meanings alone, but of lexical meanings together with implicatures arising from speech act maxims such as "Make your contribution

as informative as is required (for the current purposes of the exchange)" (the first maxim of Quantity), "Do not make your contribution more informative than is required" (the second maxim of Quantity), "Try to make your contribution one that is true" (the maxim of Quality), "Be relevant" (the maxim of Relation), and "Be perspicuous" (the maxim of Manner) (Grice 1975: 45–7). There is considerable debate whether this is the right set of maxims. Indeed, it has been suggested that a principle of Relevance alone, defined in such a way as to include informativeness, is sufficient to account for pragmatic meaning (Sperber and Wilson 1995[1986]; for other views, see Atlas and Levinson 1981, Horn 1984, updated in Horn 1996 and Levinson 2000). As we will show, grammaticalization changes seem to draw primarily on the second maxim of Quantity, in the form "Say no more than you must and mean more thereby" (see Levinson 1983) and Relevance. Another point of debate has been whether "maxim" is the best term for the reasoning processes that people bring to the speech event, since it evokes imperatives and principles. We prefer the term "heuristic" proposed by Levinson (2000), which evokes strategic choice in the communicative situation.

Most conversational implicatures are strictly speaking interpreted abductively (given an utterance, hearers may relate it to a general heuristic, and guess the speaker's intent). The guess may be wrong because the heuristics can always be flouted, e.g., it is possible for speakers to be uninformative or to lie. Furthermore, implicatures are "cancelable" either by the speaker (in which case an explanation is given), or by hearers' inferences from the situation. An example is:

(3) a. John has three cows.

The implicature from the first heuristic of Quantity is that:

(3) b. John has three cows and no more.

But this can be canceled by a vague statement such as

(3) c. John has three cows, if not more.

and even denied:

(3) d. John has three cows, in fact ten.

The pragmatic effect of conversational implicatures across utterances and their cancelability can be illustrated by the example of conjoined clauses without any connective, that is, without any structural marker of coherence. These are likely to be interpretively enriched as having some coherence, that is, relevance to each other, simply because they are uttered in sequence.

(4) a. The earthquake hit at 8 a.m. A four-car crash occurred.

Typically the relationship inferred will be that of temporal sequence and even causal connection if the clauses are action/event clauses and connectable in terms of encyclopedic or world knowledge, as in (4a); however, no such relationship is likely to be inferred if the sequence is incoherent in terms of world knowledge, as in (4b), where inference of a causal connection is unlikely, and even close temporal connection may be in doubt:

(4) b. A four-car crash occurred. The earthquake hit at 8 a.m.

If a grammatical form is present, e.g., *and, because, you see*, this element will further "constrain the relevance of the proposition it introduces" (Blakemore 1987: 130). But this constraint still leaves indeterminacies. For example, the presence of *and* in (5a) implies only that a connection is intended by the speaker and that the hearer should compute one; it does not require that the implicature is a causal one, though that is what hearers would typically assume unless causality is canceled, as it is in (5b):

(5) a. The earthquake hit at 8 a.m. and a four-car crash occurred.
b. The earthquake hit and a four-car crash occurred, but actually the cause was the fog, not the earthquake.

Conversational implicatures are typically contrasted with "conventional" ones (in the next section we will show that conventional implicatures typically arise out of conversational ones). Conventional implicatures are unpredictable and arbitrary, that is, they must be learned as part of the polysemies of the word, and are not cancelable. Thus in (6a) the verb *manage* conventionally implicates (6b):

(6) a. John managed to solve the problem.
b. John solved the problem.

Neither (6a) nor (6b) are cancelable by, e.g.:

(6) c. but he didn't solve it.

Since they must be specially learned along with the phonological and syntactic characteristics for the item in question, conventional meanings can, at least for our purposes, be included among the semantic polysemies of a form. For a classic case consider the temporal and causal meanings of *since*, as in (7):

(7) a. I have done quite a bit of writing since we last got together. (temporal)
b. Since I have a final exam tomorrow, I won't be able to go out tonight. (causal)

With *since*, when both clauses refer to events, especially events in the past, the reading is typically temporal, as in (7a). When one clause refers to a non-past

event or to a state, the reading is typically causal, as in (7b). The causal meaning is conventional and not cancelable, as illustrated by (7c):

(7) c. *Since I have a final exam tomorrow, I won't be able to go out tonight, but not because of the exam!

In (7a) the first clause contains a past tense. In (7b) neither clause does. In other words, different meanings of *since* can be associated with different structural contexts. The difference between these meanings is sometimes syntactically obscured, and then there can be ambiguity, as in (7d):

(7) d. Since Susan left him, John has been very miserable. (temporal or causal)

These facts allow us to conclude that *since* is semantically ambiguous (polysemous).

We turn now to the question of whether there are pragmatic as well as semantic polysemies. Consider, for example, *after* in (8a):

(8) a. After we read your novel we felt greatly inspired.

This may be interpreted as a literal statement of temporal sequence, or it may implicate:

(8) b. Because we read your novel we felt greatly inspired.

The implicature in (8b) strengthens informativeness because it enriches the relation between *After we read your novel* and the rest of the utterance, thus providing an interpretation of why the speaker thought it was relevant to include these temporal facts. However, there are no regular structural correlates for this relationship, such as completed versus ongoing eventhood, and there are no regularly associated, uncancelable causal implicatures. Rather, example (8a) suggests that there can be pragmatic ambiguities/polysemies as well as semantic ambiguities/polysemies. For fuller discussion of the importance of recognizing both pragmatic and semantic ambiguities, see Horn (1989) and Sweetser (1990).

## 4.3 The role of pragmatic inferencing in grammaticalization

With regard to the question of what role pragmatic inferencing has in grammaticalization, toward the end of his seminal article "Logic and conversation," Grice tentatively stated: "it may not be impossible for what starts life, so to speak, as a conversational implicature to become conventionalized" (1975: 58). This idea had been explored very briefly in Geis and Zwicky (1971) in connection with the development of causal *since*, and was explicitly followed up in Cole

(1975) in connection with *let's*. Dahl hypothesizes that many of what he calls "the secondary meanings" of tense and aspect, e.g., the "present relevance" of the perfect, are derived by conventionalization of implicatures. Below we will show that in early stages of grammaticalization conversational implicatures frequently become "semanticized,"[2] that is, become part of the semantic polysemies of a form. Dahl's characterization of the process is as follows:

> if some condition happens to be fulfilled frequently when a certain category is used, a stronger association may develop between the condition and the category in such a way that the condition comes to be understood as an integral part of the meaning of the category. (Dahl 1985: 11)

These insights have been elaborated in connection with semantic change in general, not specifically grammaticalization, in Traugott (1999) and Traugott and Dasher (2002). Here it must suffice to note that the kinds of semantic change undergone by lexical items or constructions in grammaticalization are a subset of semantic changes in general, and that for inferences to play a significant role in grammaticalization, they must be frequently occurring, since only standard inferences can plausibly be assumed to have a lasting impact on the meaning of an expression or to function cross-linguistically.

Among stereotypical inferences we may include the inferences of causality from temporal sequence that we have already discussed in connection with *since* and *after*, the well-known logical fallacy (abduction) characterized as *post hoc ergo propter hoc* 'after this, therefore because of this.' By contrast, we would not expect grammaticalization of such strictly local and idiosyncratic, highly contextualized, inferences as are exemplified by:

(9) a. What on earth has happened to the roast beef?
b. The dog is looking very happy. (understood to implicate that perhaps the dog has eaten the roast beef) (Levinson 1983: 126)

One question is when we can recognize conventionalization to have occurred. A brief look, before we proceed, at some early examples of the contexts in which the change of *since* (originally *siþþan*) came about will be useful in serving as a methodological caution, and show that it is essential to look beyond individual sentences to larger contexts before reaching too hasty conclusions that change has occurred. In OE texts before AC 1050 *siþþan* as a preposition was used almost exclusively to mean 'from the time that, after.' The standard causal was *for þæm þe* 'for that that,' originally a deictic expression. As a connective *siþþan* meant 'from the time that,' that is, it marked the lower temporal boundary of the event in the main clause, and signaled an overlap with some point in an earlier event.

In certain contexts, however, the modern reader may detect a causal implicature. For example, Mitchell (1985 (2): 352) cites (10) as a putative example of causal *siþþan*:

(10) þa siþþan he irre wæs & gewundod, he ofslog micel
then, after/since he angry was and wounded, he slaughtered much
þæs folces.
of-that troop (*c.* 880, Orosius 4 1.156.11)

When we read this sentence out of its larger context, the participle *gewundod*, being perfective and involving change of state, seems to favor a temporal reading, but the adjective *irre* favors a causal one, since it appears to express state. Nevertheless, a temporal reading with the adjective is plausible if we assume that *was* is inceptive–resultative or perfective, i.e., 'had come to be' rather than 'was in a state.' In other words, the adjective in this context can be interpreted as expressing a contingent rather than a general state (the latter would more probably have been expressed by *bið*). Indeed we find that this sentence occurs in the context of a narrative concerning the legendary Pyrrhic victory. In the battle a Roman soldier wounds an elephant in the navel; this elephant, having become enraged and wounded, wreaks mayhem on the army. *Siþþan* in (10), then, is best interpreted as a temporal (indeed it partially translates the Latin adverbial *postquam* 'afterward') allowing secondary causative implicatures. It is not a conclusive example of the conventionalizing of causative inference in Old English.

A more convincing example is:

(11) Ac ic þe wille nu giet getæcan þone weg siþþan ðu ongitst þurh
but I thee will now still teach that way since thou seest through
mine lare hwæt sio soðe gesælð bið, & hwær hio bið.
my teaching what that true happiness is, and where it is
'But still I will now teach you the way since you see that true happiness comes through my teaching, and where it is.' (*c.* 880, Boethius 36 104.26)

Here *siþþan* translates the Latin causative *quoniam* 'because.' But even without the Latin original we can assume it is causative since the context is non-narrative: the stative perception-mental verb 'see, understand' introduces an aspectual generic clause signaled by the verb *bið* instead of the contingency verb *is*. Although the causal inference is detectable in Old English in examples such as (11), so many other examples are undecidable that we cannot establish that the causal inference had truly become conventionalized at this period. The change appears to have occurred in the fifteenth century, when the form is attested frequently in stative and other non-completive environments where the temporal reading is blocked, as in (11).

A second question is what types of inferences are most characteristic of these early stages. Two different though mutually intersecting kinds, metaphorical processes and metonymic processes, have been much discussed in the literature, and it is to these that we now turn.

### 4.3.1 Metaphorical processes

Metaphorical innovation is one of the most widely recognized processes in meaning change. Standard examples of long-established metaphors include such utterances as (12) and (13):

(12) Sally is a block of ice. (Searle 1993 [1979]: 97)
(13) The sentence was filled with emotion. (Reddy 1993 [1979]: 288)

Although definitions of metaphor vary, most have certain concepts in common, especially understanding and experiencing one kind of thing in terms of another, and directionality of transfer from a basic, usually concrete, meaning to one more abstract (see, for example, J. D. Sapir 1977; G. Lakoff and Johnson 1980; Claudi and Heine 1986; Heine, Claudi, and Hünnemeyer 1991a; Kövecses 2002). Metaphorical processes are processes of inference across conceptual boundaries, and are typically referred to in terms of "mappings," or "associative leaps," from one domain to another. The mapping is not random, but motivated by analogy and iconic relationships.

These relationships tend to be observable cross-linguistically. Some have been thought of as "image schemata" with very concrete sources that are mapped onto abstract concepts. In the lexical domain one image schema that is well known is that of seeing and knowing, grasping and understanding (as in *I see/grasp the point of your argument*). In this particular case the relatively concrete concept has been said to be mapped onto the relatively abstract one in a relationship called the "mind-as-body metaphor": bodily experience is a source of vocabulary for psychological states (Sweetser 1990: 28–48). Another well-known relationship is "force dynamics" (Talmy 1988; Jackendoff 1990; Sweetser 1990), the relationship of forces and barriers found in such expressions as (14) and (15):

(14) The crack in the stone let the water flow through.
(15) I have a mental block about sports.

Metaphoric processes have traditionally been regarded as semantic. Recently, however, it has been suggested that, not being truth conditional, but rather being based in communicative use, they are more appropriately considered pragmatic (e.g., Levinson 1983). We accept the view that metaphor is pragmatic, and argue below that in so far as metaphor is primarily analogical in character, it is different

from the kinds of conversational processes based on heuristics mentioned above, which operate primarily in linear, syntagmatic ways. A further difference identified by Green (1996 [1989]: 122) is that, at a superficial level, metaphors often involve propositions that are intended to be recognized as literally false (for example, it is false that a person can be a block of ice), but conversational implicatures do not.

Most examples of metaphorical processes in language change have been discussed with respect to the lexicon. However, arguments have been put forward that early grammaticalization is also strongly motivated by metaphoric processes. Typical of early claims along these lines is: "Rather than subscribe to the idea that grammatical evolution is driven by communicative necessity, we suggest that human language users have a natural propensity for making metaphorical extensions that lead to the increased use of certain items" (Bybee and Pagliuca 1985: 75).

Probably the most appealing examples of metaphoric processes in grammaticalization are provided by the development of spatiotemporal terms. Claudi and Heine (1986) and Heine, Claudi, and Hünnemeyer (1991a,b) discuss the development of body part terms into locatives, of spatials into temporals, etc. in terms of metaphors such as SPACE IS AN OBJECT, TIME IS SPACE (capitals indicate abstract, cross-linguistic meanings, as opposed to language-specific lexical items). For example, spatial terms such as BEHIND can be derived metaphorically from a body part (an example of the shift from OBJECT > SPACE), and subsequently temporal terms can be derived metaphorically from the spatial term (via SPACE > TIME), e.g., *We are behind in paying our bills.* Spatial terms abound cross-linguistically as temporal particles, auxiliaries, etc. (see Traugott 1978, 1985a; Bybee and Dahl 1989; Bybee, Pagliuca, and Perkins 1991 on expressions of the future). A few examples from English which have been regarded as metaphorical in origin include *be going to* (future), *in the years ahead* (future), *drink something up/down* (completive), *drink on* (continuative), *come to believe that* (ingressive). Extensive examples from African languages can be found in Heine, Claudi, and Hünnemeyer (1991a,b), and from Oceanic languages in Lichtenberk (1991b) (e.g., GO for continuative and future, COME for ingressive and future). Svorou (1993) and Haspelmath (1997) provide detailed cross-linguistic evidence for SPACE > TIME.

Another domain of meaning change among grammatical categories that has been widely regarded as metaphoric is the development of modal meanings, particularly the development of meanings relating to obligation into meanings relating to possibility and probability (known as "epistemic" meanings). For example: "The obligation sense of *have to* predicates certain conditions on a willful agent: X is obliged to Y. The epistemic sense is a metaphorical extension of obligation to

apply to the truth of a proposition: X (a proposition) is obliged to be true" (Bybee and Pagliuca 1985: 73). In this view (modified in Bybee 1990), the process envisioned appears to be strictly speaking the schematic mapping of one concept onto another. Building on Talmy (1976, 1988), Sweetser takes a different approach to the modals, that of "sociophysical concepts of forces and barriers" (1990: 52). The *may* of permission is, according to Sweetser, understood in terms of "a potential but absent barrier," obligative *must* in terms of "a compelling force directing the subject towards an act." The force of *must* is "directly applied and irresistible," whereas that of *have to* is resistible under certain circumstances, cf.:

(16) I have to/??must get this paper in, but I guess I'll go to the movies instead. (Sweetser 1990: 54)

Sweetser regards the epistemic meanings of these modals as deriving from the tendency to experience the physical, social, and epistemic worlds in partially similar ways. This similarity in experience, she suggests, allows the mapping of sociophysical potentiality onto the world of reasoning. For example, with respect to *may*, she says: "In both the sociophysical and the epistemic world, *nothing prevents* the occurrence of whatever is modally marked with *may*; the chain of events is not obstructed" (p. 60). With respect to *must*, she gives the following analysis (p. 61):

(17) a. You must come home by ten. (Mom said so.)
'The direct force (of Mom's authority) compels you to come home by ten.
b. You must have been home last night.
'The available (direct) evidence compels me to the conclusion that you were home.'

She goes on to show that yet another metaphorical mapping is possible: of potential barriers to the conversational world (what is often called metalinguistic expression). Thus, in a hypothetical situation where Mondale's advisor is giving directions to a speech writer, the following might be imagined (p. 71):

(18) Reagan will/must be a nice guy (as far as the content of the speech is concerned, even if we criticize his policies).

In other words, "the interlocutor is being allowed to treat a certain statement as appropriate or reasonable."

Can all possible types of metaphor be drawn on in grammaticalization? The answer appears to be no. Talmy (1983, 1988, 2000) has suggested that only certain types of spatial concepts are used cross-linguistically in grammatical items: specifically, topological concepts. Thus precise distances between points on a scale, or precise angles, do not grammaticalize. Indeed, angles in general (e.g., *corner in*

*time*) typically do not appear to grammaticalize.[3] However, topological relations on a linear parameter frequently do so, e.g., *front-back, up-down*.

Sweetser has suggested that when a lexical item expressing a spatial concept is grammaticalized, only the topological concept is transferred. The concrete image associated with the lexical item is replaced by a more schematic one, and the meaning transfer "is to a fairly abstract, topological domain ... so there is less fleshing-out of meaning" (Sweetser 1988: 393).

### 4.3.2 Metonymic processes

There is little doubt that metaphor is one process at work in grammaticalization. However, since reanalysis, not analogy, has for long been recognized as the major process in grammaticalization at the structural, morphosyntactic level, it would be surprising if metaphor, which is analogical, were the prime process at work pragmatically and semantically. In this section we show that other processes, which depend on contiguity and association in the flow of speech, also play a major part, and that some instances of grammaticalization that have heretofore been regarded as metaphorical can be seen to arise out of semantic contiguity rather than or as well as out of semantic analogy.

The overriding importance that metaphor was given in many discussions of grammaticalization during the 1980s and early 1990s seems to have derived in part from the tendency to think in terms of "lexical item > grammatical item," i.e., in terms of form, relatively independently of context rather than in terms of "use of lexical item in discourse > grammatical item," i.e., in terms of form in utterance contexts.[4] For example, when the lexical item *go* is considered out of context and is said to grammaticalize to an auxiliary, metaphor is naturally invoked with respect to its spatial properties. But in fact it was not *go* that grammaticalized; the phrase *be going to* did, presumably only in very local contexts, e.g., that of *be going in order to V*. The contiguity with *to* in the purposive sense must have been a major factor in the development of the future meaning in *be going to* as an auxiliary (we discuss this point more fully below).

Another reason for the focus on metaphor was presumably also that the term metonymy had until that time been thought to be rather insignificant. For example, Dirven speaks of metaphor as a "major associative leap" but of metonymy as a "minor process" (1985: 98). Furthermore, in the tradition deriving from Jakobson and Halle's (1956) classic distinction between metaphor as choice functioning on the paradigmatic axis versus metonymy as association and sequence functioning primarily on the syntagmatic axis, metaphor was thought to lead to homogeneity and coherence, metonymy to juxtaposition and potential incoherence (J. D. Sapir 1977: 4). The term was used primarily for changes arising out of contiguity in

the non-linguistic world, cf. such examples as Lat. *coxa* 'hip' > Fr. *cuisse* 'thigh' (the parts of the body are spatially contiguous in the physical world), and *boor* 'farmer' > 'crude person' (association of behavior with a certain person or class of persons). One of the most famous examples is the transfer by association of the term for 'prayer' (OE *gebed*) to the objects by which a series of prayers was counted, the *beads* of a rosary (and ultimately, by generalization, to any beads). However, contiguity in the utterance, often resulting in ellipsis, had also been used as an example of metonymy, cf. French *foie* 'liver' < Latin *iecur ficatum* 'liver fig-stuffed.' Neither of these senses of metonymy is useful for the study of grammaticalization. However, conceptual association also involves metonymy, and in this sense (often known as "conceptual metonymy") the term is valuable. This sense can already be found in Stern, who, in speaking of "permutation," says it results from "a word [being] used in a phrase where a notion in some way connected with its meaning is liable to form an element of the context" (1931: 353). He goes on to list under examples of permutation the development of the logical meanings of *considering, supposing,* and of concessive *while.* More recently Anttila suggested that "[m]etaphor is semantic transfer through a similarity of sense perceptions," and is analogical and iconic, while metonymy is semantic transfer through contiguity and "indexical" (1989 [1972]: 141–2). In one of the first works in the last few decades to recognize the importance of metonymy in grammatical change, Brinton (1988) argued that the development of the English aspect markers, including *have,* is metonymically rather than metaphorically motivated.

Recently the fundamental importance of conceptual metonymy in language in general has been widely recognized. Indeed, there has been a major shift in thinking and it is coming to be increasingly recognized as "probably even more basic [than metaphor] to cognition" (Barcelona 2000: 4). As a cognitive process in which "one conceptual entity... provides access to another conceptual entity within the same domain' (Kövecses and Radden 1998: 38), metonymy points to ("indexes") relations in contexts that include interdependent (morpho)syntactic constituents. In an utterance such as (19) the verb *go* invites the conversational inference that the subject arrived at a later time at the destination, and the purposive *to,* introducing a subordinate clause, invites the conversational inference that someone intended the marriage to occur:

(19) I was/am going to be married. (in the sense 'I was/am going for the purpose of getting married')

However, this implicature can be canceled:

(20) I was going/on my way to be married, but on the plane I changed my mind and decided to join the Army.

We hypothesize that the future meaning of *be going to* was derived by the semanticization of the dual inferences of later time indexed by *go* and purposive *to*, not from *go* alone. Indeed, we hypothesize that the inference from purposive *to* must have played a significant role in the grammaticalization of *be going to* given that the major syntactic change involved in the development of the auxiliary is the rebracketing of [[... be going] [to S]] as [... be going to V X] (Section 1.1). The progressive *be -ing* indexed activity in process, and so motivated the tendency for *be going to* to be interpreted as a purposive that was relevant to the reference time of the clause and likely to be imminent (see Bybee and Pagliuca 1987; Pérez 1990, who differ from the analysis presented here mainly in treating the change as a case of metaphorization).

To appreciate the importance of the relationship between *to* and *go*, in the development of auxiliary *be going to*, consider the following possible early instance:

(21) Thys onhappy sowle ... was goyng to be broughte into helle for the synne and onleful [unlawful] lustys of her body.
(1482, Monk of Evesham [*OED* **go** 47b])

This can be understood as an expression of motion in the context of the belief that after death the soul goes on a journey with the purpose of being rewarded or punished for actions in life. Note that in this example the passive demotes the inference that the subject of *go* is volitional or responsible with respect to the purposive clause. Because the destination of the journey (hell) is an adjunct not of *goyng to* but of *broughte*, the directionality of *going* is also demoted, and the inference of imminent future resulting from the purposes of the judges of the dead is promoted.

Similarly, in the passage in (22) the answer to *whither away* is *(to) a messenger*, and *I am going to deliver them* seems best understood as answering the question *(why) so fast?*, in other words, it seems more informative if it is inferred to answer the question in terms of purposes rather than directions:

(22) DUKE: Sir Valentine, whither away so fast?
VAL.: Please it your grace, there is a messenger
That stays to bear my letters to my friends,
And I am going to deliver them.
(*c.* 1595, Shakespeare, *Two Gentlemen of Verona* III.i.51)

The full semanticization (and grammaticalization) of *be going to* is evidenced when the following subject and/or the verb is incompatible with purposiveness, for example, an inanimate subject or a verb of mental experience such as *hear*, or *like*. Once the semanticization of later time/future had occurred, the *will* future

could no longer be used with *be going to*, presumably because it had become partially redundant, and did not fit the auxiliary verb structure into which the construction had been absorbed. (Note, however, that the *will*-future can still occur in the main verb construction *be going to*, as in *I will be going to visit Aunt Mildred tomorrow*.)

The metaphor account, whereby a trajectory through space is mapped onto a trajectory in time, does not give adequate insight into why the progressive and most especially *to* are involved in the English expression *be going to*. This becomes particularly clear when we compare the cross-linguistic grammaticalization of the verb with the abstract meaning GO to future markers, each of which seems to have a slightly different history. Sometimes, for example, there is no overt purposive, in which case the future inference arises out of the directional verb and its associated aspect alone, as in French. Sometimes, however, GO may be grammaticalized into either a purposive or a temporal marker of imminence, as occurred to **bang* 'go' in Rama:

(23) a. Tiiskama ni-sung-bang taak-i.
baby I-see-SUB go-TNS
'I am going in order to see the baby.'
b. Tiiskama ni-sung-bang.
baby I-look-at-ASP
'I am going to look at the baby.' (Craig 1991: 457)

In each case inferences from the highly local contexts of the verb in its linear position within the clause appear to be the immediately motivating factors for change, though the capacity to create metaphors of time from space may well provide a cognitive framework that supports the changes.

We have suggested that semanticization of conversational inferences played a major role in the development of *be going to*. Another example is provided by the development of *while* (see Traugott and König 1991, on which the following discussion is based). This connective originated in OE in an adverbial phrase translatable as 'at the time that' consisting of the accusative distal demonstrative, the accusative noun *hwile* 'time,' and the invariant subordinator *þe*, a highly explicit coding of simultaneity, as in:

(24) & wicode þær þa hwile þe man þa burg worhte
and lived there that:DAT time:DAT that one that fortress worked-on
& getimbrode.
and built
'And camped there at the time that/while the fortress was worked on and built.'
(Chron A [Plummer] 913.3)

This phrasal expression was reduced by late OE to the simple conjunction *wile*:

(25) Dæt lastede þa [xix] winttre wile Stephne was king.
'That lasted those 19 winters while Stephen was king.'
(ChronE [Plummer] 1137.36)

In the process, the precise specification of simultaneity signaled by the demonstrative was lost, allowing for other, less precise, conversational inferences to play a part. One such inference is that the conditions specified in the subordinate clause serve not only as the temporal frame of reference for those in the main clause, but also as the grounds for the situation (the disasters lasted nineteen years because Stephen was king). Such an inference to grounds for the situation is dominant over temporality in some examples dating from the later fourteenth century:

(26) Thar mycht succed na female,
Quhill foundyn mycht be ony male.
'No female was able to succeed while any male could be found.'
(1375, Barbours Bruce 1.60 [*OED* **while** 2a])

The causal inference from *while* did not become semanticized in English. However, in some languages this inference to the grounds for the situation has become the main extension of WHILE. For example, in German the temporal meaning of *weil* 'during' has become obsolete and the causal has become the main meaning; interestingly, causal *weil* came to be used in the latter part of the twentieth century with a concessive meaning (main clause rather than subordinate clauses syntax) (Günther 1996).

In English a different inference came to dominate, that of surprise concerning the overlap in time or the relations between event and ground. This led to the adversative, concessive meaning (cf. similar developments for *as long as, at the same time as*). Probable instances of the semanticization of surprise and hence concessivity appear in the early seventeenth century, among them:

(27) Whill others aime at greatnes boght with blod,
Not to bee great thou stryves, bot to bee good.
'While others aim at greatness that is bought with blood, you strive to be not great but good.' (1617, Sir W. Mure, *Misc. Poems* xxi.23 [*OED* **while** 2b])

This could be interpreted as a statement about simultaneous behaviors. However, there is a strong inference, reinforced by the inversion in the second line, that it is unusual not to be bloodthirsty. Unambiguous examples of concessive meanings appear later, typically with present-tense stative verbs, e.g., *While you like peaches, I like nectarines*. The overall shift of *while* is from reference to a relatively concrete state of affairs (a particular time) to expression of the speaker's assessment of the

relevance of simultaneity in describing events, to assessment of contrast between propositions. In other words, it demonstrates a shift to a relatively abstract and subjective construal of the world in terms of language.

A similar development to increased subjectivity is evidenced by *be going to*; the motion verb requires that the direction of motion be anchored in the subject as well as in the speaker's viewpoint.[5] But the auxiliary can be anchored in the speaker's subjective viewpoint alone, not in that of the subject:

(28) An earthquake is going to destroy that town. (Langacker 1990: 23)

An earlier example is:

(29) It seems as if it were going to rain. (1890, Cham. Jrnl. [*OED* **go** V.b])

Other examples of subjectification include the development of epistemic modals, for example the development of *must* in the sense of 'I conclude that' as in (17b) from *must* in the sense of 'ought' as in (17a) (Traugott 1989; Langacker 1990).

## 4.4 Metaphor and metonymy as problem solving

In discussing the principle of exploiting old means for novel functions, and the recruitment of concrete for more abstract terms, Heine, Claudi, and Hünnemeyer suggest that:

> grammaticalization can be interpreted as the result of a process which has **problem-solving** as its main goal, its primary function being conceptualization by expressing one thing in terms of another. This function is not confined to grammaticalization, it is the main characteristic of metaphor in general.
> (1991b: 150–1)

In other words, semantic change in general, not just grammaticalization, can be interpreted as problem solving (see also C. Lehmann 1985). One problem to be solved is that of representing members of one semantic domain in terms of another, and metaphoric strategies serve this purpose. The second problem is the search for ways to regulate communication and negotiate speaker–hearer interaction. We have shown that this is a kind of metonymic change, indexing or pointing to meanings that might otherwise be only covert, but are a natural part of conversational practice. The main direction of both types of problem solving is toward informativeness, but the two types correlate with shifts along different axes. Metaphorical change involves specifying one, usually more complex, thing in terms of another not present in the context. Metonymic change,

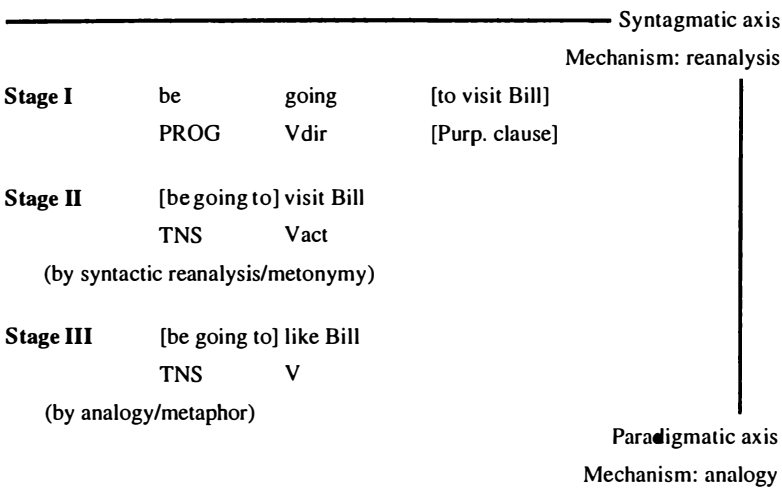


Figure 4.1 *Revised schema of the development of auxiliary* be going to

on the other hand, involves specifying one meaning in terms of another that is present, even if only covertly, in the context. It is largely correlated with shifts to meanings situated in the subjective belief state or attitude toward the situation, including the linguistic one. While metaphor is correlated primarily with solving the problem of representation, metonymy and semanticization of conversational meanings are correlated with solving the problem of expressing speaker attitudes.

In summary, metonymic and metaphorical inferencing are complementary, not mutually exclusive, processes at the pragmatic level that result from the dual mechanisms of reanalysis linked with the cognitive process of metonymy, and analogy linked with the cognitive process of metaphor. Being a widespread process, broad cross-domain metaphorical analogizing is one of the contexts within which grammaticalization operates, but many actual instances of grammaticalization show that conventionalizing of the conceptual metonymies that arise in the syntagmatic flow of speech is the prime motivation for reanalysis in the early stages. We can now refine the model for *be going to* outlined in Figure 3.2. to specify that syntagmatic reanalysis is accompanied by metonymic strategies, and paradigmatic, analogical change by metaphorical ones. The revised model is presented in Figure 4.1.

The competing motivations of expressivity (which underlies metonymic and metaphorical inferencing) and routinization, together with the mechanisms of reanalysis and analogy discussed in Chapter 3, will be shown in the next chapter to motivate the unidirectionality typical of grammaticalization.

## 4.5 Pragmatic enrichment versus "bleaching"

From very early times researchers on issues related to grammaticalization have observed that it involves loss of semantic content. This has been described by the metaphor of "fading" or "bleaching" (Gabelentz spoke of "verbleichen" 'to grow pale,' Meillet of "affaiblissement" 'weakening'). More recently, Heine and Reh characterized grammaticalization as: "an evolution whereby linguistic units lose in semantic complexity, pragmatic significance, syntactic freedom, and phonetic substance" (Heine and Reh 1984: 15). Readers will have noted that in this chapter we have, however, spoken of pragmatic enrichment, strengthening, and so forth. This is because we have been discussing the beginnings of grammaticalization, that is, the motivations that permit the process to begin, rather than its outcomes. There is no doubt that, over time, meanings tend to become weakened during the process of grammaticalization. Nevertheless, all the evidence for early stages is that initially there is a redistribution or shift, not a loss, of meaning.

For example, with reference to the development of future *go*, Sweetser says: "we lose the sense of physical motion (together with all its likely background inferences). We gain, however, a new meaning of future prediction or intention – together with *its* likely background inferences" (Sweetser 1988: 392). In speaking of the subjectification of *be going to*, Langacker draws attention to the loss of objective locational reference points that movement entails, and suggests that this loss is replaced by realignment to the speaker's temporal perspective (1990: 23). In other words, one meaning is demoted, another promoted.

As grammaticalized forms become increasingly syntacticized or morphologized they unquestionably cease over time to carry significant semantic or pragmatic meaning. This can most clearly be seen when former lexical items become empty syntactic elements, as in the case of *do*, or when formerly separate morphemes become bound and serve primarily as "morphological detritus" after repeated fusion (see Chapter 6). An excellent example is provided by the development of French *ça* 'that,' a form which is the worn-down relic of several stages of expressive reinforcement:

(30) hoc 'that' > (ecce) hoc 'behold that' > eccehoc > ço > ce > ce(là) 'that there' > celà > ça (Lüdtke 1980: 212)

The individual meanings of *hoc, ecce*, and *là* have been lost, as has the form's distal demonstrative function (M. Harris 1978: Chapter 4).

Two general working principles arise out of our understanding of the processes of inferencing in grammaticalization. One is that the meanings will always be derivable from the original lexical meaning by either metaphorical or conceptual metonymic inferencing. Therefore meaning changes in grammaticalization are not

arbitrary. Secondly, since the initial phase of grammaticalization involves a shift in meaning, but not loss of meaning, it is unlikely that any instance of grammaticalization will involve a sudden loss of meaning.

One of the most well-known examples of grammaticalization in English, the development of "empty" *do*, has been treated mainly as an example of syntactic change, and might be regarded as a counterexample. There has been considerable speculation about its origins. Causative *do*, as in (31), has been thought to be one source (Ellegård 1953):

(31) þe king sende efter him & did him gyuen up ðat abbotrice of Burch.
'The king sent for him and made him give up the abbey of (Peter)borough.'
(Peterb. Chron 1132 [*MED* **don** 4a])

Denison (1985) and Stein (1990a) have suggested that grammaticalization occurred not simply via loss of causative meaning, but via a perfective meaning, which can arise via pragmatic strengthening particularly in past tense causative contexts. For example, we can interpret *dide him gyuen up ðat abbotrice* in (31) as representing not only that the king's making him do something occurred in the past, but also that the action (give up his abbey) was achieved. This perfective meaning demotes the issue of who undertook the action, and permits the inference that the action is the significant issue. This is particularly likely to occur in constructions without an overt subject of the non-finite clause following *do*. For example, in (32) the subject ('they') may have caused the women to be mocked, but the absence of an overtly expressed intermediary party between the mockers and their victims demotes the causality and promotes the accomplishment (perfectivity) of the action:

(32) And so thei dede bothe deseiue ladies and gentilwomen, and bere forthe diuerse langages on hem.
'And so they both mocked ladies and gentlewomen, and made various allegations against them.' (*c.* 1450, Knt. Tour-L, 2.24; cited in Denison 1985: 50)

There are some problems with the causative analysis, however, among them the fact that many instances of *do* in Middle English in the area in which it developed (southwest England) were and continue to be habitual in meaning (Garrett 1998). Garrett cites several modern examples such as this one from Somerset:

(33) The surplus milk they did make into cheese and then the cheese did go to the different markets, that's how that did work.
(Garrett 1998: 292, citing Ihalainen 1976: 615)

Whatever the final analysis turns out to be, the point is that sudden emptying of meaning is not expected. Furthermore, it is incumbent on the researcher to seek a plausible set of inferences that enable changes to occur.

Perhaps the most damaging evidence against the automatic association of bleaching and sudden emptying of meaning with grammaticalization comes from evidence that later constraints on structure or meaning can only be understood in the light of earlier meanings. In other words, when a form undergoes grammaticalization from a lexical to a grammatical item, some traces of its original lexical meanings tend to adhere to it, and details of its lexical history may be reflected in constraints on its grammatical distribution. This phenomenon has been called "persistence" (Hopper 1991).

An example is provided by Lord's discussion of the development in West African languages of object markers ("accusative cases") out of former serialized verbs like 'take.' In Gã (a Benue-Kwa language of West Africa), the form *kɛ̀* is an accusative case marker in sentences such as:

(34) È kɛ̀ wòlò ŋmè-sɨ̌.
she ACC book lay-down
'She put down a book.' (Lord 1993: 118)

It was originally a verb meaning 'take' (see Lord 1993: 53–6) which has become grammaticalized as an accusative case marker, and sentences such as these are historically of the type 'He took a book [and laid [it] down.' Certain restrictions on the distribution of this case marker can only be understood from the point of view of its origin in the meaning 'take.' Let us for a moment consider a language which has a fully developed accusative case marker, Latin. In Latin, accusative is a general marker of direct objects. The Latin accusative case occurs (to a large extent) irrespective of the semantic relationship between the verb and its object. Accusative objects in Latin may be perceived, produced, ordered, imagined, and so on. With a few exceptions, any noun which has the role of an object is marked as an accusative.

Gã is quite different from Latin in this respect. Consider, for example, (35a) and its ungrammatical counterpart (35b):

(35) a. È ŋmè wɔ̀lɔ̀.
she lay egg
'She laid an egg.'
b. *È kɛ̀ wɔ̀lɔ̀ ŋmè.
*she ACC egg lay (Lord 1993: 120)

The semantic relationship between verb and object in 'laid down the book' is quite different from that in 'laid an egg.' In the first, the object is changed (moved, grasped, etc.) through the action of the verb; the object is "affected" (Lord 1982; Hopper 1986a). In the second, the object is produced or brought about by the action of the verb; the object is "effected." The accusative case marker in Gã can only be used if the object is "affected." For this same reason, the accusative case marker *kɛ̀* is inappropriate if the verb is one of experiencing:

(36) a. Tètè nà Kɔ̀kă.
Tete saw Koko
'Tete saw Koko.'
b. *Tètè kè Kɔ̀kă nà.
*Tete ACC Koko saw (Lord 1993: 120)

These kinds of constraints exist because Gã retains the restriction on accusative case marking which derives from the historical antecedent of this grammatical morpheme in the lexical verb 'to take': only objects which can be 'taken' are marked morphologically as accusatives.

Persistence of old meanings is a common phenomenon. Some differences in the meanings of the Present-Day English tense/modal auxiliaries reflect possibilities of meaning which have existed for over a thousand years. Bybee and Pagliuca show that: "the differences in the uses of these future markers [i.e., *will, shall, be going to*, PH and ET] can be understood as continuations of their original lexical meanings" (Bybee and Pagliuca 1987: 117). As mentioned in connection with example (2), there are several polysemies of the "future" *will*. These include prediction (the "pure" future), willingness, and intention. Bybee and Pagliuca show that two of these meanings were already implied in Old English. (37) exemplifies willingness, (38) intention:

(37) Gif he us geunnan wile, þæt we hine swa godne gretan moton...
if he us grant will, that we him so generous greet should...
'If he will/is willing to grant that we should greet him who is so gracious...
(*Beowulf* 346–7;[6] cited in Bybee and Pagliuca 1987: 113)

(38) Wen' ic þæt he wille, gif he wealdon mot, in þæm guðsele
think I that he will, if he prevail may, in the war-hall
Geotena leode etan unforhte.
of-Geats men eat unafraid
'I believe that he will, if he should prevail, devour the people of the Geats without fear in their war-hall.
(*Beowulf* 442–4; cited in Bybee and Pagliuca 1987: 113)

The "predictive" future has developed out of the intention/promise use of *will*. Bybee and Pagliuca show that the future meaning becomes established in the Middle English period when inanimates incapable of volition begin to appear as the subjects of *will* (see also Aijmer 1985). When this happened, it did not result in an across-the-board re-semanticization of *will*; the predictive future remains only one of several distinct meanings of *will* in Present-Day English. All that happened was that a new meaning was added to an already polysemous form, and thus new distributional possibilities were opened up for the form. Furthermore, the fact that *will* and *be going to* do not mean the same thing (*be going to* expresses present orientation and a goal-directed plan), is attributable to the fact that the latter had progressive and directional origins while the former did not.

The process of demotion of some lexical meanings and promotion of others is characteristic of semantic change in general. Those lexical meanings that are promoted in grammaticalization tend to be relatively abstract, and particularly relevant to expression of temporality, role relationships, connectivity, etc. (i.e., "grammatical meanings"). Furthermore, they tend to be the ones most salient in the original contexts/formulae within which grammaticalization takes place (e.g., intention regarding the future is salient in the contexts relevant to the grammaticalization of *be going to*). These originally salient meanings tend to persist over time and to constrain the later uses of the grammaticalized form. "Bleaching" must therefore be taken to be a very relative notion, and one that pertains almost exclusively to late stages of grammaticalization. An important question for future research is what exactly constitutes bleaching, when it can be said to set in, and how it correlates with morphosyntactic generalization.

## 4.6 Conclusion

We have argued that grammaticalization can be thought of as the result of the continual negotiation of meaning that speakers and hearers engage in. The potential for grammaticalization lies in speakers attempting to be maximally informative, depending on the needs of the situation. Negotiating meaning may involve innovation, specifically, pragmatic, semantic, and ultimately grammatical enrichment. It is largely motivated by metonymic and metaphorical inferencing. These are complementary processes linked with the dual mechanisms discussed in Chapter 3: reanalysis (linked with metonymy), and analogy (linked with metaphor). As innovations come to be adopted by members of the community, they may be subject to maximization of signal simplicity, and ultimately to various types of reduction, typically semantic bleaching, morphological bonding, and phonological attrition. It is to the unidirectional changes in structuration that arise from these diachronic processes that we now turn.

# 5

# The hypothesis of unidirectionality

## 5.1 Introduction

Grammaticalization as viewed from the diachronic perspective is hypothesized to be prototypically a unidirectional phenomenon. In this chapter we elaborate further on some general principles of unidirectionality, with particular attention to such diachronic issues as generalization, decategorialization, increase in grammatical status, and renewal. We will also discuss synchronic issues such as the resultant variability and "layering" arising from those diachronic processes. The hypothesis of unidirectionality is a strong one, and has been the subject of vigorous debate since the 1990s; in Section 5.7 we summarize this debate, and conclude that the counterexamples to unidirectionality that have been adduced so far are sporadic, whereas the evidence for unidirectionality is systematic and cross-linguistically replicated. In Chapter 6 we will discuss in more detail some well-known kinds of unidirectionality found in morphological change, that is, in the later stages of grammaticalization. In Chapter 7 we will suggest that similar types of unidirectionality also occur in morphosyntactic change, especially the development of complex clauses.

Once grammaticalization has set in, there are certain likely paths along which it proceeds. One path discussed by Meillet is that whereby a lexical item becomes a grammatical item, summarized as:

lexical item > morphology

As mentioned in Section 2.2, one of Meillet's examples was the Modern Greek future particle *tha*, as in:

(1) Tha têlefonêsô tou patéra mou.
FUT telephone DEF:ACC father:ACC my:ACC
'[I] will telephone my father.'

Meillet said that the source of *tha* is the Classical Greek *thelô hina* 'I wish that.' In the preceding chapters we have discussed examples that suggest this formulation of the path of grammaticalization is not quite right. The path is not directly from

lexical item to morphology. Rather, lexical items or phrases come through use in certain highly constrained local contexts to be reanalyzed as having syntactic and morphological functions. Schematically, this can be characterized as:

lexical item used in specific linguistic contexts > syntax > morphology

The lexical items that become grammaticalized must first be semantically general and serve commonly needed discourse functions. They then become syntactically fixed (they become constructions), and may eventually amalgamate morphologically, say, as stem and affix. The basic assumption is that there is a relationship between two stages A and B, such that A occurs before B, but not vice versa. This is what is meant by unidirectionality.

Before proceeding, it should be mentioned that the unidirectionality in question is not the same as what E. Sapir called "drift," although it has some similarities. In a famous statement, he said: "Language moves down time in a current of its own making. It has a drift" (1921: 150). Even if we were to emend this statement to acknowledge that it is not language that changes, but rather language users internalize different rules of grammar over time (see Section 3.2), there would still be a fundamental difference from what is meant by the unidirectionality of grammaticalization. Sapir was interested in the fact that English was losing case inflections on its pronouns (e.g., the *who–whom* distinction was losing ground), and that English was also becoming more periphrastic, for example, the possessive genitive was being replaced by *of*.[1] While Sapir was thinking of language-specific changes, and, within languages, of highly specific phenomena, other linguists later showed how the separate phenomena he discussed for English were in fact part of the same thing (case loss and periphrasis go hand in hand), and indeed part of larger typological shifts. R. Lakoff, for example, focused on drift "defined... very loosely as historical fluctuation between syntheticity and analyticity" (1972: 179), that is, on fluctuation between bondedness and periphrasis, while Vennemann (1975) focused on shifts from OV to VO order. Lakoff's summary of Sapir's notion of drift as "a metacondition on the way in which the grammar of a language as a *whole* will change" (R. Lakoff 1972: 178) serves well to differentiate "drift" from unidirectionality. Drift has to do with regularization of construction types within a language (see also Malkiel 1981), unidirectionality with changes affecting particular types of construction. Unidirectionality is a metacondition on how particular grammatical constructions will change.

## 5.2 Generalization

Among characterizations of grammaticalization, the following statement is typical: "It is often observed that grammatical meaning develops out of lexical

meaning by a process of generalization or weakening of semantic content [Givón 1973; Fleischman 1982; and many others]. It can be further hypothesized that... this semantic change is paralleled over a long period of time by phonetic erosion" (Bybee and Pagliuca 1985: 59–60). As we showed in Section 4.5, early stages of grammaticalization do not show bleaching. Rather there is a balance between loss of older, typically more concrete, meanings, and development of newer, more abstract ones that at a minimum cancel out the loss. Many are the result of pragmatic strengthening, and increase in informativeness with respect to grammatical function. We will not repeat these arguments here. Instead, we will focus on the notion of generalization. Generalization is a process which can be characterized, in part, as an increase in the polysemies of a form, and in part as: "an increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status" (Kuryłowicz 1976 [1965]: 69).

### 5.2.1 Generalization of meaning

We start with issues of generalization of meaning. Here the question is not whether the meanings become less distinct in the process of grammaticalization (as the hypothesis of bleaching suggests), but whether there are constraints on what meanings are subject to grammaticalization, and on how the meanings of lexical items that become grammatical may change.

When we think of the lexicon, we assume that it includes not only syntactic and phonological characterizations, but also characterization of such semantic relations as take part in fields (e.g., color terms, or verbs of saying: *say, tell, claim, assert*), relational terms (e.g., kinship terms), taxonomies (hierarchies such as *creature, animal, dog, spaniel*, including part–whole hierarchies, such as *finger-hand-arm-body, keel-boat*), complementaries (non-gradable pairs, with excluded middle, e.g., *true–false*), antonyms (gradable pairs, e.g., *slow–fast*), directional oppositions (e.g., *go–come, teach–learn*), synonyms (e.g., *fiddle–violin*), polysemies (e.g., *mug* [of tea, usually with a handle] and *mug* [of beer, often without a handle]), and so forth. General accounts of lexical semantics can be found in Ullmann (1962), Lyons (1977), Cruse (1986), Levin (1993) and the reader is referred to them for details.

As we have noted in previous chapters, the lexical meanings subject to grammaticalization are usually quite general. For example, verbs which grammaticalize, whether to case markers or to complementizers, tend to be superordinate terms (also known as "hyperonyms") in lexical fields, for example, *say, move, go.* They are typically not selected from more specialized terms such as *whisper, chortle, assert, squirm, writhe.* Likewise, if a nominal from a taxonomic field grammaticalizes into a numeral classifier, it is likely to be selected from the following

taxonomic levels: beginner (e.g., *creature, plant*), life form (e.g., *mammal, bush*), and generic (e.g., *dog, rose*), but not from specific (e.g., *spaniel, hybrid tea*), or varietal (e.g., *Cocker, Peace*) (Adams and Conklin 1973). In other words, the lexical items that grammaticalize are typically what are known as "basic words." In some cases, a formerly fairly specific term can be grammaticalized, but only after it has become more general. An example is provided by Latin *ambulare* 'walk' > French *aller* 'go' > future auxiliary. As these already general lexical items take on grammatical functions, they are generalized in so far as they come to be used in more and more contexts, that is, they gain wider distribution and more polysemies. This follows naturally from the fact that former inferences are semanticized.

To the extent that there is a difference between lexical and grammatical meaning changes, grammatical meaning changes are a subset of lexical ones. Most notably, grammaticalization does not provide evidence of narrowing of meaning. By contrast, although many lexical changes involve broadening (generalization) of meanings, there are also well-known cases of narrowing, typically of a higher to a lower taxonomic level. Examples of narrowing in lexical change include the restriction of *hound* to a special type of dog, in an avoidance of synonymy (the generic OE *hund* became narrowed to specific rank when Scandinavian *dog* was borrowed). Occasionally, narrowing may involve the restriction to a subtype, in which case the integrity of the lexical item and its components may become blurred. Examples include *raspberry, strawberry*, where *rasp* and *straw* have virtually lost their original independent meaning, but together with *berry* identify different varietals of berries. One lexical domain in which narrowing is particularly likely to occur is the domain of terms for dispreferred entities, especially those associated with taboo, social prejudice, or unpleasantness, however these are defined in a particular culture. Examples include *stink* (originally 'to smell/have an odor'), *cock* (now restricted in some registers to 'penis,' with the term for the bird replaced by *rooster*), *mistress* (originally 'head of household,' now restricted to female lover, or 'kept woman') (for a fuller study, see Allan and Burridge 1991).

One constraint on lexical change that is often noted in the literature is "avoidance of homonymic clash," in other words, avoidance of what might be dysfunctional ambiguity from the perspective of "one meaning one form" (see especially Geeraerts 1986). Well-known examples are the loss and replacement of one lexical item by another when two or more formerly distinct lexical items undergo regular phonological changes that make them potentially homonymous. Probably the most famous case is that of the replacement of the term for 'rooster' in southwestern France by forms such as *faisan* 'pheasant' when Latin *gallus* 'rooster' and *cattus* 'cat' fell together as *gat* due to regular sound change

(Gilliéron 1902–10). In England OE *lætan* 'prevent' and *lettan* 'permit' merged in ME as *let*. The first was replaced by *forbid* and *prevent*, and the potential problems of ambiguity between opposite meanings were avoided (Anttila 1989 [1972]: 182).

The majority of examples of avoidance of homonymic clash are lexical, and even in the lexical domain they are infrequent. In PDE the noun *sanction* is used in two meanings: 'permission' and 'penalty', and the verb *rent* is used in the senses 'rent out to' and 'rent from', with little sign of one member of the pair being ousted by the other. In acronyms such potential ambiguities are even more likely to be tolerated, cf. *PC* 'personal computer', 'police constable', 'politically correct.' Syntactic as well as other contextual clues tend to allow for disambiguation. Avoidance of homonymic clash is even more infrequent in the grammatical domain. If it does occur, it does so almost exclusively in connection with relatively independent morphemes. For example, it has been suggested that the idiosyncratic development of the Old Spanish prepositions *faza* 'toward' (< Latin *facie ad* 'with one's face to') and *(f)ata* 'until' (< Arabic *hatta* 'until') into Middle Spanish *(h)acia* and *fasta* respectively may be attributed to "the powerful urge to differentiate homonyms despite semantic similarity" (Malkiel 1979: 1). Similarly, the borrowing in Middle English of the Northern English feminine pronoun form *she* and of the Scandinavian plural pronoun *they* have been attributed in part to the merger in ME of OE *he* 'masc.sg.pro.,' *heo* 'fem.sg.pro.,' *hie* 'pl.pro.' (For a detailed study, including possible evidence for regulation of a new homonymic clash that developed between *thai* 'they' and the less frequent *thai* 'though,' see Samuels 1972.) However, as we have seen, grammatical items are characteristically polysemous, and so avoidance of homonymic clash would not be expected to have any systematic effect on the development of grammatical markers, especially in their later stages. This is particularly true of inflections. We need only think of the English *-s* inflections: nominal plural, third-person-singular verbal marker;[2] or the *-d* inflections: past tense, past participle. Indeed, it is difficult to predict what grammatical properties will or will not be distinguished in any one language. Although English contrasts *he, she, it*, Chinese does not. Although OE contrasted past singular and past plural forms of the verb (e.g., *he rad* 'he rode,' *hie ridon* 'they rode'), PDE does not except in the verb *be*, where we find *she was/they were*.

In sum, as grammaticalization progresses, meanings expand their range through the development of various polysemies. Depending on one's analysis, these polysemies may be regarded as quite fine-grained. It is only collectively that they may seem like weakening of meaning. The important claim should not be that bleaching follows from generalization, but rather that meaning changes leading to narrowing of meaning will typically not occur in grammaticalization.

### 5.2.2 Generalization of grammatical function

It follows from the preceding discussion that, in so far as grammatical forms have meanings, they will come to serve a larger and larger range of meaningful morphosyntactic purposes. Bybee and Pagliuca (1985) refer to the development of progressives into imperfects. A clear example in English is the spread of an originally highly constrained progressive structure *be V-ing*, that was restricted to agentive constructions, first to passives (*the house was being built* is a later eighteenth-century construction, replacing the earlier *the house was building*), and later to stative contexts, where it serves a "contingency" function, as in *There are statues standing in the park.*

Another example of the generalization of grammatical function is the development in Finnish of the genitive case morpheme to signal the underlying subject of a non-finite clause, for example, a clause introduced by a verb of cognition such as *uskoa* 'think, believe' (Timberlake 1977: 144–57). What is at issue here is reanalysis of the genitive in one inflectional context, and spread of the new use to an increasing number of new contexts. It can perhaps best be explained through an English example. In a sentence such as (2) there is a certain ambiguity at the surface level in the function of the word *Jane*:

(2) We watched Jane dancing/dance.

From one point of view, *Jane* is the person we are watching, and is therefore the object of *watch*. From another perspective, the event (Jane's dancing) is the object of *watch*. From yet another perspective, *Jane* is the subject of the verb *dance*. For example, we say:

(3) a. What we watched was Jane dancing/dance.
b. Who we watched was Jane dancing/dance.

However, in a language that has a system of cases that overtly distinguish between subjects and objects, it is possible to resolve the potential surface ambiguity in different ways, and there may be a diachronic shift from the one to the other. This is essentially the kind of change that occurred in Finnish.

In Finnish, in both older and modern periods, there is no single case for objects; instead, objects are indicated in several different ways (Comrie 1981: 125–36):

(a) with the accusative case if there is an overt subject, and the matrix verb is active
(b) with the nominative if there is no overt subject
(c) with the partitive if the verb is negated, or if the object is partially affected.

Subjects in non-finite clauses in Modern Finnish are indicated with the genitive case:

(4) Näen poikien menevän.
I-see boy:GEN:PL go:PART
'I see the boys going.' (lit. 'I see the going of the boys.')
(Anttila 1989[1972]: 104)

The genitive case for subjects of non-finite clauses in the modern language replaces an earlier case-marking system in which other cases were used. The following examples are from older Finnish texts:

(5) a. **Accusative**
Seurakunnan hen lupasi psysyueisen oleuan.
congregation:ACC he promised long-lasting:ACC being:ACC
'He promised that the congregation would be long-lasting.'
b. **Nominative**
Homaitan se tauara ia Jumalan Lahia poiseleua.
observed it goods:NOM and God:GEN gift:NOM being-lacking:NOM
'It is observed that the goods and the gift of God are lacking.'
c. **Partitive**
Eike lwle site syndi oleuan.
Not think this:PARTIT sin being:PART
'Nor does one think this to be a sin.'[3] (Timberlake 1977: 145)

These three cases comprise the set of cases that signal objects, and suggest that in earlier Finnish the whole event was construed as the object. Therefore the change to constructions such as are illustrated by (4) has been one of reanalysis whereby a noun that was once construed as the object of a main-clause verb comes to be construed as the subject of a subordinate-clause verb. The participle in the non-finite clause has also changed: in the earlier type of sentence it is inflected and agrees with the object case (partitive, nominative, or accusative) of the noun. But in the later type of sentence the participle is not inflected – it remains invariant. While it has not acquired any new verbal properties such as tense, it has shed its noun-like properties of inflection (that is, it has become decategorialized; see next section).

How did this come about? Timberlake (1977), following Anttila (1972: 103a), suggests that the reanalysis originated in very local contexts: specifically those constructions in which the case morpheme was ambiguous. The original accusative **m* and the genitive **-n* of singular nouns became homophonous as a result of a phonological change in which word-final nasals merged as *n*. As a consequence, those constructions with singular nouns (e.g., 'boy') serving as objects with participial attributes could be reanalyzed as partitive attributes of a verbal noun (that is, as surface subjects of non-finite verbs).[4]

It appears that a reanalysis that occurred in one very local construction (with singular agentive nouns) was then generalized through a number of new environments

via the following historical stages: first-singular NPs and pronouns; then, in addition, plural pronouns and plural agentive NPs; and finally plural non-agentive NPs. Timberlake suggests that among other things these stages reflect a spread along a functional hierarchy from noun phrases that are more subject-like to less subject-like noun phrases. The highest on the hierarchy are entities that are agentive, and individuated (a singular noun or pronoun), and therefore are prime candidates for being subjects. Next come those that, if not singular, are most likely to initiate actions, that is, personal pronouns and nouns denoting an agent. Finally come non-singular nouns that are less likely to be subjects or to initiate actions, such as inanimates. The syntactic reanalysis is therefore driven by a hierarchy of semantic contexts rather than by strictly syntactic structure.

It would be remarkable to find a hierarchy of this kind reversed. We are unlikely to find, for example, that subjects of verbs (whether finite or non-finite) could originally comprise a broad class of all nouns and pronouns, but that the class of possible subjects of verbs progressively narrowed to exclude, first, inanimate plural nouns, then plural pronouns and animate nouns, and so finally became restricted to singular pronouns and nouns. Nor would we expect to find subject case marking beginning with abstract, inanimate, and plural nouns and only later spreading to animate, anaphoric pronouns.

## 5.3 Decategorialization

Another perspective on unidirectionality presents it as a spread of grammaticalization along a path or cline of structural properties, from a morphologically "heavier" unit to one that is lighter, that is, from one that tends to be phonologically longer and more distinct (e.g., with stressed vowels) to one that tends to be less distinct and shorter. It is from this structural perspective that we approach unidirectionality in this section, with particular attention to the issue of the correlation between increased grammatical status and decategorialization. Important factors in our discussion will be the tendency for relatively prototypical members of Noun, Verb, and Adjective categories to become less prototypical in their distribution, in at least one of their uses. Another will be frequency: the more frequently a form occurs in texts, the more grammatical it is assumed to be. Frequency demonstrates a kind of generalization in use patterns.

In the standard view of grammatical categories, linguistic forms are classified in advance according to criteria that may vary quite widely from language to language. If morphological criteria are available, these usually play a role in the assignment of a form to a category. In the Indo-European languages, for example, "nouns" are typically identified through properties such as case, number, and gender, and

"verbs" through properties such as tense, aspect, and person/number agreement. If morphology is lacking, as is largely the case in Chinese, categories are usually identified through functions such as (for "nouns") ability to be a topic (e.g., ability to be referential, unavailability for questioning), or (for "verbs") ability to serve as certain kinds of predicates. When a form undergoes grammaticalization from a lexical to a grammatical form, however, it tends to lose the morphological and syntactic properties that would identify it as a full member of a major grammatical category such as noun or verb. In its most extreme form such a change is manifested as a cline of categoriality, statable as:

major category (> intermediate category) > minor category

In this schema the major categories are noun and verb (categories that are relatively "open" lexically), and minor categories include preposition, conjunction, auxiliary verb, pronoun, and demonstrative (relatively "closed" categories). Adjectives and adverbs comprise an intermediate degree between the major and minor categories and can often be shown to derive straightforwardly from (participial) verbs and (locative, manner, etc.) nouns respectively. At least two major categories – noun and verb – are identifiable in almost all languages with some consistency (see Hopper and Thompson 1984, 1985; Croft 1991, however, argues for three major categories: noun, verb and adjective), whereas the minor categories vary from language to language, being manifested often only as affixes. Given the hypothesis of unidirectionality, it can be hypothesized that diachronically all minor categories have their origins in major categories.

A clear case of shift from major to minor category is seen in the conjunction *while*, as in *while we were sleeping*. As we saw in Section 4.3.2, historically, *while* was a noun (OE *hwil*) meaning a length of time; this meaning is still preserved in PDE (*we stayed there for a while*). As a conjunction, however, *while* has diverged from this original lexical function as a noun, and is grammaticalized as a signal of temporal organization in the discourse. Among the changes involved in the grammaticalization of *while* to a conjunction is a loss of those grammatical features that identify *while* as a noun. When it is used as a conjunction, *while*:

(a) cannot take articles or quantifiers
(b) cannot be modified by adjectives or demonstratives
(c) cannot serve as a subject or as any other argument of the verb
(d) can only appear in the initial position in its clause, and
(e) cannot subsequently be referred to by an anaphoric pronoun.

It will be noted that these categorical changes are here presented as negative qualities or losses. This structural characterization contrasts with the pragmatic one in Chapter 4, which focuses on the fact that *while* has "gained" an ability to

link clauses and indicate temporal relationships in discourse in a way that was not possible for it as an ordinary noun. In ascribing "decategorialization" to a form, we are not tracing the decay or deterioration of that form, but its functional shift from one kind of role to another in the organization of discourse. Because this new role is one that does not require overt expression of the linguistic properties associated with discourse reference, such as articles and adjectives, speakers cease to signal these expressions overtly, but such discontinuance of use should not be identified with simple loss, as if somehow a conjunction were a "degenerate" noun.

Similarly, as they become grammaticalized, verbs may lose such verb-like attributes as the ability to show variation in tense, aspect, modality, and person-number marking. In the following pair of sentences, the initial participial "verb" can still show some verb-like features when it is understood literally as in (6), but loses this ability when it is understood as a conjunction (see Kortmann and König 1992), as in (7):

(6) Carefully considering/Having carefully considered all the evidence, the panel delivered its verdict.

(7) Considering (*having carefully considered) you are so short, your skill at basketball is unexpected.

In (6), the participle *considering* can take an adverbial modifier, can have a present or past tense form, and must have an understood subject that is identical with the main clause subject; it therefore in a sense has a (recoverable) subject, like a verb. In (7), none of these verb-like attributes are available to *considering*.

Two typical paths of development have been much discussed in the literature. One is a path for nominal categories, another for verbal. These are "grammatical clines," in the sense that they make reference to hierarchical categories relevant to constituent structure. They are also clines of decategorialization, in that the starting point for the cline is a full category (noun or verb) and the intermediate points are characterized by a loss of morphological structures associated with the full category.

Some caveats should be noted in any discussion of unidirectionality along a cline. Firstly, as mentioned in Section 1.2.2, clines should not be thought of as continua strictly speaking. Rather, they are metaphorical generalizations about likely functional shifts, "paths" along which certain grammatical properties cluster around constructions with "family resemblances" (Heine 1992) (e.g., constructions resembling auxiliaries, or articles, or prepositions). These cluster points should not be thought of as rigid "resting spots." A metaphor for linguistic forms in these clusters might be chips in a magnetic field; over time fewer or more of the chips in the clusters may be pulled magnetically to another field. Secondly, because there is always a period of overlap between older and newer forms and/or functions

of a morpheme, the cline should not be thought of as a line in which everything is in sequence. As we indicated in Chapter 1, Heine and his colleagues use the term "chaining" to emphasize the non-linearity of relations on a cline. We prefer the term "layering" (see Section 5.5 below) because that metaphor allows more readily for multiple origins of a grammatical form. But here, as in other matters, the metaphors are only partly helpful.

A further caveat is that because the particular course of events in any cline that is presented is not predetermined, once an item has been reanalyzed, continued grammaticalization is not inevitable, but may be suspended indefinitely at any point. Indeed, it is typically suspended at the pre-affixal stage in situations of language death (Dressler 1988). Furthermore, we cannot logically work backwards from some given point to a unique antecedent on the same cline. Absent a historical record, we cannot, for example, uniquely conclude from a cline on which prepositions occur (see Section 5.3.1) that any given preposition must once have been a certain noun, although we can state that it might have been. This is because other sources for prepositions, such as verbs, are possible. For example, the preposition *during* was once the *-ing* form of an obsolete verb meaning 'to last, endure.'

It is both difficult and unnecessary to illustrate the whole of any one cline with a single form. It is difficult because historical records are rarely long enough to permit the recovery of the entire sequence of events, and so usually we must either posit reconstructed forms for past stages, or else indulge in speculation about future stages. And it is unnecessary because what is at issue is the directionality between adjacent forms on the cline, not the demonstration of the complete sequence of events for a given form. Furthermore, at any one stage of a language, the historical unidirectionality may be obscured by synchronic evidence of renewal of old forms (see Section 5.4.3 below). And, very importantly, different languages tend to exemplify different clusterings on a cline. In other words, not every position on a cline is likely to be equally elaborated at any particular stage. For example, English and Romance languages have fairly elaborated clitic structures, and minimally elaborated inflectional structures, while some other languages, such as Slavic languages, have highly elaborated inflectional structures. Last, but not least, evidence for clines is historical. Ultimately it is the historical record alone that gives us evidence for a cline. Nonetheless, certain facts can point to a cline even when no direct documentation exists. Typical pathways of change identified through cross-linguistic diachronic study can be seen in the synchronic system, for example when we find the same verb used both as a full contentive and as an auxiliary, or a definite article that is clearly cognate with a demonstrative. Differences in the speech community, such as those of dialect, register, speech tempo, etc., may also reveal forms at different points along the same cline.

### 5.3.1 A noun-to-affix cline

We will first consider a cline whose starting point is a full noun, specifically a relational noun (to be defined below). The cline has been presented as follows (C. Lehmann 1985: 304):

relational noun >
secondary adposition >
primary adposition >
agglutinative case affix >
fusional case affix

These five points should not be taken as strictly discrete categories, but as marking, somewhat arbitrarily, cluster points on a continuous trajectory. In other words, most forms that are locatable on this cline will not fit unambiguously into one or the other of the named categories, but will be seen as moving toward or away from one of them in a direction that we can call "from top to bottom," following the writing conventions adopted above.

A relational noun is one whose meaning is a location or direction potentially in relation to some other noun. *Top, way*, and *side*, and many body parts such as *foot, head*, and *back* often assume a relational meaning, and in doing so may enter this cline (Heine, Claudi, and Hünnemeyer 1991b). The relational noun usually appears as the head noun of a phrase, such as *side* in *by the side of* (> *beside*), or as an inflected noun, such as German *Wegen* 'ways [dative plural]' > *wegen* 'because of,' as in *wegen des Wetters* 'because of the weather.'

The term "adposition" is a cover term for prepositions and postpositions. Secondary adpositions are usually forms (words or short phrases) that define concrete rather than grammatical relationships. They are typically derived from relational nouns, e.g., *beside the sofa, ahead of the column.* Primary adpositions are thought of as the restricted set of adpositions, often monosyllabic, that indicate purely grammatical relationships, such as *of, by*, and *to.* However, primary adpositions may themselves be characterized by a cline in meaning in so far as some may have a relatively concrete spatial meaning, for example, *by* in a *hotel by the railway station*, while others do not, for example, *by* in *arrested by a plain clothes policeman.* While the distinction between concrete and grammatical meaning is often not easy to define, the spatial meanings of primary adpositions are always very general. The spatial meanings are moreover likely to be recovered by some kind of reinforcement, e.g., *by the railway station > down by the railway station; in the house > within/inside the house.*

Primary adpositions are easily cliticized, and may go one step further to become affixes. Locative suffixes of various kinds can often be traced back to earlier

postpositions (and, still further back, to nouns). In Hungarian the suffix *-ban*, as in *házban* 'house-inessive/in the house,' was once the locative case of a relational noun meaning 'interior.' Similarly, the elative, meaning 'away from,' as in *házból* 'from the house,' shows a suffix *-ból* that goes back to a different case of the same word. The final *n/l* segments of the two suffixes are themselves relics of the two case endings on the relational noun (Comrie 1981: 119).

The Hungarian suffixes *-ban* and *-ból* are examples of agglutinative suffixes: they are joined to the stem with a minimum of phonological adjustments, and the boundary between stem and suffix is quite obvious. By contrast, fusional affixes show a blurring not only of the stem/affix boundary, but also of the boundaries among the affixes themselves. In Latin *militibus* 'to/from the soldiers,' *-ibus* is a dative/ablative plural suffix which cannot be further analyzed, and in *miles* 'soldier:NOM:SG' the *-t-* of the stem **milet* has been lost through assimilation to the nominative singular suffix *-s*.

### 5.3.2 A verb-to-affix cline

A parallel cline has a lexical verb as its starting point which develops into an auxiliary and eventually an affix (verbal clines have been the subject of several cross-linguistic studies, most notably Bybee 1985; Bybee and Dahl 1989). There are a number of points on this cline which can be characterized as follows:

full verb >
auxiliary >
verbal clitic >
verbal affix

On this cline, we typically find that verbs having a full lexical meaning and a grammatical status as the only verb in their clause come to be used as auxiliaries to another verb. Auxiliary verbs typically have semantic properties of tense, aspect or mood, and show specialized syntactic behavior (e.g., in PDE, auxiliary *will* cannot occur in certain temporal and infinitival clauses; hence the following are ungrammatical: **Let's wait till she will join us, *I would like her to will join us*). There are numerous examples of the shift from main to auxiliary verb. From PDE we have cited *go* in *be going to*. Other examples include *have*, which is a full verb in *have a book*, but a partial, or "quasi-auxiliary" in *have a book to read* and *have to read a book*, and a full auxiliary in *have had a book* (here auxiliary *have* precedes main verb *have* in its past-participial form). Another example is *keep*, which is a full lexical verb in *she keeps indoors on cold days*, but an auxiliary in *she keeps watering the tomatoes*. Auxiliaries may historically become clitics, like English *have* in *we've built a new garage*. And such clitics may become affixes. As

discussed in Section 3.3.1, this happened in the French future-tense paradigm, as in *ils parleront* 'they will speak,' where *-ont* reflects a former cliticized auxiliary 'have.'

An additional position intermediate between main verb and auxiliary verb has been proposed by Hook (1974, 1991). Presenting data in which a clause may contain a complex of two verbs known as a "compound verb," Hook has argued that in Hindi and other Indo-Aryan languages there is a class of "light verbs" which, following Slavic terminology, he calls "vector verbs." One of these verbs, the "main" or "primary" verb, carries the main semantic verbal meaning of the clause, and is non-finite. The other, the "vector" verb, is a quasi-auxiliary which is finite, and therefore carries markers of tense, aspect, and mood. Semantically, it adds nuances of aspect, direction, and benefaction to the clause. In modern Indo-Aryan languages vector verbs are homophonous with main verbs meaning 'go, give, take, throw, strike, let go, get up, come, sit, fall,' etc., and are derived from them (Hook 1991).

Since Hindi is a verb-final language, the order of the two verbs in the "compound" construction is main-vector:

(8) māĩ ne das baje aap ko fon kar liyaa
I AGT 10 o'clock you DAT phone make VECTOR/brought
'I telephoned you at 10 o'clock.'

(9) māĩ ne use paise de diye.
I AGT him:DAT money give VECTOR/gave
'I gave him the money.' (based on Hook 1974: 166–7)

The vector verbs are in the past tense, and, as is indicated by the glosses, are homophonous with past tenses of verbs meaning 'bring' (*lenaa*) and 'give' (*denaa*). The main verb in (8) is *kar* 'make,' and in (9) *de* 'give.' In (9), then, 'give' appears as both the main verb (*de*) and the vector verb (*diye*). The semantic force of the vector verb is hard to specify, but in general it expresses perfectivity. Both of the sentences could be phrased with the main verb alone, as in:

(10) māĩ ne das baje aap ko fon kiyaa.
I AGT 10 o'clock you DAT phone make
'I telephoned you at 10 o'clock.'

(11) māĩ ne use paise diye.
I AGT him:DAT money give
'I gave him (the) money.'

However, (10) leaves open the question of whether the call was successfully put through, while (8) would definitely suggest that the call was completed. (9) implies that all the money was given, while again (11) leaves this open. In other words, the compound verb has all of the semantic complexities of perfective aspect, such as

Table 5.1 *Approximate proportion of compound verbs in Indo-Aryan languages*

| Language | Proportion |
|---|---|
| Shina (Gilgit) | 0 |
| Kashmiri | 1 |
| Marathi | 3 |
| Gujarati | 6 |
| Bengali | 7 |
| Marwari | 8 |
| Hindi–Urdu | 9 |

*Source:* based on Hook (1991: 65)

emphasis on completion, full affectedness of the verb's object, and involvement of an agent. It should also be noted that there are certain types of construction where it is mandatory.

Hook argues that we have here a movement toward grammaticalization of a set of verbs which are becoming specialized as vector verbs. In his view, vector verbs therefore represent an intermediate stage between full verb and auxiliary. From this perspective it is interesting to trace the trajectory of the change to vector status by looking both at earlier texts and at other Indo-Aryan languages closely related to Hindi in which the change has not proceeded so far. This latter strategy is a highly convenient one because the languages are fully accessible and texts in the various cognate languages are available which are thematically similar or identical. Consider first the relative textual frequency of simple versus compound verbs in Hindi and some of the related languages (Hook 1991: 65). Table 5.1 shows the approximate proportions of compound verbs in texts among various languages of the group. That is to say, in comparable texts there are about nine times as many compound verbs in Hindi–Urdu as in Kashmiri, and twice as many in Gujarati as in Marathi. Textual frequency is often considered prima facie evidence of degree of grammaticalization (see, e.g., Heine, Claudi, and Hünnemeyer 1991a; Bybee, Perkins, and Pagliuca 1994; also Section 5.6 below).

Textual frequency is accompanied by differences in the kinds of main verbs which may be accompanied by one of the vector verbs. In Marathi, which represents a less advanced stage from the point of view of the grammaticalization of vector verbs, there is a preference for them to be used only when the main verb is inherently unspecified for completedness; in other words, they add aspectual information. In Hindi–Urdu, where vector verbs are more frequent, they have spread to environments in which they are redundant, that is, to inherently completive verbs, including communication verbs, which, in context, tend to be completive (as, for

Table 5.2 *Ratio of compound verbs in Marathi and Hindi–Urdu according to semantic class of main verb*

| Semantic class of main verb | Marathi | Hindi–Urdu |
|---|---|---|
| Displacement or disposal | 10% | 44% |
| Creation/change of state | 8% | 30% |
| Change of psychic state | 8% | 8% |
| Sensation or perception | 4% | 8% |
| Mental action | 4% | 10% |
| Communication | 2% | 20% |

*Source:* based on Hook (1991: 68–9)

example, *she said*) (Hook 1991: 69–70). Table 5.2 shows the difference between Marathi and Hindi–Urdu with regard to the ratio of compound verbs to the total verb forms for certain classes of main verbs. This suggests that, as grammaticalization proceeds, the semantic range of the emergent grammatical morpheme expands or generalizes. The difference between Hindi and Marathi is a statistical one, not a categorical one. Challenging Hook, Butt (Forthcoming) argues that since light verbs are highly stable and are historically a dead end, they are not intermediate and should not be included in the verb-to-affix cline; they arise out of reanalysis of main verbs, but not out of grammaticalization, since they do not involve phonological loss, or any clear trajectory toward auxiliaries. However, even if they do not belong on the cline, they do suggest grammaticalization – phonological attrition is not a prerequisite, as the development of auxiliary *must* and *might* in English demonstrate, and passage through a complete cline is never necessary or expected for grammaticalization. In this case, the decategorialization of the main verb and the frequency patterns suggest strongly that grammaticalization is involved.

### 5.3.3 Multiple paths

So far our examples in this chapter have arguably been of changes along a single cline. Not all cases of grammaticalization are of this kind, however. Some show development along two or possibly more different clines. Craig has given the name "polygrammaticalization" to such multiple developments, where a single form develops different grammatical functions in different constructions. Her example is from Rama. As alluded to in Section 4.3.2 in connection with example (23), **bang* 'go' in Rama developed into: (i) a temporal marker in the verbal

domain; (ii) a purposive adposition in the nominal domain, and then a conjunction in the complex sentence domain (conjunctions are analyzed as adpositions to clauses, see Section 7.3). Givón (1991b) shows that relative-clause morphology, specifically Biblical Hebrew *'asher* (probably derived from *'athar* 'place'), spread both into adverbial clause domains such as causatives, and also into complementizer domains. Lord (1976, 1993) shows that 'say' complementizers generalize in different languages to causal clauses in languages such as Yoruba and Telugu, and to conditionals in Gã. Development along such multiple paths into different grammatical domains conforms to unidirectionality in that the later forms are more grammatical (abstract, reduced, generalized) than the earlier ones.

Not all multiple paths show split, however. Just as in phonology we find split and merger or convergence, so in grammaticalization we find that sometimes forms from several slightly different domains may converge on one grammatical domain, provided that there is pragmatic, semantic, and syntactic appropriateness. The phenomenon of convergence from various subpaths of grammaticalization is often described in terms of the metaphor of convergence in "semantic space." One example is provided by Kemmer (1993b), who charts the domain of reflexives and middle voice. In her characterization of these domains, the reflexive construction expresses situations where the initiator and endpoint of the event refer to the same entity, but are conceived as conceptually different, as in *hit oneself, see oneself.* Middle-voice constructions such as *wash (oneself), dress, get angry, think* are similar in that they express situations where initiator and endpoint in the event are the same entity, but they are different in that the conceptual difference is less than that in reflexive situations. Kemmer (1992) shows that the generalization of reflexives into middles is very common cross-linguistically (see also Faltz 1988), but other sources are evidenced too, such as passive and reciprocal (the 'each other' construction). Other semantic maps with multiple subpaths have been suggested for evidentials (L. Anderson 1986) and conditionals (Traugott 1985b).

## 5.4 Some processes participating in unidirectionality

Several processes typical of grammaticalization contribute to semantic and/or structural generalization and decategorialization. They may, however, at first glance appear to complexify the process, and to raise questions about it. We will discuss three typical processes: specialization, whereby the choice of grammatical forms becomes reduced as certain ones become generalized in meaning and use; divergence, whereby a less grammatical form may split into two, one variant maintaining its former characteristics, the other becoming more grammatical; and

thirdly, renewal, whereby old forms are renewed as more expressive ways are found of saying the same thing.

### 5.4.1 Specialization

In considering textual frequency and semantic generalization of the sort discussed in connection with Indo-Aryan compound verbs above, we might imagine that this textual frequency and semantic generalization could in theory proceed with exactly the same set of vector verbs at each stage. However, as the semantic range of individual vector verbs becomes greater and more general, the chances of overlap and ambiguity on the fringes are bound to increase, and some of the vector verbs will become redundant and fall out of use. Consequently, while the text frequency of some of the vector verbs increases, the number of different vector verbs decreases. This exemplifies specialization, the process of reducing the variety of formal choices available as the meanings assume greater grammatical generality (Bréal 1991 [1882]: 143; Hopper 1991: 22). Hook (1991: 75) notes that:

(a) In both the Hindi–Urdu and the Marathi text samples, the most frequently occurring vector verb was the one meaning *go*. But in Hindi–Urdu *go* accounted for 44% of all vector verbs in the sample, while in Marathi it accounted for only 32% of all vector verbs.

(b) The five most frequent vector verbs in the Hindi–Urdu text sample accounted for 92% of the total number of vector verbs; while in Marathi the five most frequent vector verbs accounted for only 82% of the total number.

(c) In the Hindi–Urdu text sample, only 10 different verbs were used as vector verbs; in the Marathi sample, 14 different verbs were used as vector verbs.

These statistics suggest that in Hindi a handful of verbs is gaining the ascendancy in the competition for auxiliary status. Here again we see a major difference between lexical and grammatical items. In any domain of meaning the number of lexical items will vastly exceed the number of grammatical morphemes. Moreover, lexical items form an open class, which can be added to indefinitely, while the inventory of grammatical morphemes is added to only very sparingly, by items originating in the lexical class. If we compare, for example, the number of tense and aspect distinctions which are expressed grammatically in a given language with the number of ways of modifying actions and events available through lexical adverbs, we can see immediately that the process of grammaticalization is a selective one in which only a few lexical forms end up as grammatical morphemes. However, old forms may continue to coexist (see especially Section 5.5 on "layering" below); therefore specialization does not necessarily entail the elimination of alternatives, but may be manifested simply as textual preferences, conditioned by semantic types, sociolinguistic contexts, discourse genres, and other factors.

Another good example of specialization is the Modern French negative construction, which in the written language consists of a negative particle *ne* before the verb and a supportive particle, usually *pas*, after it:

(12) Il ne boit pas de vin.
he NEG drinks NEG PARTIT wine
'He doesn't drink wine.'

As indicated in Section 3.6, at earlier stages of French, predicate negation was accomplished by *ne* alone placed before the verb. This *ne* was itself a proclitic form of Latin *non*, Old French *non*. Already in Old French, a variety of adverbially used nouns suggesting a least quantity (Gamillscheg 1957: 753) could be placed after the verb in order to reinforce the weakened negation. These reinforcing forms included; among others:

*pas* 'step, pace'
*point* 'dot, point'
*mie* 'crumb'
*gote* 'drop'
*amende* 'almond'
*areste* 'fish-bone'
*beloce* 'sloe'
*eschalope* 'pea-pod'

They seem originally to have functioned to focus attention on the negation itself, rather than on the verb being negated; without the reinforcer, the focus of attention would fall on the verb (Gamillscheg 1957: 755). By the sixteenth century, the only ones still used with negative force were *pas, point, mie*, and *goutte*, all of them more general terms than those which were no longer used. Even in the sixteenth century, *pas* and *point* predominated, and by the modern period these were the only two which were still in use. Of the two remaining, there is a clear sense in which *pas* is the only "unmarked" complement to *ne* in negation. It is by far the more frequent in discourse, it participates in more constructions than *point*, and is semantically more neutral, *point* being an emphatic negator. *Point* today denotes only emphatic negation contradicting a previous assertion (though there is some possibility that this semantic distinction between *pas* and *point* was originally an artifact of French grammarians). In other words, *point* cannot be relatively negative, perhaps because of the operation of persistence (see Section 4.5) – a 'point' is not relative. Therefore in a sense *pas is* the only form which has become fully grammaticalized out of an array of forms which could reinforce negation in Old French. It has also become a negative morpheme in its own right in a number of contexts (*pas moi* 'not me,' *pas plus tard qu'hier* 'not later than yesterday,' etc.), and in the spoken language

the *ne* of ordinary verbal negation is usually dropped (*je sais pas* 'I don't know'), leaving *pas* as the only mark of negation.

This thinning out of the field of candidates for grammaticalization as negators is accompanied, as usual, by a shift of meaning, in this case from the lexical meaning 'step, pace' to the grammatical meaning of negation. There is in this instance no phonological change peculiar to the grammaticalized form, and no fusion with neighboring words. The original noun *pas* lives on in its earlier meaning of 'step, pace,' and it remains completely homophonous with the negative particle.

Before leaving the example of French negators, it is worthwhile to consider its implications for the discourse motivations of grammaticalization. The origins of the use of concrete nouns as reinforcers of negation cannot be documented, but it is reasonable to surmise that they were once linked to specific verbs. Presumably *mie* 'crumb' was once collocated with verbs of eating, i.e., 'he hasn't eaten a crumb,' or perhaps – in a milieu where food was scarce and bread a common means of payment for services rendered – giving, and so on: 'they didn't pay/give me a crumb.' Similarly with *goutte* 'drop': 'he hasn't drunk a drop.' With *pas* 'step,' the verb must have been a verb of motion: 'he hasn't gone a step.' We may compare the vernacular English use of 'drop' and 'spot' in (13), where the context of *drop* has similarly been expanded in a way that suggests incipient grammaticalization:

(13) He didn't get a drop (spot) of applause.

*Bit* (i.e., a small bite, cf. German *biβchen*) is of course normal in such contexts for all dialects.

There is nothing strictly conceptual (semantic) about nouns such as 'peapod,' 'crumb,' 'step,' and the others which would predict that they would become negators. They are not all intrinsically "minimal quantities" of things, but they assume that meaning when combined in discourse with negators. However much in retrospect we see semantic commonalities in the ways in which forms evolve, it is important to keep in mind that ultimately their roots and motivations are in real speech and real collocations, and that the study of how forms are distributed in discourse is indispensable in understanding grammaticalization.

### 5.4.2 Divergence

When a lexical form undergoes grammaticalization to a clitic or affix, the original lexical form may remain as an autonomous element and undergo the same changes as ordinary lexical items (Hopper 1991: 22). This characteristic of "divergence" is a natural outcome of the process of grammaticalization, which begins as a fixing of a lexical form in a specific potentially grammatical environment, where the form takes on a new meaning (the same phenomenon is called "split" in Heine and Reh 1984: 57–9). Since the context of incipient grammaticalization is

only one of the many contexts in which the lexical form may appear, when the form undergoes grammaticalization, it behaves just like any other autonomous form in its other, lexical, contexts, and is subject to semantic and phonological changes and perhaps even to becoming obsolete.

Consider, for example, the English indefinite article *a/an*. In OE this word was *an*. Its vowel was long, the same as the vowel in the word for 'stone,' *stan*. It meant 'one, a certain,' and was not used in the general non-specific sense that we might use it in today, as in *I caught a fish*, but was chiefly used to "present" new items, as in *There was once a prince of Tuscany*.

The normal phonetic development of this word in PDE would have been [own], rhyming with 'stone.' While in Scottish English the two words continue to have the same vowel ([eyn], [steyn]), in most other dialects a phonological development peculiar to this word occurred yielding the PDE full form [wʌn]. The cliticized form of this same word became de-stressed, and formed a single accentual unit with the following noun or constituent of the noun phrase (adjective, etc.), resulting in its PDE form and distribution: the vowel [ə], and retention of the [n] when followed by a vowel. The divergent histories of the stressed and unstressed forms can be seen in alternations such as the following:

(14) Would you like *a* Mai Tai? – Yes, I'd love *one*.

We turn now to a more detailed example of divergence, from Malay. Nouns in certain discourse contexts in Malay must be preceded by a classifier (Hopper 1986b). Classifiers occur in many languages in association with number words; they are comparable to the word 'head' in 'ten head of cattle' (see Schachter 1985: 39–40). The following examples are from a Malay narrative text known as the *Hikayat Abdullah* (CL stands for (nominal) classifier):

(15) Ada-lah kami lihat tiga *orang* budak-budak kena hukum.
happen we see three CL boy-PL get punishment
'We happened to see three CL boys being punished.' (Hopper 1986b: 64)

(16) Maka pada suatu pagi kelihatan-lah *sa-buah* kapal rendah
and on one morning was: seen-PARTICLE a:CL ship low
'Then one morning a CL low ship was sighted.' (Hopper 1986b: 77)

(17) Mati-lah tiga *ekor* tikus.
dead-PARTICLE three CL rat
'Three CL rats were killed.' (Hopper 1986b: 144)

The italicized words *orang, buah*, and *ekor* are classifiers. In Malay they indicate that the noun which is classified is new and relatively important to the discourse. They are not interchangeable: *orang* is used before human nouns, *buah* before objects of a bulky size, and *ekor* before nouns which denote animals of any kind. There is in addition a more general classificatory word *suatu* (also found as *satu*), used before singular objects (in the sense of 'things') and competing with *buah*:

(18) Maka di-beri-nya hadiah akan Sultan itu *suatu* kereta bogi.
and he-gave as-gift to Sultan the a:CL carriage buggy
'And he gave a CL buggy carriage to the Sultan as a gift.'
(Hopper 1986b: 166)

The classifiers themselves are preceded, as in these examples, by a number word such as *tiga* 'three,' or the singular clitic *sa-* 'one, a.' However, *suatu* is only singular and is not preceded by *sa-* or any other number word or quantifier; the reason for this, as we shall see, is that the *s-* of *suatu* is itself historically the same singular morpheme *sa-* that is found with the other classifiers when the classified noun is singular.

In Malay, as in other classifier languages, most of the classifiers double as autonomous nouns. *Buah* means 'fruit,' *orang* 'person, man,' and *ekor* 'tail.' There is thus a divergence between a lexical meaning and a grammaticalized meaning. On occasions when the two come together, a sort of haplology (contraction of adjacent identical material) occurs; while the word for a Malay person is *orang Malayu*, one instance of *orang* stands duty for both the classifier *orang* and the head noun *orang*. Consequently, 'five Malay men' is:

(19) lima *orang* Melayu
five CL/men Malay

rather than

(20) *lima *orang* orang Melayu

Similarly, with *buah*: a pomegranate is *buah delima*, but if the expression is classified, in place of *sa-buah buah delima* 'a pomegranate,' *sa-buah delima* is used.[5] The constraint against *orang, buah*, etc. occurring with homophonous lexical items shows that grammaticalization has not proceeded so far that these classifiers and their cognate lexical noun are sensed as being formally unrelated.

With *suatu* the situation is quite different. While this form competes with *sa-buah* as the classifier for bulky inanimate objects, it is often used with abstract nouns in contexts where *sa-buah* would not be appropriate, e.g., *suatu khabar* 'a piece of news,' *suatu akhtiar* 'an idea.' The form *suatu* is in the modern language somewhat archaic and literary; it is generally pronounced and written *satu*, and has, significantly, become something like a strong indefinite article. It is also the numeral 'one' when counting 'one, two, three, etc.,' and in this sense often corresponds in the texts to English 'one' in 'one day, one morning,' etc. The older form with *u* (*sautu*) suggests a reconstruction **sa watu* 'one stone,' with a noun **watu* 'stone' having cognates in Javanese *watu* 'stone' and Malay *batu* 'stone.' The phonological change from initial *w* to initial *b* before *a* has several

parallels in Malay. However, *batu* does not serve as a classifier in modern Malay, although it would not be at all strange if it did. There is a classifier *biji* whose corresponding lexical noun means 'seed,' and which is used for smallish round objects; larger objects, as we have seen, are classified with *buah*. Presumably **watu* as a classifier once covered a similar range, classifying three-dimensional objects of an indeterminate size. The older form **watu* 'stone' continues as a frozen classifier embedded in an indefinite-article-like quantifier meaning roughly 'a, one.' It is distributed in the texts much like the complex *sa-* + classifier, referring to new and prominent things in the discourse, but it occurs preferentially with nouns which do not belong in an "obvious" category for one of the established classifiers. Interestingly, in the texts it is often used with abstract nouns, many of them of Arabic origin, and with nouns denoting concrete objects which are not part of traditional Malay culture.

The evolution represented by **watu* 'stone' > **sa watu* 'a (classifier for smallish objects)' > **sa watu* 'a (classifier for every kind of object)' > *suatu* 'one/a (with abstract or non-traditional objects)' > *satu* 'one/a (with any noun)' is a paradigm case of grammaticalization. It exemplifies persistence, that is, the grammaticalized construction is constrained by its origins: a real classifier is not also used if a noun is quantified with *s(u)atu*, e.g., **suatu buah rumah* 'one house' is excluded: only *suatu rumah* or *sa-buah rumah* are permitted. This constraint against **suatu buah rumah* can be explained by the fact that *suatu* itself historically already contains a classifier. It is also an example of divergence. A form assumes two distinct functions (lexical noun and classifier). One of these functions (that of lexical noun) is found in an environment where it is exposed to a phonological process (initial *w-* > *b-* before *a*) from which the other function is insulated (when protected from initial position by the proclitic *sa-*, *w-* did not undergo the change). The result is that the two forms *satu* and *batu* are no longer felt as cognate by speakers of the language. For example, *satu batu* 'a/one stone (= one mile)' is unobjectionable, whereas, as we have seen, *sa-orang orang* 'a/one person,' or *sa-buah buah* 'a/one fruit' are avoided.

It should be added that phonological (allomorphic) split of the kind we have described for Malay *batu/suatu* is not necessary for this kind of divergence to occur, nor is it a required outcome of the process. In many instances the autonomous lexical item and its grammaticalized counterpart may cooccur quite happily in the same construction; e.g., the English auxiliary verb *do* frequently occurs with *do* as main verb (*do do it!; they do do that*).

As mentioned in Section 3.2.4, there has in the past been a tendency to think of change in terms of "A uniformly > B." Given such an approach, divergence might seem to be an unlikely characteristic. However, as we have noted, change must always be seen in terms of variation, and the formula for change should therefore

be A > A/B > B. Even so, it still needs to be stated that it is by no means inevitable that A will disappear. A and B may instead each go their own ways and continue to coexist as divergent reflexes of a historically single form over many centuries, even millennia. An example is the development and persistence from Middle English on of constructions of the type *The more he complains, the angrier he gets.* This construction originated in a comparative introduced by *þy*, the instrumental form of the demonstrative. The new form has coexisted with the demonstrative *that* from which it derives, and with the article *the* which it resembles in form, but does not have the syntax of either. The formula should ideally therefore be further modified to A > B/A (> B).

### 5.4.3 Renewal

In divergence existing forms take on new meanings in certain contexts, while retaining old meanings in other contexts. We turn now to a process whereby existing meanings may take on new forms: renewal. Renewal results primarily in alternate ways of saying approximately the same thing, or alternate ways of organizing linguistic material. Often, but not always, these new ways are periphrastic, i.e., phrasal.

If all grammaticalization leads to decategorialization and ultimately to minimal, compacted forms, how is it that language users can ensure that languages continue to serve their purposes of organizing cognition and achieving communication? This question is in part answered by the hypothesis of competing motivations of increasing informativeness versus routinization. But does this mean that unidirectionality is a chimera? The answer is that new structures keep being grammaticalized through the process that Meillet termed "renouvellement" or "renewal," and that instances of renewal consistently show evidence of unidirectionality once the renewal has set in.

A vivid example of renewal is the recent history of English intensifiers (words such as *very* in *very dangerous*). At different times in the last two centuries the following among others have been fashionable: *awfully, frightfully, fearfully, terribly, incredibly, really, pretty, truly* (cf. *very*, which is cognate with French *vrai* 'true') (Stoffel 1901). Even in the written language, *very* often alternates with such words as *most, surprisingly, extremely, highly, extraordinarily.* Over time, however, we can expect the choices to be reduced, owing to specialization.

Intensifiers are especially subject to renewal, presumably because of their markedly emotional function. They are unusual in undergoing renewal especially frequently. But certain other categories, although not as shortlived as intensifiers, are also renewed with some degree of predictability. Negative constructions are one example. In spoken English expressions such as *no way* (cf. *No way we're taking this stuff*) are replacing simple *n't*, from *not*, itself a contraction of *na wiht*

'no thing.' Schwegler (1988) writes of a "psycholinguistic proclivity" for the development of negative emphasizers, and shows how they have their starting point in contexts of contradiction, in other words, in emotionally loaded contexts. The example of negative renewal shows that sometimes old forms (in this case *n-*) may be involved in the new structure (but not in exactly the same way as before). Another example is provided by the reinforcement in Surselvan (Rhaeto-Romance) of reflexive *se* by the form *sesez* (Kemmer 1992). In most Romance languages the reflexive *se* serves both reflexive and middle functions. However, in Surselvan the reflexive has been reinforced by an emphatic version of itself (a pattern that goes back to Latin), while the original *se* now serves only middle functions.

The renewal of one form by another may or may not occur in the same constituent position. English intensifiers such as *awfully* and Surselvan *sesez* are simply substitutes, involving no new syntactic or phonological strategy. But sometimes renewal may involve a more strategic overhaul. The spoken English negator *no way* has little in common syntactically with the *n't* with which it competes. The French negative reinforcer *pas*, which is assuming the role of general negator, occurs after rather than before the verb, reflecting a change that could be represented over several centuries as:

ne va 'doesn't go' > ne va pas > va pas

Similarly in English the original negator *ne* preceded the verb, as in (21):

(21) Ne canst þu huntian butan mid nettum?
not know you hunt-INF except with nets
'Do you not know how to hunt with anything but nets?'
(*c.* 1000, Ælfr Coll. 62)

Being subject to reduction through rapid speech, it could even combine with some verbs, e.g., *ne wæs* 'not was' > *næs, ne wolde* 'not wanted' > *nolde.* But the new, phonologically fuller, *not* that replaced it followed the verb, as in (22):

(22) ... that moves not him: though that be sick, it dies not.
(*c.* 1600, Shakespeare, *Henry IV* Part 2.II.ii.113)

Such differences in syntax between older forms and their replacements or renewals are often subject to word-order changes that are ongoing in the language, or may even contribute to them.

Renewal by a non-cognate item to effect semantic expressiveness probably underlies most examples of the development of innovative periphrasis in the process of word-order changes. This appears to be true of the development of periphrastic markers of modality, such as *will, shall*, and *must*, which convey more precise differences of meaning than the older subjunctive inflection, and the development of phrasal case markers such as *to* and *of*, which also tend to convey more differences than the earlier inflectional cases. Langacker has called periphrasis "the

major mechanism for achieving perceptual optimality in syntax" (1977: 105). One way of defining periphrasis is to characterize it as fulfilling the following criteria (Dietrich 1973): the meaning of the periphrasis is not deducible from the constituent elements; the periphrastic construction shows syntactic unity at some level of analysis, where it did not do so before; the new periphrasis competes paradigmatically with other morphologically relevant categories.

Once renewal occurs, the new form may itself be subject to grammaticalization and reduction, through rapid speech and routinization, as in the case of *not* > *n't*. This is one factor that makes grammaticalization a continuously occurring phenomenon. The question is when this renewal is understood to occur. When the same structure is renewed, some speak of "recursive cycles" of grammaticalization. Some think of the cycle as starting with reduction of a form, in extreme cases to zero, followed by replacement with a more expressive form (e.g., Heine and Reh 1984: 17; Lightfoot 1991: 171). This kind of model is extremely problematic, because it suggests that a stage of language can exist when it is difficult or even impossible to express some concept.

Rather than replace a lost or almost lost distinction, newly innovated forms compete with older ones because they are felt to be more expressive than what was available before. This competition allows, even encourages, the recession or loss of older forms. Textual evidence provides strong support for this view of coexisting competing forms and constructions, rather than a cycle of loss and renewal. The periphrastic future form existed in Late Latin long before the eventual loss of future *-b-* and its replacement by *-r-*. In contemporary French and other Romance languages, the inflectional *-r*-future is itself in competition with a more "expressive" periphrastic construction with *aller*, cf. *j'irai* 'I will go,' and je *vais aller* 'I will/plan to go.' Furthermore, when the syntactic structures of the older and newer forms differ, they may be used side by side in the same utterance (cf. French *ne va pas*, and Middle English *ne might not*). When the syntactic structure is the same, but the lexical items are different, alternate usages coexist, as in the case of *very* and *awfully*.

## 5.5 A synchronic result of unidirectionality: layering

As we have seen in the context of discussion of persistence and divergence, old forms may persist for a long period of time. The persistence of older forms and meanings alongside newer forms and meanings, whether derived by divergence from the same source or by renewal from different sources, leads to an effect that can be called "layering" or "variability" at any one synchronic moment in time. We turn now to some comments about this characteristic of grammaticalization.

Within a broad functional domain, new layers are continually emerging; in the process the older layers are not necessarily discarded, but may remain to coexist with and interact with new layers (Hopper 1991: 22). Layering is the synchronic result of successive grammaticalization of forms which contribute to the same domain.

In any single language there is always considerable synchronic diversity within one domain. Some of the most obvious cases are those where a full and a reduced form coexist, with related forms and only minimally different functions. An example is the coexistence in Classical Armenian of three demonstratives: *ays* 'close to first person,' *ayd* 'close to second person,' *ayn* 'close to third person,' and three articles *-s, -d, -n* (Greenberg 1985: 277). In such cases it is a reasonable hypothesis that the reduced form is the later form. In other cases a variety of different forms and constructions may coexist that serve similar (though not identical) functional purposes. A small fragment of the PDE repertoire of tense–aspect–modal indicators suggests the potential range involved:

(23)

| | |
|---|---|
| a. Vowel changes in the verb stem: | *take, took* |
| b. (Weak) alveolar suffix: | *look/looked* |
| c. Modal auxiliaries: | *will take/shall take* |
| d. Have V-en: | *has taken* |
| e. Be V-ing: | *is taking* |
| f. Keep on V-ing: | *kept on eating* |
| g. Keep V-ing: | *kept eating* |
| h. Be going to V: | *is going to take* |

(There are, of course, many more.) In cases like this it is a reasonable hypothesis that the most bonded forms have the longest histories in their present grammatical functions, and that the least bonded are the most recent.

Yet another example given comes from Estonian. Relative clauses in Estonian may be formed in two ways, one being a construction with a relative pronoun and a finite verb (24a) and the other with a participial verb and no pronoun (24b):

(24)

a. Vanake silmitse-s kaua inimes-t kes
old-man observe-PAST:3SG for-a-long-time person-PARTIT REL
sammu-s üle õue elumaja poole.
go-PAST:3SG across courtyard:GEN residential building:ILL
'For a long time the old man observed the person who was going across the courtyard to the residential building.'

b. Vanake silmitses kaua üle õue
old-man observe.PAST-3SG for-a-long-time across courtyard:GEN
elumaja poole sammu-vat inimes-t.
residential building:ILL go-PRES:PART person-PARTIT

(Comrie 1981: 123–4)

The second type in (24b), the relative clause of which is constructed around a present participle, i.e., a non-finite verb, is literally something like 'The old man watched for a long time the across the courtyard of the residential building going person.' Such clauses are characteristic of a learned or archaic style (Comrie 1981: 134); the more usual way of forming relative clauses in Estonian is with a relative pronoun and a finite verb, as in (24a).

Typically, grammaticalization does not result in the filling of any obvious functional gap. On the contrary, the forms that have been grammaticalized compete with existing constructions so similar in function that any explanation involving "filling a gap" seems out of the question – there is no obvious gap to be filled. We saw that in Ewe, verbs of saying evolved into new complementizers at the same time as older complementizers – themselves grammaticalized verbs of saying – were still available. Latin periphrastic futures of the kind *cantare habet* 'he has to sing > he will sing' coexisted at one stage with morphological futures of the type *cantabit* 'he will sing,' and eventually replaced them.

During any phase of coexistence there are some contexts in which the two (or more) types in question involve a clear pragmatic difference. There are other contexts in which the choice between them is less clear with respect to pragmatic difference. Frequently we find that one of the competing forms predominates (specialization), and eventually extends its range of meanings to include those of the construction which it replaces. In this way, historically continuous speech communities may, through repeated renewals, retain categories (such as the future tense) for a considerable length of time while other speech communities have never developed them.

Quite often the newer layers of functionally similar constructions are symptomatic of more global adjustments. As indicated at the end of Section 3.4.1, Estonian, which (like the other members of the Balto-Finnic branch of Uralic) is a language historically of the OV type, has become thoroughly permeated with VO features from its Germanic and Slavic neighbors. The two different ways of forming relative clauses exemplified in (24) are part of this change in type. The older type, in which a participial clause precedes the head noun, is characteristic of OV languages. The newer type, with a finite verb and a relative pronoun, is characteristic of VO languages.

## 5.6 Frequency

As we have seen in Section 5.3.2, statistical evidence for the frequency of forms is a valuable tool in providing empirical evidence for unidirectionality. Textual frequency has long been recognized informally as a concomitant of

grammaticalization, and it has recently assumed an important place in the empirical study of how lexical forms move into grammatical roles.

It is customary to distinguish two kinds of frequency, known as "type frequency" and "token frequency." Type frequency refers to the number of items that are available to a particular class of forms. For example, the number, and therefore the type, frequency of English nouns that form their plural in *-s* is very high, while that of English nouns whose plural is in *-en* is very low; the type frequency of English verbs that form their past tense with a suffix *-ed* such as *walked, stopped* is very high, while the number of English verbs that form their past tense by changing a stem vowel from [ai] to [o] such as *drive/drove* is very low. Most attention to frequency, however, has been focused on token frequency, the number of times a particular form such as *I guess* or *you know* occurs in texts, or the changes in frequency of forms or constructions over time, such as *know not* versus *do not know*.

The kinds of changes that are most deeply characteristic of the grammaticalization of lexical forms – semantic fading, phonological reduction, positional fixing, erasure of word boundaries – are inseparable from the absolute frequency of the forms and the frequency with which they cooccur with other forms. The repetition of forms may lead to their "liberation," or "emancipation" (Haiman 1994), from their earlier discourse contexts and to increased freedom to associate with a wider variety of other forms, such as when French *pas* 'step' used as a negative reinforcer widens its range from physical movement ('doesn't walk a step') to all verbs ('doesn't believe (a step)', etc.). Combinations of forms that occur more frequently tend to be automatized, that is, they are stored and uttered as a block (Boyland 1996), such as *take a chance and, get set to*. Because the content of these automatized combinations is predictable, they are uttered more quickly; they are "streamlined" (Bybee and Thompson 1997), the parts of the combinations tend to be slurred and reduced in prominence (Browman and Goldstein 1992), as in *wanna* for *want to, betcha* for *I bet you*. At the same time their semantic and functional content becomes vaguer, that is, they can be used in a wider variety of contexts (Heine 1993; Krug 2001; Boyland 2001). Forms that often occur adjacent to one another may even become fused into a single word, for example as stem and clitic (Bybee 1995; 2001), such as *we'll, you're*.

### 5.6.1 Frequency effects

Bybee and Thompson (1997) identify two major effects of frequency of forms (token frequency) that are especially relevant to grammaticalization. They refer to these two effects as the Reduction Effect and the Conservation Effect. The Reduction Effect points to the fact that frequently used forms are eroded at

a faster rate than less frequently used forms. This effect is manifested in such familiar English contracted forms as *I'll, won't, you're*, etc. It is also seen in the lost autonomy of the infinitive marker *to* in such forms as *wanna, gotta, gonna* (from *want to, got to, going to*) as well as *hafta* (have to), [spostə] (*supposed to*) and [yustə]/[yʊstə] (*used to*). All of these forms are in varying degrees of grammaticalization as modal auxiliaries (see Krug 2001), and all display both a phonetic and a functional contrast with forms in which the *to* has remained autonomous, as in *We are going to* [**gonna*] *the market, She is supposed to* (sʌpozd tu/*[spostə]) *be fabulously rich* (where *supposed* is paraphrasable as *assumed* – not all speakers make this distinction, however.) The contracted forms have a higher frequency than the full forms and are also the more casual register forms.

The Conservation Effect correlates frequency with the retention of irregular forms. Forms that are isolated in a morphological paradigm will tend to conform to the paradigm unless they are especially frequent. Obvious examples of the conservation of highly frequent forms include suppletion, such as *good/better, bad/worse, go/went*, as well as irregular forms like *strike/struck*. The highly frequent verbs *sleep* and *keep* retain their irregular past-tense forms *slept* and *kept*, whereas the less frequent verbs *creep, weep*, and *leap*, with their irregular past tenses *crept, wept*, and *leapt*, tend to be assimilated into the regular paradigm and to be produced as *creeped, weeped*, and *leaped*.

In syntax, the Conservation Effect of high frequency is seen in the behavior of nouns in contrast to pronouns. Pronouns, which are of very high frequency, retain the case distinctions that have been lost in nouns (*he, him; she, her*, etc.), and may preserve older positional features (for example, in English possessive pronouns must precede the possessed noun, as in *her uniform*, whereas lexical noun possessives can precede or follow the possessed noun: *the officers' uniforms* or *the uniforms of the officers*). The high frequency verbs *be* and *have* and the auxiliaries similarly keep conservative syntactic characteristics that are no longer found in full lexical verbs. In English, *be, have*, and auxiliaries, unlike lexical verbs, can invert directly with the subject in forming questions, as in *Have you forgotten anything?* (contrast the ungrammatical **Forgot you anything?*). They also form a negative with *not* rather than *do not*, as in *They are not tired, They have not left yet*. Both of these characteristics that are in PDE restricted to *be, have*, and auxiliaries were once found in lexical verbs also.

### 5.6.2 Synchronic studies of frequency

There are both synchronic and diachronic empirical studies of frequency. Quantitative empirical studies usually deal with percentages rather than absolute numbers, and compare either different but functionally similar forms, or the same form in different identifiable contexts.

Synchronic investigations typically involve searching a corpus for expressions suspected of moving toward some kind of grammatical status. Because by definition synchronic studies do not show change directly, such studies either support their conclusions with historical material or compare a statistical variation against a well-described type of diachronic change.

One of a number of recent examples of this kind of study is that of the use of English *though* as a grammaticalized discourse marker (Barth-Weingarten and Couper-Kuhlen 2002). Discourse markers are a category of words that indicate how the listener is to relate the upcoming discourse to the previous discourse, such as *well* and *anyway* (cf. Schiffrin 1987). An example of this discourse-marking use of *though* is the following. After the speaker S has explained why she advised her son to refuse military service, a second speaker C raises a new subtopic, the guilt feelings of the protestor with respect to his peers (capitals indicate stress):

(25) S. but if thIs kid makes a mistAke on THIS one,
he may not have a CHANCE to corrEct it
C. hh uh LISten
anOther factor *though* YOU brought up,
(Barth-Weingarten and Couper-Kuhlen 2002: 351)[6]

Here *though* is more like a discourse marker that serves to manage the segments of the discourse than an adverbial particle meaning 'however' signaling a concessive relationship between two utterances. Barth-Weingarten and Couper-Kuhlen show that 11% of the occurrences of *though* have this unambiguous discourse-marking function. On the other hand, the purely concessive use was represented by only 14%. The remaining 63% occupy a grey area between the concessive and the discourse-marking functions. While the quantitative data cannot alone prove that a change is under way, the results have to be compared with other studies showing that semantic change typically goes from an objective semantic meaning toward a subjective, speaker-centered pragmatic meaning (cf., e.g., Traugott 1989, 1995), and especially that discourse markers typically arise out of forms which serve propositional rather than discourse functions (e.g. Brinton 1996; Traugott and Dasher 2002: Chapter 4). When this comparison is made, the distribution is seen to be consistent with a change from concessive marker to discourse marker.

### 5.6.3 *Diachronic studies of frequency*

Diachronic studies of frequency start from the assumption that increased frequency of a construction over time is prima facie evidence of grammaticalization. A recent example is Laury's (1997) study of the emergence of a definite article in Finnish through the grammaticalization of a demonstrative. By investigating texts from three different periods, the nineteenth century, the 1930s,

and the contemporary period, Laury ascertained that the use of the demonstrative *se* (and its case forms) is becoming increasingly obligatory. In the direct object role, for example, the number of lexical nouns that were accompanied by *se* rises from 49% in the nineteenth century, to 60% in the 1930s, to 74% in the modern language. Although Finnish is often characterized even in linguistic descriptions as a language that lacks a definite article, Laury notes that the use of *se* is entirely comparable with the use of the definite article in languages where its existence is universally recognized.

For diachronic studies, access to texts of comparable genres over a fairly long period is needed. It is only in a few languages that we are fortunate enough to have this kind of textual history. And it is for only a small subset of these languages that we have any statistical studies at all of the development of grammatical items. Sometimes a slowly emerging construction can be seen to take over very rapidly, perhaps at the expense of competing constructions, as in the case of *do*-support discussed by Kroch (1989a,b; see also Stein 1990a). Dramatic changes of this type are often discussed in terms of S-curves, that is, gradual beginnings, rapid spread, and gradual tapering off. To date too few historical studies have been conducted to determine to what extent S-curves are the product of multiple correlated factors contributing to morphosyntactic change or of individual localized changes, but it seems likely that they result from the former. There is a need for additional reliable statistical studies of a variety of phenomena in which early grammaticalization appears to be involved. Among such studies, in addition to Hook (1991), there are Givón (1991a) on the development of relativizers, complementizers, and adverbial clause markers in Biblical Hebrew; the large number of statistical studies of grammaticalization of case-related phenomena (inflections, prepositions, etc.) in Spanish by Company may be illustrated by her recent work on the spread of prepositions (Company 2002); studies on developments in English include Hopper and Martin (1987) on the indefinite article, Kytö (1991) on the auxiliaries *may/might* and *can/could*, Hundt (2001) on the *get*-passive, Mair (1997, Forthcoming) on *be going to, be V-ing, seeing that* and other constructions. Statistical studies of grammaticalization changes that appear to be occurring in current speech situations include Givón (1991b) on verb serialization in four languages of Papua New Guinea, and Thompson and Mulac (1991) on parenthetical *I think* in English (discussed below in Section 7.5.3).

## 5.7 Counterexamples to unidirectionality

As has been stated frequently in previous chapters, there is nothing deterministic about grammaticalization and unidirectionality. Changes do not have

to occur. They do not have to go to completion, in other words, they do not have to move all the way along a cline. A particular grammaticalization process may be, and often is, arrested before it is fully "implemented," and the "outcome" of grammaticalization is quite often a ragged and incomplete subsystem that is not evidently moving in some identifiable direction. This observation is in contrast to historical argumentation of a deterministic kind such as is illustrated by: "Before a change is manifested little by little, its end result is already given in the underlying representations" (Andersen 1973: 788). Taken in its strong sense as presupposing a predetermined outcome, even a "goal" for grammaticalization, such statements suggest that once a change has started, its progress is inexorable. However, this hypothesis is not empirically supported. What is supported is the fact that there are strong constraints on how a change may occur and on the directionality of the change, even though we do not yet fully understand all the factors that motivate this directionality.

Therefore the fact that changes do not show stages that can be plotted on a grammaticalization cline does not entail that they are necessarily counterexamples to grammaticalization. Nichols and Timberlake (1991), for example, point out that in the history of Russian there have been changes in the uses to which the instrumental case has been put that are akin to grammaticalization in so far as they involve the coding of grammatical relationships, but are unlike grammaticalization in its prototypical directional sense, in so far as they simply demonstrate a shift in the way relatively stable grammatical networks operate. In Old Russian, the instrumental was allowed only with nouns expressing status or role that could change over time (e.g., 'tsar,' 'secular leader,' 'nun'), and only in contexts of entering that status (inception), or continuing in it for a period of time. Later Russian, however, virtually requires the instrumental with such nouns referring to status or role; also quasi-status nouns (agentive nouns such as 'bribe-giver') can now allow the instrumental in contexts of durative aspect. There is certainly no case of "more > less grammatical" here. However, as the authors themselves say: "the overall effect has been to fix usage in one domain and develop variation in another" (Nichols and Timberlake 1991: 142). Rather than being a counterexample to the unidirectionality of grammaticalization, the Russian instrumental is an example of rule generalization over a lengthy period of time (about 1,500 years). It also illustrates the potential longevity of certain types of grammatical organization, and suggests that persistence is not limited to the meanings of grammatical items, but is also evidenced by purely grammatical inflections.

As indicated at the beginning of this chapter, the hypothesis of unidirectionality has been a topic of vigorous debate in the last decade. On one end of the spectrum are very strong claims about unidirectionality. The strongest is that all grammaticalization involves shifts in specific linguistic contexts from

lexical item to grammatical item, or from less to more grammatical item, and that grammaticalization clines are basically irreversible (see, e.g., C. Lehmann 1995 [1982]; Haspelmath 1999a). Robust though the evidence of unidirectionality is, nevertheless it cannot be regarded as an absolute principle. Some counterexamples do exist. Their existence, and their relative infrequency, in fact help define our notion of what prototypical grammaticalization is.

Furthermore, a potential problem for strong versions of the unidirectionality hypothesis is that its logical conclusion is that grammatical morphemes cannot arise without lexical origins. To date we do not have compelling evidence that grammatical items arise full-fledged, that is, can be innovated without a prior lexical history in a remote (or less remote) past. Some grammatical items, such as the Indo-European demonstrative *to-*, show enormous longevity, and we cannot look back into their prehistory to find a lexical origin. Proponents of the strong unidirectionality hypothesis would have to argue that *to-* originated in some currently unknown lexical item. We do not at this stage of our knowledge know what that item was. But neither do we know that there was none, or that there might theoretically have been none. (Indeed, a lexical history of demonstratives has been proposed by Frajzyngier (1996b) for Chadic languages, and of definite articles in Siouan by Rankin (1976).) We must leave for future empirical study the question whether grammatical items can arise fully formed, and if so under what circumstances. In any event, we do not need to be concerned as is Lass (2000) that this logical conclusion would entail violation of the uniformitarian principle, since it would require postulating a language state without grammatical items. On the assumption that linguistic evolution was gradual, such a language state is implausible at least for language at the evolutionary stage we have access to.

On the other end of the spectrum from strong claims about unidirectionality are arguments that there are so many counterexamples to unidirectionality that it cannot be considered a defining characteristic of grammaticalization (e.g., Janda 1995, 2001; several articles in Campbell 2001a). In a chapter entitled "Deconstructing grammaticalization" Newmeyer has proposed that "there is no such thing as grammaticalization," at least as a phenomenon independent of other changes (1998: 226). Many of the researchers who argue from this perspective are concerned that, even if unidirectionality were irreversible, including unidirectionality in the definition (as we have) makes the claim of unidirectionality uninteresting from a theoretical point of view (see Norde 2001 for detailed discussion). Newmeyer (1998), Campbell (2001b), Janda (2001), Joseph (2001), and others use this argument to claim that, although there is extensive evidence for regularly recurring directional changes, grammaticalization should not be thought of as a "theory," in the sense of an explanation of a subject of study. Instead, they suggest, it should be

thought of as the descriptive name of a frequently occurring epiphenomenon that can be explained by other factors that occur in language change anyhow. Such other factors are variously thought of as reanalysis (I. Roberts 1993a) or "downgrading reanalysis, appropriate semantic change, and phonetic reduction" (Newmeyer 1998: 260).

While such criticisms need to be taken very seriously, several important characteristics of the study of grammaticalization usually get lost in the discussion. One is that grammaticalization is a functionalist theory – a theory about the interaction of language and use; the questions posed in functional and formal theories are not identical (Croft 1995; van Kemenade 1999b). Functionalist theorists seek to account for the relationship between language and use, and for local, gradient phenomena in language. On the other hand, formal theorists have sought until recently to ask about invariant properties of the mind, and about structure independent of context and use; however, at the time of writing a fundamental shift is occurring here too with interest developing in accounting for variation in grammar, as in the literature on Optimality Theory (cf. Archangeli and Langendoen 1997; A. Prince and Smolenski 1997), and most especially stochastic Optimality Theory, which is quantitative (cf., e.g., Boersma and Hayes 2001; Bresnan, Dingare, and Manning 2001). Another point is that grammaticalization is a theory with dual prongs: diachronic and synchronic. From the diachronic perspective, since it is a theory of the relationship between structure and use, not of change in grammar, the fact that many of the changes discussed are tendencies, not rules that operate 100 percent of the time, is irrelevant. Use is usually variable, only occasionally categorical. Newmeyer, however, explicitly says: "I take any example of upgrading as sufficient to refute unidirectionality" (Newmeyer 1998: 263). From the synchronic perspective, too, it is a theory of the relationship between structure and use, and of emergent properties of language. Therefore, characterizing grammaticalization exclusively as an epiphenomenon of reanalysis or of other factors in change fails to address a large subset of the phenomena under consideration in studies of grammaticalization.

Many alleged counterexamples have been included in a discussion of terms that cover very disparate phenomena, such as "degrammaticalization," "lexicalization," and "exaptation." Degrammaticalization is probably the most widely used of these terms, and indeed is sometimes used as a cover term for the other two, and several others not discussed here (for details, see Heine Forthcoming). Despite its name, as Heine points out, "degrammaticalization" is in fact used for many prototypical cases of end-stage grammaticalization, including development into an only partially or totally unanalyzable segment of a morpheme (cf. *h* in Meillet's example of *heute* < OHG *hiu tagu* 'this day'), and also for complete loss (see Section 6.5).

However, the term "degrammaticalization" is also used for changes that violate schematic clines like:

> phrases/words > non-bound grams > inflection
> (Bybee, Perkins, and Pagliuca 1994: 40)

and "upgrading" of erstwhile inflectional or derivational forms. We will discuss some upgrades at the end of this section. Here we comment briefly on issues in lexicalization and exaptation.

Two main strands of research on lexicalization are relevant here (see Brinton 2002, Traugott Forthcoming, for detailed discussion of the many ways this term has been used). One strand concerns changes that are more properly called "conversion" and what are probably the most often cited putative counterexamples to grammaticalization: changes involving the use of grammatical items, including derivational morphemes, categorially as nouns or verbs, e.g., *to up the ante, that was a downer, his uppers need dental work, I dislike her use of isms* (see, e.g., Ramat 1992, 2001). Similarly, in German and French the second-person-singular familiar pronouns *du* and *tu* are "lexicalized" as the verbs *duzen* and *tutoyer*, respectively, both meaning 'to use the familiar address form.' Changes of the type Prep. *up* > V *up*, and most especially of the type derivational morpheme *-ism* > N *ism*, typically involve a quotation or mention of some kind.[7] These kinds of changes are instantaneous – one can take any element of language, including the letter with which it is graphically represented or to which it is iconic, and use it lexically, e.g., *F-word, T-square, bus* (ultimately from the Latin dative plural *-bus* in *omnibus* 'with all'), and use it like a noun; given certain semantic constraints, one can take any noun and instantaneously convert it into a verb (e.g., *to calendar, to typo*); one can also take phrases like *forget-me-not* and acronyms like *laser* ('light amplification by the stimulated emission of radiation') (Norde 2001: 236). Innovations of this type may or may not spread to other speakers, just like other changes. These changes are instances of recruitment of linguistic material to enrich the lexicon and have virtually nothing in common with grammaticalization.

However, other examples of lexicalization do have much in common with grammaticalization. For example, Lipka (1990) defines lexicalization "as the phenomenon that a complex lexeme once coined tends to become a single complete lexical unit, a simple lexeme," a process often call "univerbation." Lipka goes on to say: "Through this process it loses the character of a syntagma to a greater or lesser degree" (1990: 95). Erstwhile compositional forms like *garlic* (< *gar* 'spear' + *leac* 'leek'), *halibut* (< *halig* 'holy' + *butte* 'flat fish'), *arise* (< 'on' + 'rise') now function as monomorphemic, non-compositional elements. Since these items belong to the major classes N, V they are considered to be lexical. Likewise *already* derives from *all* + *ready, hafta* from *have to*, and *sorta* from *sort of*. They belong

to minor classes – aspectual markers, modals, degree words – and are therefore considered grammatical. Univerbation has occurred in all of them. Furthermore, in many languages what originate as phonologically predictable alternations may eventually be morphologized (e.g., *foot–feet* is the modern reflex of an earlier stage when the plural was *fot-i*; phonetically, the *o* was fronted before the *-i*, and when the *-i* (plural marker) was lost for phonological reasons, the fronted vowel remained as the marker of plurality). These examples and others show that there is a point at which grammaticalization and lexicalization may intersect (see, e.g., Hagège 1993; C. Lehmann 1989a, 2002; Wischer 2000). Indeed, as Lehmann has pointed out, lexical phrases such as *as long as* must first be lexicalized (frozen) before grammaticalization can set in. In many ways lexicalization in the sense of univerbation and grammaticalization are parallel and both "constrain the freedom of the speaker in selecting and combining the constituents of a complex expression." They "are not mirror images" (C. Lehmann 2002: 15).

Another term that has many interpretations and has been seized on as evidence for counterexamples to grammaticalization is what Lass (1990) called "exaptation," a term he borrowed from biology to account for what he saw as "the opportunistic co-optation of a feature whose origin is unrelated or only marginally related to its later use" (Lass 1990: 80) as a result of "*bricolage*, cobbling, jerry-building; ... recycl[ing], often in amazingly original and clever ways" (Lass 1997: 316). The "unrelatedness" is the key to notions that exaptation is a counterexample to unidirectionality. An example he gives is the reanalysis of a Dutch adjectival number–gender agreement marker as a marker of a subclass of morphologically complex attributive adjectives. At about the same time, Greenberg (1991) used the term "re-grammaticalization" to refer to similar phenomena, including changes in the late development of demonstratives. Demonstratives frequently give rise to definite articles ("Stage I"), and then expand their range to include all specific nouns, whether definite or indefinite ("Stage II"). At this stage the article often becomes morphologized as a prefix or suffix on the noun (cf. *The Mississippi*), but it retains some of its article-like functions, in, for example, not being used in generic expressions (compare English *at school, on foot*, etc.). In the next stage ("Stage III"), the use of the affix spreads to virtually all nouns, including proper names. This new distribution leads to a situation in which the former demonstrative assumes new functions having to do with a form's status as a member of the category "noun," for example they can be used to derive nominalizations, or to mark pluralization (Greenberg 1991: 304–5). Stages I and II can be considered classic cases of grammaticalization, but not so the third stage, according to Greenberg, because there is renewal of an old, marginalized function and "disjunctive" semantic change (1991: 301). One problem with both Lass's and Greenberg's examples is that although the changes may be semantically and functionally unexpected, a

detailed study of the discourse contexts for the changes in question is not cited, and therefore it is difficult to assess whether there was or was not semantic and functional discontinuity in the history of the change.

Not all cases of reuse of morphological material for "opportunistic" reasons or "novel" purposes have been seen to pose problems for grammaticalization. For example, Vincent (1995) analyzes the development of the Romance definite article and clitic object (e.g., French *le*) out of Latin *ille* 'distal deictic pronoun' as an instance of both grammaticalization and of exaptation. In his view, it demonstrates grammaticalization because there is loss of segmental structure. At the same time it demonstrates exaptation or natural selection after case loss of "discarded variants to ensure that the necessary functions have clear phonological expression" (Vincent 1995: 444). Indeed, as reconceptualized by Croft within the framework of a typology of reanalysis as "hypoanalysis," exaptation and regrammaticalization are shown to be far from discontinuous semantically or functionally: "[i]n hypoanalysis, the listener reanalyzes a contextual semantic/functional property as an inherent property of the syntactic unit. In the reanalysis, the inherent property of the context... is then attributed to the syntactic unit, and so the syntactic unit in question gains a new meaning or function" (Croft 2000: 126–7).

Norde (2001) has interestingly expanded the notion of exaptation in a different way to include such well-known and extremely challenging phenomena as the replacement by a clitic of inflectional genitive in English, Swedish, Danish, and the variety of Norwegian known as Bokmål (an upper-class variety of Norwegian influenced by Danish), the histories of which have been widely discussed but about which there is little agreement (see, e.g., Janda 1980; Norde 2001, and the extensive references therein). For example, Old English inflectional genitive as in (26) shows concord within the possessive NP (Ecgfrith the king):

(26) ðæs cyning-es sweoster Ecgfrið-es
the:GEN king-GEN sister:NOM Ecgfrið-GEN
'the sister of Ecgfrith the king' (*c.* 1000, Aelfric Hom 11, 10 87, 215)

but three hundred and fifty years later we find a clitic in similar constructions:

(27) the god of slepes heyr
'the god of sleep's heir' (*c.* 1368, Chaucer, Book of Duchess 168)

The use of the clitic spread gradually to increasingly more varied contexts, and is not a case of instantaneous change, but of generalization across types of NP, including pronouns (cf. *anyone else's cat*) (see Allen 1997). It is also not a case of significant semantic–functional difference. From these perspectives, it is very much like grammaticalization. On the other hand, the rise of the *-s* clitic does on most analyses show counterevidence for the assumption that there is unidirectionality

in grammaticalization from clitic > affix and not vice versa (see also examples in Janda 1995 and Luraghi 1998).

Another much-cited example of a violation of unidirectionality in grammaticalization has already been mentioned in Section 3.5: the development of an independent "affirmative adverb" *ep* in Estonian (Campbell 1991). Originally the clitic **-pa* 'emphatic,' it underwent vowel harmony in harmony-triggering contexts, as did another clitic **-(ko)-s* '(question)-informal speech.' After a regular sound change involving the loss of final vowels, the context for vowel harmony with these clitics was lost, the clitics' morpheme boundaries were lost, and they ceased to be analyzable as independent morphemes. They were reinterpreted as *-ep* and *-es* respectively and "lexicalized" as independent grammatical words (Campbell 1991: 292). Unlike cases of conversion, they do not involve recruitment to a major class, hence we consider them to be legitimate counterexamples to independent word > clitic. Another counterexample to unidirectionality that has been cited is the development in Pennsylvania German of the rounded form *wotte* of the preterit subjunctive *welle* 'would < wanted' into a main verb 'wish, desire' (Burridge 1998). The latter appears to be the only example cited to date of a mirror-image reversal. As Norde (2001) and Heine (Forthcoming) point out, most alleged counterexamples do not reverse prior history exactly.

The history of *wotte* exemplifies one reason for occasional counterexamples to unidirectionality: preemption of a morphological element for the ideological purposes of the community. Burridge proposes that the lexicalization (more strictly conversion) of *wotte* is a kind of euphemism – avoidance of expressing wish too bluntly, arising from Mennonite religious principles. Another reason for the development of several counterexamples to unidirectionality of this sort is the development of "adaptive rules" (Andersen 1973). A language user who has developed a new rule is likely to find that at certain points Output 2 does not match Output 1. Therefore the individual may be misunderstood, or ridiculed, etc. Such an individual may develop "cover-up" rules that are not integrated into his or her grammar, but which in essence permit output analogous to that of users of Output 1. Hypercorrection (overuse of an item considered to be socially or stylistically salient) is of this kind, as is discussed at length in Janda (2001). For example, the speaker who has not acquired a *who–whom* distinction may attempt to accommodate to users who do make such a distinction and produce utterances such as *Whom did you say was looking for me?* In a study of such rules, Disterheft (1990) suggests that hypercorrections are particularly often found in writing. She cites Stein's (1990b) study of the replacement in the fifteenth century of the third-singular present-tense marker *-th* by *-s*. The *-s* form spread gradually in different syntactic and phonological environments and increased in frequency until *c.* 1600. However, just before the turn of the century, *-th* increased in frequency, dropping

off again in the seventeenth century. The resurgence of *-th* is evidence, it is argued, for an adaptive rule which led to overuse of the older form in a written Standard developed from Chancery English owing to association of the *-th* with "high style." If so, this (and other sociolinguistic data discussed in Labov 1972) suggests that adaptive rules may for the most part be typical of adult rather than child language users. As Disterheft points out, they make the effects of abductive change (i.e., reanalysis) hard to detect. Hence they may give the impression of greater gradualness of change than was actually the case. Furthermore, they may obscure (or even divert) the natural path of change, and so may lead to counterexamples to unidirectionality.

When we review the literature on counterexamples to grammaticalization, a striking fact emerges. They are sporadic and do not pattern in significant ways. However, at the level of a change schema, that is, at the level of linguists' idealizations and generalizations over changes, unidirectionality is extremely robust cross-linguistically (Andersen 2001; see also Dahl 2000: 13), whether specified in terms of clines, or of claims such as van Kemenade's that the final stage of grammaticalization is "base-generation as a functional head" (1999b: 1001).

## 5.8 The use of unidirectionality in reconstruction

Counterexamples such as those cited in Section 5.7 should caution us against making uncritical inferences about directions of grammaticalization where historical data are not available, since the possibility of an anomalous development can never be absolutely excluded (Hagège 1993; Tabor and Traugott 1998; Newmeyer 1998). Proponents of the strong version of the unidirectionality hypothesis have argued that one can do reconstruction of non-attested stages of a grammatical form. For example, C. Lehmann has said:

> Given two variants which are related by the parameters of grammaticalization . . we can *always* tell which way the grammaticalization goes, or *must have* gone. The significance of this for the purposes of internal reconstruction is obvious.
> (C. Lehmann 1995 [1982]: 19, italics added)

However, it is very important to recognize that, given the number of counterexamples, such a reconstruction can only be a hypothesis. The only viable way of approaching reconstruction is via weaker statements such as:

> We would . . . expect grams that are older – i.e., that have undergone more development – to be closer to the stem, more fused and shorter or more reduced in segmental material than younger grams of equal relevance.
> (Bybee, Pagliuca, and Perkins 1991: 33)

Too confident a use of assumptions about unidirectionality can lead to wrong conclusions, even with respect to attested data. For example, as shown in Tabor and Traugott (1998), in discussing the "grammaticalization scale" of verbal nouns (gerunds), C. Lehmann cites:

(28) a. John's constantly reading magazines
b. John's constant reading of magazines
c. *the (constantly) reading magazines
d. the constant reading of magazines (C. Lehmann 1995 [1982]: 62)

and comments "we have two stages of our grammaticalization scale embodied in the English POSS-*ing* construction. At the latter stage, the nominalized verb has assumed all the relevant features of a noun; *-ing*-nominalizations are even pluralizable" (C. Lehmann 1995 [1982]: 64). It is actually not clear whether Lehmann is making a synchronic or diachronic claim here, because he usually uses the term "scale" for synchronic clines, but the references to "stages" suggests he is here making a diachronic claim. In any event, the prediction is diachronically incorrect: types (28b) and (28d) are historically earlier than type (28a).

## 5.9 Conclusion

The evidence is overwhelming that a vast number of known instances of the development of grammatical structures involved the development of a lexical item or phrase through discourse use into a grammatical item, and then into an even more grammatical item, and that these changes were accompanied by decategorialization from a major to a minor category. Typologically, changes of this kind are widespread and show systematic patterning. Counterexamples are sporadic and only rarely cross-linguistically attested; the rise of clitic possessive in English, Swedish, and Norwegian Bokmål is unusual in this regard, but we should note that the languages are related, and the histories are not identical. Reconstructions based on an assumption of unidirectional match ("isomorphism") between cline and direction of change in a specific instance should be framed as testable hypotheses.

# 6

# Clause-internal morphological changes

## 6.1 Introduction

Recognizing that there are some sporadic counterexamples, we turn now to more specific instances of regularly recurring types of unidirectionality discussed in the preceding chapter with a focus on the kinds of changes that typically occur clause-internally. In the next chapter we consider cross-clause changes.

In the first part of this chapter we look in some detail at examples of "compacting" – the fusing of erstwhile independent elements with each other, most especially the development of clitics into inflections. This process is often called "morphologization."[1] Then we look in some detail at examples of the development of grammatical forms in two domains: that of the paradigm, and that of clause structure, specifically subject and object marking. Finally we consider the "end" of grammaticalization: loss.

## 6.2 Morphologization

In French and most other Romance languages adverbial formations such as the following are found:

(1) lentement 'slowly'
fermement 'firmly'
doucement 'softly, sweetly' (Lausberg 1962:111/1, 95–8)

For a large class of adjectives, a corresponding adverb is derived by adding the adverbial suffix *-ment* to the feminine form, e.g., *lent* 'slow (masc.),' *lente* 'slow (fem.),' *lente-ment* 'slowly.' This suffix was originally an autonomous word, Latin *mente* 'mind + ablative case.' Its beginnings as an adverbial suffix are to be sought in such phrases as *clara mente* 'with a clear mind.' However, it is no longer restricted to psychological senses, but is a general adverb formative, as in:

(2) L'eau coule doucement. 'The water flows softly.'

Table 6.1 *Buryat Mongolian pronouns and verb endings*

| | Pronoun | V ending |
|---|---|---|
| 1 singular | bi | -b |
| 2 singular | ši | -š |
| 1 plural | bide | -bdi |
| 2 plural | ta | -t |

*Source:* based on Comrie (1980: 88)

In Old French (and some modern Romance languages) there are still traces of the autonomy of *mente*, in that it tends to appear with conjoined adjectives: *humble e doucement* 'humbly and gently' (cf. Spanish *clara y concisamente* 'clearly and concisely').

The history of the French suffix *-ment* shows a new lexical formative coming into existence out of a formerly autonomous word. It has done so in a familiar manner, by ousting its competitors such as *modo* 'manner,' *guise* 'way, fashion' (specialization), and by being assigned to a progressively closer lexical relationship with the adjective stem. Semantically, too, the Latin word *mente* 'mind + ablative case' has lost its restriction to psychological states. An affix such as French *-ment* which was once an independent word and has become a bound morpheme is said to be morphologized, and its historical lexical source (in this case, Latin *mente*) is said to have undergone morphologization.

Where long written histories are available, many bound morphemes can be shown to go back to independent words. Often, too, a historical source in independent words can be assumed through inspection of synchronic divergent forms. For example, in Buryat Mongolian (Comrie 1980: 88) person–number suffixes on the verb are clearly related to independent pronouns in the nominative case, as shown in Table 6.1. But as we have seen in previous chapters, not every instance of grammaticalization involves morphologization. For example, modal auxiliaries in English are grammaticalized out of earlier full verbs, but they have not (yet) become affixes.

The beginnings of morphologization must be sought in repeated use of syntactic constructions. Some linguists, among them Chafe (1970), Watkins (1964), and Hymes (1956), have suggested that units of discourse – clauses and sentences – are structured with the same kinds of rules as those by which words are internally structured, that is, that 'syntax' itself is only morphology writ large. The study of grammaticalization to some extent supports such a view, in that the conceptual boundaries separating constituents such as sentence, clause, phrase, and word often

seem somewhat arbitrary, and there is a continual movement among them. While at any synchronic stage there may sometimes be reasons for setting up such discrete constituent types, from a historical perspective the relationship between a stem and an affix can only be considered in the context of the phrasal and even higher-level syntax from which they are derived.

Virtually by definition, morphologization is that part of grammaticalization that primarily involves the second and third parts of the cline:

lexical item > clitic > affix

Such a cline is of course a gross oversimplification of the highly detailed facts of language. At the very least, we need to say:

lexical item in a specific syntactic context > clitic > affix

For various detailed hypotheses about how to approach some of the historical phenomena encompassed by this cline, see Bybee (1985), Dressler (1985), Bybee and Dahl (1989), Schwegler (1990), Haspelmath (1993), Givón (2000), Mithun (2000).

While there is not always evidence of a clitic pre-stage in the grammaticalization of affixes out of autonomous lexical words, the fixing or "freezing" and loss of lexical autonomy involved in the process presupposes a clitic stage. In the example of French *-ment*, Spanish *-mente* which we discussed above, and in other examples of derivational affixes such as English *-hood, -ly*, etc. out of full nouns, it may be assumed that at one stage the eventual affix was attracted to what came to be its future stem and came to form an accentual unit with it. Clitics obviously have a central role in establishing the sorts of structures that undergo morphologization. It is the frequent syntactic collocation of a particular word class, such as a noun, with a particular type of clitic, such as an adposition, that most typically leads to morphologization (e.g., as a noun with a case affix).

### 6.2.1 Some characteristics of clitics

As mentioned in Chapter 1, the word "clitic" is usually used to refer to a set of unaccented forms that tend to be found attached to a more heavily accented form (known as the "host"). The attachment may be so close that the clitic becomes affix-like, for example, English *n't* in *don't* (see Pullum and Zwicky 1983 for arguments why *n't* behaves in its distribution more like an inflection than like a clitic form of *not*). Or the attachment may be quite loose and more like an autonomous word, such as French *le* in *apportez-le* 'bring it in!'

In many languages there are distinct sets of clitic and "tonic" (stressed) forms of the same word. This is especially true of pronouns; the clearest example in

English of such a contrast is in the third-person-plural *them* (tonic) versus *'em* (clitic), where the clitic and tonic forms probably have different origins (*'em* is, in one view, from OE *heom*, while *them* is a ME form ultimately of Scandinavian origin). More often the two forms are simply accented (tonic) and unaccented (clitic) varieties of the same word, e.g., *you/ya*. Prepositions and postpositions (the class of "adpositions") are often cliticized variants of adverbs. Again, this is clear in English and some other Indo-European languages, where the difference between an adverb and a preposition resides basically in that prepositions precede an NP and adverbs follow a V (cf. prepositional *up* in *up a tree* versus adverbial *up* in *she got up early*). Auxiliary verbs and verbs of having and being are frequently clitics, and may likewise have clitic and tonic variants (e.g., *I'm the head waiter* versus *I AM the head waiter*).

The functional characteristics of clitics are consistent with their status as units that are already in part grammaticalized. Compared with their full forms, clitic forms are more context-dependent and more general in meaning. Often they have functions whose closest counterparts in other languages are clearly grammatical, such as aspect, modality, case, and participant reference (e.g., to person and number). Other clitics, for instance those which are connectives, pronouns, or interrogative markers, have a primarily discourse function.

### 6.2.2 Positions of clitics

Clitics are typically restricted to certain positions in the clause. One of these is next to a specific host; for example, possessive pronouns may form an accentual group with the possessed noun, auxiliaries may be constrained to occurring adjacent to the lexical verb, determiners must be placed next to the noun, and so on. In these examples, the host belongs to a specific word class and the clitic has a functional affinity for just that class and no other (auxiliaries generally do not go with nouns, etc.). Such clitics are called "phrasal clitics," because they have a grammatical affinity for a particular type of phrase. Other kinds of clitics are not restricted in this way and are known as "sentential clitics." Some occupy what can broadly speaking be called the "first slot" in the clause, and are "proclitic," that is, they are attached to the following element or "host," as in Fr. *j'arrive* 1SG-come 'I am coming.' Others are "enclitic," that is, they are attached to a host that precedes. In Latin *-que* served to conjoin two phrases, as in *Senatus populus-que Romani* 'The Roman senate and people.'

Many sentential clitics function as conjunctions, sentential adverbs, complementizers, and question words (Kaisse 1982). In Homeric Greek of the eighth century BC, for example, an unaccented word *de* (appearing as *d'* before vowels) served to link together main clauses, especially in narrative, as in the following

passage from the *Iliad*:

(3) Hōs eipōn proeiéi, krateròn d'epì mûthon étellen.
thus saying, sent:forth:he, harsh:ACC *de*-upon word:ACC enjoined

Tō d'aékonte bátēn parà thîn' halòs atrugétoio,
they:DUAL *de*-unwilling went along shore ocean:GEN restless:GEN,

Murmidónōn d'epí te klisías kaì nûas hikésthēn.
Myrmedons:GEN.PL *de*-upon both tents and ships came:3PL

'Saying this, he sent them forth, adding some harsh injunctions. So they went reluctantly along the shore of the restless ocean and came to the tents and ships of the Myrmedons.' (Homer, *Iliad* I: 326–8)

The particle *de* is enclitic; it forms a prosodic unit with the preceding word, as is shown by the accentuation *krateròn de*, where the normal accentuation *kratéron* has been changed by the presence of the clitic. In Latin, enclitic *-que* could serve a similar function of joining main clauses:

(4) Omnibus copiis provolaverunt impetumque in equites nostros
all:with forces flew:forward:they attack:ACC-que on cavalry our

fecerunt.
made:they

'They hurled all their forces forward and launched an attack on our cavalry.'
(*c.* 60 BC, Caesar, *De Bello Gallico* 11:20)

Examples (3) and (4) illustrate a common constraint on sentential clitics. It is often known as Wackernagel's Law, after Jacob Wackernagel, who noted that enclitics in Indo-European languages usually occur in second position (Wackernagel 1892); the phenomenon is now known to be widespread and not restricted to Indo-European (see, e.g., S. Anderson 1993; Halpern 1995). Sentential enclitics meaning 'and, but, so,' etc., have a tendency to occur in the second position in the sentence, following the first tonic element (such as *krateròn* in (3) and *impetum* in (4)). But other clitics may occur in that position too, for example, clitics with determiner or auxiliary verb character. The "second position" tendency may be related to the topic–comment structure that spoken sentences typically have: in many utterances there is an initial phrase (the topic) that, as it were, sets the stage for what is to be said about it (the comment). Thus, interrogative markers may serve to focus on one item being questioned, as in Indonesian, where *-kah* is a clitic attached to the first word or phrase, and this phrase is the one being questioned:

(5) Menarik-kah pilem itu?
interesting-kah film that
'Was that film interesting?'

At the same time it should be noted that the second position does not necessarily focus attention on the first word; often it is simply the established position for sentential particles. In Saami (Finno-Ugric), for example, the interrogative particle *bat* imparts a surprise attitude toward the entire utterance, not merely toward the first word:

(6) a. Don bat ledjet doppe okto?
You *bat* were down-there alone
'You mean you were down there on your own?'
b. Dus bat maid lea oða biila?
you-two *bat* also is new car
'You actually have a new car?' (Fernandez-Vest 1994: 59)

As was noted by Wackernagel, pronouns and verbs may also favor the second position in the sentence.

Morphologization involves the creation of a bound morpheme (i.e., an affix) out of an independent word by way of cliticization. The final stage of this process, the uniting of the affix with its stem, is referred to as "univerbation." Although univerbation can in theory include the uniting of the two parts of a compound into a single lexical item (e.g., *boat* + *swain* > *bo'sun, cup* + *board* > *cupboard*), the term is most often used in reference to a later stage of morphologization, as in examples such as Latin *clara mente* 'with a clear mind' > French *clairement* 'clearly,' where the second element has become a derivational affix.

A particularly instructive example of univerbation, and of morphologization in general, has been described by Andersen (1987) for Polish. During the recorded history of the language, a copular verb has come to be suffixed to a participial verb stem to form an inflected past tense. The earliest stage of the textual record (Polish prior to 1500) shows a copular verb existing in both clitic and tonic forms. The clitic typically occurs in second (Wackernagel's) position. In Table 6.2, the clitic form of the verb 'to be' in the third column is the ancestor of the Modern Polish suffixes in the fourth column. The tonic forms in the second column drop out of use as copulas at an early date, but the third-person-singular *jest* lives on as an emphatic marker. In (7), *-m* is the clitic first-person-singular form of the copula, and *ogla ɑała* is the "verb," historically a past participle:

(7) a. To-m jest ogla ɑała.
that-1SG EMPH saw
'That I did see.'
b. Bo-cie-m sie, cała darowała.
for-thee-1SG REFL entire gave
'For I gave myself wholly to thee.' (Andersen 1987: 28)

The clitic *-m* and the verb are separated from one another, with *-m* in the second position in the sentence and the verb at the end.

Table 6.2 *Polish tonic and clitic forms of the copula*

| | Old Polish | | |
|---|---|---|---|
| | *Tonic* | *Clitic* | Modern Polish |
| 1 singular | jeśm | -(e)śm/-(e)m | -(e)m |
| 2 singular | jeś | -(e)ś | -(e)ś |
| 3 singular | jest/jeść/je | -0 | -0 |
| 1 plural | jesm(y) | -(e)smy | -(e)śmy |
| 2 plural | jeśće | -(e)śće | -(e)śće |
| 3 plural | są | -0 | -0 |
| 1 dual | jeswa | -(e)swa | |
| 2 dual | jesta | -(e)sta | |
| 3 dual | jesta | -(e)sta/-0 | |

*Source:* based on Andersen (1987: 24)

Table 6.3 *Bonding of clitic copula to verb stem in Polish, AD 1500 to the present*

| Date | Number | Percentage |
|---|---|---|
| 1500s | 130 | 23 |
| 1600s | 649 | 49 |
| 1700s | 994 | 68 |
| 1800s | 1395 | 80 |
| 1900s | 2817 | 84 |
| (expository prose) | 525 | 92 |

*Source:* based on Andersen (1987: 29). Andersen's figures are based on work in Polish by Theodora Rittel (1975) (for full reference see Andersen 1987: 50).

After about 1500, however, changes begin to occur. Sentence stress on any element in the comment part of the sentence may attract the clitic. Furthermore, the clitic increasingly appears after the verb, regardless of the verb's position, especially if the verb is an *l*-form preterit. Here it is suffixed (encliticized) to the verb. The movement toward suffixal status is strikingly illustrated by the statistics cited by Andersen (1987: 29). Table 6.3 shows the percentage of occurrences of the clitic copula that appears as a suffix on the preterit verb (whatever its position in the clause), expressed as a percentage of the overall number of instances of the clitic copula in texts of different centuries from AD 1500 on.

Table 6.4 *Differential univerbation of preterit verb 'speak' and person–number suffix in Polish dialects*

| | Southern | Standard | Northern |
|---|---|---|---|
| 1 singular | m'ówił-em | mów'iłem | mów'iłem |
| 2 singular | m'ówił-eś | mów'iłeś | mów'iłeś |
| 3 singular | m'ówił | m'ówił | m'ówił |
| 1 plural | mów'ili-śmy | mów'ili-śmy | mówil'iśmy |
| 2 plural | mów'ili-ście | mów'ili-ście | mówil'iście |
| 3 plural | mów'ili | mów'ili | mów'i |

*Source:* Andersen (1987: 32)

In the modern language, as can be seen from Table 6.3, the morphologization of the copula as a suffix on the preterit verb is still not complete. Although univerbation of the verb and the clitic is very general, there are accentual reflexes in both modern standard Polish and in the modern dialects of the former clitic status of the verbal suffixes. These differences in accent suggest univerbation has progressed at different rates in various parts of the preterit paradigm and in different dialects. They also suggest relatively fine distinctions among levels or degrees of "compacting." Polish has generalized a penult rule for stress which puts stress on the next-to-last syllable in the word. The dialects differ from the standard language in the degree to which they recognize the suffix as part of the word for purposes of assigning stress. In some forms, the stress (marked with ' before the vowel) is where it should be if the "clitic" is a relatively unmorphologized, separate suffix or "word." In these forms the suffix appears in Table 6.4 with a hyphen.

But in others it is where it should be if the "clitic" is a fully morphologized suffix, that is, if verb and clitic have undergone univerbation. The left-to-right arrangement of the table reflects the progress of univerbation: it is almost nonexistent in the southern dialects, the standard has carried it through in the singular but not in the plural (except for the third person), and it is complete in the northern dialects. It is important to note that the accentual change here is not simply a morphophonemic (phonological) adaptation of a full lexical item to a neighboring clitic; the change affects only the verb in the preterit, not other forms to which the copula is cliticized. Consider the following example:

(8) a. Wcz'oraj-em prz'zysed-ł.
yesterday-1SG arrived
'I arrived yesterday.'
b. Wcz'oraj przysz'e dł-em.
yesterday arrived-1SG
'I arrived yesterday.' (Andersen 1987: 33)

The verb adapts its stress to the new suffix, whereas the adverb ignores the clitic for purposes of stress. The clitic does not suffix itself to any random sentence element, but specifically to the verb, and it "seeks out" the verb in a way that suggests that the original, verbal nature of the clitic may still be constraining its current use.

The process of morphologization whereby independent words become clitics and eventually affixes results in a fixed order of morphemes with respect to the stem. Whereas the ancestral independent word may have had a certain amount of positional freedom, univerbation removes any flexibility of position with respect to the stem. It has often been suggested (e.g., Givón 1979: 239–45) that morpheme order may reflect earlier word-order tendencies of the language at the time when the morphologization in question was occurring. Givón cites data from Amharic, a Semitic language of Ethiopia. In this language the original word order was VO, but through a strong substratum of Cushitic, a non-Semitic language family with OV word order, verb-final patterns have permeated the language. The original VO word order continues to be reflected in the morpheme order in inflected words, however:

(9) Kassa borsa-w-n la-Mulu saṭṭa-at.
Kassa wallet-the-OBJ to-Mulu gave-IOBJ
'Kassa gave the wallet to Mulu.' (Givón 1979: 244)

Assuming that the suffixes *-w, -n*, and *-at* were once autonomous words, presumably demonstratives and pronouns, we can by hypothesis derive the suffixed forms from older sequences of noun + demonstrative + pronoun, and verb + indirect object pronoun. Both these word orders are compatible with a VO type of language, and the hypothesis is that Amharic has preserved the original word order in its order of suffixes even though the syntactic word order has radically shifted. On the other hand, French, a modern VO language in which object lexical nouns must follow the verb, shows object pronouns preceding the verb, consistent with its origins in a strongly OV language (Latin):

(10) a. **Lexical nouns**
Le boulanger donna le bijou à la jeune fille.
The baker gave the jewel to the girl
'The baker gave the jewel to the girl.'
b. **Clitic pronouns**
Il le lui donna.
He it to:her gave
'He gave it to her.'

In Latin the verb would normally have been placed at the end of the sentence in each case. Describing similar phenomena cross-linguistically, Givón coined

the memorable phrase "Today's morphology is yesterday's syntax" (Givón 1971: 413). While not a novel insight, the concept has been the subject of much recent discussion. How general is it? Can the synchronic ordering of morphologized affixes be used to reconstruct the prehistoric order of words in the sentence?

Certainly with Amharic and French the reconstructions are in accord with what we either know or can surmise about original word orders on independent evidence. However, it is clear that the order of morphologized affixes can at best only inform us about the local order of the clitics at the time their positions became fixed, not about the word order in general. This fact alone is not sufficient to invalidate Givón's observation, for it is at least theoretically possible that when clitics move toward being affixes they adopt the place that they would have if they were full lexical items. In such a scenario, auxiliaries would follow the verb in OV languages, possessive pronouns would follow the noun in VO languages, and so on.

However, such reconstructions must be approached with caution. Comrie (1980), for example, shows that in languages with variation in their basic word order (and many seemingly quite rigid languages show such variation) even phrasal clitics may appear in a position with respect to their host that is different from that normally occupied by corresponding lexical items. In Classical Mongolian, for example, an OV language in which one might expect that possessive adjectives would precede the noun, in fact both orders were possible:

(11) a. minü morin
my horse
b. morin minü
horse my

Here, the (a) phrase was more usual, and differed from the (b) phrase in some such nuance as *MY horse* versus *my HORSE*. In later Mongolian dialects it is *morin minü*, the less usual order, that underlies clitics which, eventually, become morphologized as suffixes indicating possession, cf. Kalmyk:

(12) a. möre-m
horse-1SG:POSS
'my horse'
b. minī möre-m
my horse-1SG
'my horse' (Comrie 1980: 90)

Comrie suggests three reasons why such a development might occur. One is that if the usual morphological process in a language is suffixation, newly emerging affixes will conform to the general pattern already available. Another possible reason is prosodic: in Mongolian languages the head of a construction is never preceded by an unstressed element. Morphologization of clitics as prefixes would

provide exceptions to this otherwise quite general principle. Finally, there may be a syntactic reason. In languages of the OV type, Comrie argues, there is a general principle that the head of a construction can always be separated from one of its attributes by some other word. For example, the object of the verb, which would be considered such an attribute, does not have to stand immediately next to the verb, but there can be adverbs or other words that intervene. For the same reason, in such languages (and in VO languages such as English that place the adjective before the noun) a possessive adjective that precedes a noun can always be separated from the noun by an adjective: *my horse, my strong horse*, etc. But this separation tends not to occur if the possessive follows the noun, i.e., in examples such as Classical Mongolian *morin minü* (horse my) 'my horse' there would almost never be an adjective between the two words (i.e., *'horse strong my'). The position of the cliticized possessive, then, conforms to that order in which the clitic and the host noun were invariably adjacent to one another.

Even more damaging for the hypothesis that local morpheme order necessarily reflects earlier general word-order patterns are examples (admittedly rare) of reordering of morphemes within a paradigm. One such example is from Pengo, a Dravidian language. Bybee (1985: 40), citing Burrow and Bhattacharya (1970), shows that in Pengo the perfect was originally formed by addition of auxiliary *na* to the past-tense form, after person–number inflections. So, for example, the following older forms can be found:

(13) vāt aŋ 'I came'
vāt-aŋ-na 'I have come'

In other words, the perfect is formed by V:TNS + person/number + *na*. But the more common, and more recent, formation of the perfect is by repeating the person–number inflection after that template, as in (14a), resulting in the structure V:TNS + person/number + *na* + person/ number, or even, in more streamlined fashion, simply V:TNS + *na* + person/number, as in (14b):

(14) a. huṛtaŋnaŋ ([huṛta-aŋ-na-ŋ]) 'I have seen'
b. huṛtanaŋ ([huṛta-na-ŋ]) 'I have seen'

Haspelmath (1993) similarly notes cases where the addition of derivational morphemes *after* the inflections has resulted in the creation of new stems, to which the same inflectional morphemes are added (see, too, the cases and discussion in Mithun 2000).

It seems, then, that while morpheme order may, and often does, reflect earlier local word-order patterns, Givón's principle is of limited usefulness, since we cannot be sure which earlier word is reflected, the basic one or a secondary one. Factors of morphological type, prosody, and syntactic typology as well as general tendencies

such as second position may all influence the order in which clitics are placed with respect to the host. A further factor for which Bybee shows overwhelming evidence is relevance to the meaning of the stem. In the Pengo example, person and number, which agree with the arguments of the verb, are less relevant to verb meaning than temporality. We now turn to a brief discussion of Bybee's hypothesis of the significance of "relevance" for understanding the facts of morphological bonding.

### 6.2.3 *Semantic "relevance" as a factor in fusion and morpheme order*

It is a truism that in a language which exhibits affixal morphology, not all grammatical categories will be affixally expressed. Some will be relatively free (still lexical, or clitic), others will be tightly bound and inflectional. Some will be expressed by a phrase, others by a word with affixes. If this were a random happenstance of when which form started to change, then no general patterns of relationship between affixal and non-affixal expression would be expected in a language. However, in an exploratory cross-linguistic survey of fifty languages, Bybee (1985) showed that:

(a) Meaning elements that are directly relevant to verb meaning are more likely to be fused or bound than those that are not.
(b) The order in which they occur is partly correlated with their degree of relevance to the verb.
(c) Among meanings relevant to the verb, the most general are likely to be expressed inflectionally.

To avoid terminological confusion, it is important to note that Bybee is using the term "relevance" to refer to the extent to which the meaning of a grammatical category (e.g., aspect or tense) affects the inherent meaning of the lexical item with which it is associated. This is different from the pragmatic "relevance" that we discussed as a motivation for meaning change in Chapter 4. The pragmatic maxim of Relevance has to do with relevance to the participants in the communicative act.

Verbs express events or states of being. A causative situation is without question semantically relevant to the verb, since it affects the event or state of being directly. Causative meanings are often signaled by bound morphemes, e.g., *redden* 'cause to be red.' However, a causal situation is often understood rather differently from the literal combination of V + causal. The relationship between *die* and *kill* ('cause to die') is a classic instance of this kind of difference. Bybee shows that causal relationships are often expressed by derivational forms. These are bound forms, which, although identifiable as separate morphemes, nevertheless combine with a base to add new, rather specific, meanings, or change linguistic categories, and form a

stem to which other affixes, such as inflections, can be attached.[2] *Redden* can, for example, have tense attached (e.g., *reddened*). Even more frequently, causal relations are expressed by lexically different forms, that is, totally fused forms, rather than by inflectional forms, because they are at least partially idiosyncratic.[3] By contrast, tense, aspect, and mood tend to be expressed inflectionally because they are highly general and can apply to most event and state types. Of the languages Bybee investigated, 72% had inflectional tense, mood, and aspect. By contrast, only 56% had inflectional person–number–subject agreement (Bybee 1985: 33). Although number can be expressed derivationally and even in lexically different ways, person–number agreement tends to be less frequently bound than either causal relations or tense–aspect–mood. This, she suggests, reflects the lesser relevance of person–number to the verb: its prime function is not to express aspects of the situation, but to express distinctions among arguments of the verb.

Tense, mood, and aspect themselves have different likelihoods of ordering with respect to each other. Aspect refers to the way in which the internal constituency of the event is viewed, that is, according to whether it is seen as a whole from the outside and completed (perfective), or from within and incomplete (Comrie 1976). Tense places the situation in time with respect to an established point in time, either the time of speech (deictic tense), or some other point in time (relational tense). Mood refers to the way the speaker presents the truth of the proposition, whether as probable, possible, or certain (Bybee 1985: 28). Given the hypothesis of relevance, aspect is most relevant to the verb, tense less so, since it relates the time of the situation to some other time, and mood least so since it expresses the speaker's point of view on the situation. If that which is most relevant is that which is most likely to be close to the verb, then we would expect aspect to be the most likely of the three categories to be ordered next to the stem (or even be part of it, as a derivational form), tense next, and mood last. The relative positions of aspect and tense are well established for languages in which both are prefixes or both suffixes, as illustrated by:

(15) a. **Tiwi** (Australia)
ŋə-ru-untiŋ-apa.
cook-PAST-DUR-eat
'I was eating it.'

b. **Kewa** (New Guinea)
Íra-paa-ru.
cook-PERF-1SG:PAST
'I finished cooking it.' (Foley and Van Valin 1984: 210)

As Bybee notes, the claim that the natural order is mood–tense–aspect–V (or, in OV languages, V–aspect–tense–mood), may seem counterintuitive to linguists who speak of T–M–A (tense–mood–aspect) in that order, and are familiar with the

earlier work of Chomsky in which it was suggested that English constructions such as *would be going* were tense–mood–aspect–V. As she notes, English does not of course have bound forms. However, recent analyses of the same construction in English actually do reflect the order she predicts, since PDE *would* (also *might, could, should*) is best treated as a mood marker (i.e., *would* is not *will* + Past Tense, but a single univerbated form). Normally present tense is in zero form after mood, but is expressed in many quasi-modals (e.g., *has to*), and past is expressed by *have* after *may, might, can, could*, etc., but inflectionally with many quasi-modals: *would have been going, had to be going* (Bybee 1985: 196–200).

Bybee's hypothesis has provided results that are in keeping with independent studies of other issues in verbal morphology, such as the extent to which predictions can be made about which verbal affixes are likely to be phrasal, which affixal (see Bybee and Dahl 1989). But a few cautions should be noted. These include the fact that in so far as the data base is founded on extant grammars, it is subject to the difficulty that different linguists have made different analyses of such basic properties as morpheme boundaries, status as phrase, word, bound morpheme, etc. (for a detailed account of various definitions of tense and aspect, see Binnick 1991). They have also had different definitions in mind of the categories in question (most notably tense and aspect are often confused). As Bybee notes, other difficulties include the fact that languages often have portmanteau morphemes (morphemes combining two or more categories in segmentally indistinguishable ways; see the next section). Also, the morpheme order predictions naturally do not hold when affixes are not in sequence; for example, mood affixes may be prefixed while tense–aspect affixes are postfixed, as in Cayuga:

(16) a··yakó··nyo··ʔ
OPTATIVE-FEM:PATIENT-kill-PUNCTUAL
'she would get killed' (Mithun 1991: 177)

Furthermore, Bybee's own statistics do not always provide exactly the predicted facts. Given that aspect is the most relevant to the meaning of the verb, mood the least so, one would predict that aspect would be bound most frequently, mood least. Also, one would predict that aspect would be more likely than the other two categories to be expressed derivationally, given that it defines the internal structure of the situation. In Bybee's fifty-language sample, the statistics are as shown in Table 6.5 ("bound forms" include both derivational and inflectional affixes). Aspect and tense follow the predictions. Aspect is most frequently found as a bound form (in 74% of the languages); in 22% of these languages its form is derivational rather than inflectional. Tense is less frequently found as a bound form (in 50% of the languages); only 2% of the occurrences are derivational. Mood, however, does not follow prediction (a) since it is more frequently inflectional than the other

Table 6.5 *Affixal aspect–tense–mood forms*

| | % bound forms in sample | % inflectional forms in sample |
|---|---|---|
| Aspect | 74 | 52 |
| Tense | 50 | 48 |
| Mood | 68 | 68 |

*Source:* based on Bybee (1985: 30)

two categories, and more frequently bound than both tense and aspect, despite being least relevant to the V. However, it is always inflectional, probably because it is so general (the category mood includes evidentials and "hear-say" expressions which express the speaker's attitude toward the likeliness of the truth of the proposition).

### 6.2.4 *Phonological concomitants of morphologization*

The fusion of a lexical item and a clitic as stem and affix that typifies morphologization is accompanied by phonological changes of various sorts. Most often these changes are characterizable as reductions: vowels and consonants are dropped, a stress or tone accent is lost causing an accentual readjustment over the newly formed word, and adjacent phonological segments are assimilated to one another. If the loss of the word boundary that once separated the two elements is included, some phonological adjustment is by definition always involved in morphologization.

Often, as might be expected from the divergence and the resultant coexistence of both unreduced (tonic) and reduced (clitic) forms, the autonomous lexical form will undergo a different set of phonological changes from the bound form. The result is that sometimes the morphologized form actually preserves something closer to the older state of affairs. A good example of this is the vocalism of English affixes that have been protected from the effect of the Great Vowel Shift, which operated on tonic vowels. Thus we have *manly* [-li] beside *like* [layk], and *because* [bi-] compared with *by* [bay]. The divergence of the article *a* [ə] from numeral one [w∧n] has already been mentioned in Section 5.4.2.

In the process of phonological attrition and selection that accompanies morphologization, we can identify two tendencies:

(a) A quantitative ("syntagmatic") reduction: forms become shorter as the phonemes that comprise them erode.

(b) A qualitative ("paradigmatic") reduction: the remaining phonological segments in the form are drawn from a progressively shrinking set.

This smaller set of phonemes resulting from tendency (b) reflects the universal set of unmarked segments. They tend especially to be apical (tongue-tip) consonants such as [n], [t], and [s], the glottal consonants [ʔ] and [h], and common vowels such as [a], [u], [i], and [ə]. The result is that from a synchronic perspective grammatical morphemes tend to be composed of "unmarked" segments. As will be elaborated on immediately below, "unmarked segments" are those that are textually frequent, found across a wide range of different languages (indeed, may be universal), are learned early by children, and are targets of neutralization of contrast. (The concept of markedness being invoked here was developed by the Prague School phonologists in the 1920s and 30s. Hyman (1975: 143–56) is an excellent general treatment.)

One aspect of the tendency toward unmarked segments is that morphologization is usually accompanied by a reduction in prominence. Prominence is a function of special accentuation, length, or some sort of positional privilege such as initial syllable in the word (Trubetzkoy 1929: 58). In an environment of lessened prominence, there is a general neutralization of segments, that is, a loss in certain of the phonological distinctions found in full lexical items. Haiman (1972) points out that in this loss of phonological contrasts characteristic of non-prominent syllables, there is a movement toward an unmarked set of phonemes, in the sense that we have just presented it. Admittedly this neutralization belongs to non-prominent syllables in general (a point taken up again below). But because a reduction in prominence is characteristic of forms that are becoming morphologized, one outcome of morphologization is morphemes that typically consist of simple, unmarked, phonological sets. In Turkish, Haiman notes, there are strategies for avoiding the vowel [o] in non-prominent syllables; this vowel is marked because it is simultaneously low and rounded. Significantly, the only grammatical suffix that contains [o] is *-yor*, a progressive verbal form which was once an autonomous (copular) verb and "has only recently degenerated to the status of a suffix" (1972: 367); in other words, it is newly morphologized.

A second aspect of the appearance of unmarked segments in morphologized forms is that the analogical spread of one allomorph at the expense of others is aided by the sheer textual frequency of the successful allomorph, and textual frequency is associated with unmarked segments (Greenberg 1960). Let us consider a well-known example from the Polynesian language Maori.

In Maori there is a passive suffix *-ia* which has attracted the final consonant of the verb stem, this consonant being dropped when it occurs word-finally (K. Hale 1973). The result is the emergence of at least as many allomorphs of the passive suffix as there are consonants, as shown in the examples in (17):

(17)

| **Verb** | **Passive form** | **Allomorph of passive suffix** |
|---|---|---|
| hopu 'catch' | hopukia | -kia |
| aru 'follow' | arumia | -mia |
| tohu 'point out' | tohuŋia | -ŋia |
| maatu 'know' | maaturia | -ria, etc. |

Some of these allomorphs have spread to verb forms where they did not originally occur, replacing the historically "correct" allomorph, so that the present-day distribution of the allomorphs does not always reflect the historically expected one. Especially *-tia* has fared well, and appears to be on the way to becoming the norm for the passive suffix in all stems (Krupa 1968: 70–1); *-kia* is also well represented. The tendency for these two allomorphs, especially *-tia*, to oust the others reflects the numerical preponderance of the two consonants [t] and [k]. In Maori texts, [t] and [k], which are about equal to each other in frequency, occur considerably more often than other consonants (Krupa 1966: 22). These two factors – textual frequency and the selection of members of the unmarked set as targets of neutralizations – are closely interrelated, and in fact are simply aspects of the same phenomenon of phonological markedness.

Many of the phonological changes that accompany morphologization are not peculiar to this process but are simply part of the same processes of assimilation, attrition, and other kinds of reduction that are found more generally in non-prominent syllables and across junctures (Heine and Reh 1984 give detailed examples of these in grammaticalization in African languages). For instance, the loss of the final *-ns* in the French first-person-plural future (*nous finirons* 'we will finish,' pronounced [finirɔ̃)]), is part of the general loss of final consonants in Modern French, not a peculiarity of the morphologization of the auxiliary from Latin. A more complex example is the following. The Sahaptian language Nez Perce can code the goal of a verb of motion either with a locative suffix on the goal noun as in (18a), or with a transitivizing suffix on the verb that then treats the goal as an object as in (18b):

(18) a. ´áayato-na páa-'naxpayk-a ´níit-pe.
woman-OBJ 3SUBJ:3OBJ-bring-PAST lodge-LOC
'He brought the woman to [his] lodge.'

b. ´áayat pà-´naxpayk-óo-ya miyóoxato-na.
Woman 3SUBJ:3OBJ-bring-LOC-PAST chief-OBJ
'He brought the woman to the chief.' (Rude 1991: 188)

For our purposes the significant morphological difference between the two sentences is that (18b) contains in the verb a (transitivizing) locative suffix *-óo-*, which consists of the frozen past-tense marker *-e-* and the copula *wee*, presumably in the sense of 'be [in a place].' By a regular Nez Perce phonological process,

the resulting sequence becomes first *-úɯ-* and then, by vowel harmony, *-óo-*. Thus the seemingly arbitrary erosion accompanying the morphologization of the copula verb as a transitivizing suffix is in fact the result of well-established changes in the general phonology of the language.

The development of Nez Perce *-óo-* described above involves erosion (of *w*) and morpheme boundary loss, or "fusion," of the tense marker and the copula. Erosion is the loss of phonological segments as the process of fusion continues (Heine and Reh 1984: 21–5). This loss typically occurs at boundaries, such as at the end of a word or morpheme. Although examples are citable from virtually any language, French and English are especially striking because of the conservatism of their orthographies, in which spellings with "silent letters" abound (one does, however, have to distinguish between orthography that reflects actual changes from orthography that reflects false etymologizing by scribes and grammarians; for example, French *poids* derives from *pensum*, not as, the spelling would suggest, from *pondus*). Latin *calidum* 'hot' had lost both its suffixes (*-id-um*) by the time of Modern French *chaud* [šo], and even the *l* of its stem, *cal-*, has been absorbed. Erosion may or may not bring about morphemic loss. An example of erosion that has merely reduced a morpheme without eliminating it is the Latin ablative singular suffix *-ō*, e.g., *lupō* 'from the wolf,' from an earlier *lupōd*.

Extreme cases of fusion are easily identified. One is that in which two or more morphemes fuse as a "portmanteau" morph (Hockett 1947 [1966]: 229) without there being a one-to-one semantic/functional match between any morpheme and any set of phonological segments. French *du* [dü] 'of the (masc.),' i.e., *de* + *le*, and *aux* [o] 'to the (masc./fem. plur.)' (*à* + *le/la* + *s*) are examples of this. In many tone languages, fusion may result in a portmanteau morph which has segmental material from one morpheme and a tone from another, the tone being all that remains from the second morpheme. Matisoff (1991) picturesquely refers to this process as "Cheshirization," from Lewis Carroll's Cheshire Cat, which disappeared leaving only its smile. Matisoff (1982: 32–4) gives the following example. In Lahu, a Lolo-Burmese language of northern Thailand, an original causative prefix, probably **s-*, underlies alternations between voiced and voiceless initials in such pairs as:

(19) a. dɔ́ 'drink': tɔ 'give to drink'
b. dɛ́ 'come to rest': tɛ 'put down'

There is a tonal change, generally from a lower to a mid or high tone, which is phonetically (albeit indirectly) linked to the voicing change. Where the initial consonant is one that does not show a distinction in voicing, such as the nasal [m] or the affricate [c] in the next example, the tonal difference is the only remaining trace of the former prefix:

(20) a. mɔ̀ 'see': mɔ 'show'
b. câ 'eat': cā 'feed'

Many possible examples of fusion depend crucially on unambiguously defining a "phonological unit." Indeed, Heine and Reh define fusion as the disappearance of the boundary separating two morphemes, "these morphemes thus being reduced to one phonological unit" (1984: 25). Affixes normally form a phonological unit with their stem. Yet fusion is something more than mere affixation; it is a stage in which the phonological substance of an affix (or of the subordinate part of a compound) and the stem start to become indistinguishable from one another. There is much current disagreement about the levels resulting from various degrees of fusion, much of it resulting from attempts to define a synchronic system in which every item has a distinct structure. From the point of view of grammaticalization, the issue is not so much what the structure is at some moment in time, but what the direction of change is and how far along the continuum some particular form has moved (see Givón 2000). Fusion, then, is a characteristic of the right-hand side of a continuum at the left end of which are discrete morphs and at the right end a single morph, possibly with some purely phonological residue of a previous second morph.

In morphologization, as in all grammaticalization, we must ask whether there are any rules characteristic of morphologization that are not part of the general or historical phonology of the language. It will be recalled that this same question arose in semantic change, where there appeared to be no evidence that the meaning shifts that accompanied grammaticalization were anything other than subtypes of meaning shifts affecting lexical items in general. Since morphologization necessarily involves the emergence of new morpheme boundaries and other junctural phenomena, and the juxtaposition of segmental clusters in ways not found internal to words or across "older" morpheme boundaries, and since usually there is a prosodic reduction of the new affix, any special phonological changes are to be attributed to these subtypes of phonological change rather than to any intrinsic change from "lexical" to "grammatical."

All the same, given that grammaticalization occurs in highly local contexts, and in later stages often involves univerbation of a new affix with a stem, unusual, even unprecedented, sequences of segments may occur, which in turn may set things up for special phonological changes. For example, Latin has an imperfect tense formed synchronically from a verbal stem, a suffix *-ba-*, and a personal ending such as *-m* 'first-person singular,' e.g., from *ama-* 'love' can be formed *amabam* 'I used to love.' The diachronic source of the imperfect is likely to have been a present participle (in this case **amants*) followed by a form of the copular verb (**bʰwam* 'I was'). The combination **amants bʰwam* presumably gave rise to *amabam*

through a rule whereby the combination **nts* + $b^{h}w$ eventually yielded *b*. But, as Baldi (1976: 846–7) notes, such a sequence of events cannot be proved or disproved on purely phonological grounds, since it is only in this very collocation that the combination of segments in question is ever likely to have occurred in Latin across a morpheme boundary.

## 6.3 The development of paradigms

Sometimes the coalescence of two parts of a periphrastic construction as stem and affix remains isolated, and has no further consequences. Consider, for example, the second-person-plural *y'all* found in some English dialects. The form is transparently derived from the periphrastic *you* + *all*; yet *-all* has not in these dialects spread as a general plural morpheme to other words, either nouns or pronouns. We do not, therefore, see a "paradigm" emerging of the kind shown in (21).

(21)

| | |
|---|---|
| I | *I-all |
| you | you-all |
| he | *he-all |
| she | *she-all |

Nor do we see any real signs that *-all* is becoming a plural suffix in English; *y'all* appears at least in PDE to be paradigmatically isolated, the result of the neutralization of singular and plural in the original second person. Often, however, later stages of grammaticalization involve a process of emergent paradigms, in which a set of related affixes emerges based on a single form. With verbs, this basic form is often the third-person singular. With nouns and pronouns it is often a non-nominative case. We illustrate the "paradigmatization" of a nominal marker with the development of the early Scandinavian (Old Icelandic and Old Norse) reflexive pronoun *sik* into an affix. Originally the accusative of the third-person (singular and plural) reflexive, it spread to other persons and cases and came to mark voice as well. We illustrate with Old Icelandic forms. In this language, *sik* coexisted with its grammaticalized form, the enclitic *-sk*:

(22)
a. Hann bauþ sik.
He offered himself
b. Hann bauzk (zk < *þsk)
He offered-himself (Heusler 1921: 142)

The development of this pronoun as a suffix in Old Icelandic and in Danish is a classic example of grammaticalization. With cliticization comes:

Table 6.6 *Old Icelandic present indicative reflexive verb forms*

| | Singular | Plural |
|---|---|---|
| 1 | finnomk | finnomsk |
| 2 | finzk (z = [-t+s-]) | finnezk |
| 3 | finzk | finnask |

(a) Phonological assimilation. The pronoun and its host merge phonologically. For example, if the stem ends in an apical such as *t* or *þ* the combination is pronounced [tsk] (spelled *zk*). The form *bauzk* < *bauþsik* cited above is an example of this.

(b) "Syncretism," the merging of different parts of a paradigm into a single form. This occurs in two ways. One is syncretism of person/number. The other is syncretism of case.

The third-person-reflexive *sik* spreads to other persons, and is found already in the earliest texts in all forms except the first person. Thus the inflection of *finnask* 'to find oneself' in the present indicative is in the oldest Old Icelandic manuscripts as shown in Table 6.6. The third-person-singular/plural reflexive pronoun *sik* has spread to the second-person-singular/plural. The first-person-singular reflexive *mik* (> *-mk)* has spread to the plural. In addition, the first-person plural has assumed the third person, yielding a complex suffix *-msk*. Therefore of the five potential possibilities for autonomous reflexive pronouns only two remain.

We turn now to the second kind of syncretism, that of case. The autonomous reflexive corresponding to *-sk* is the accusative *sik*. But *-sk* is found in environments where a genitive or dative would be expected. For example, in (23a) the autonomous pronoun *sér* is in the dative, but its enclitic form is *-sk* in (23b):

(23) a. Hann eignaðe sér ríke.
He appropriated to-himself kingdom
'He appropriated the kingdom to himself.'
b. Hann eignaðesk ríke.
he appropriated-himself kingdom
'He appropriated the kingdom to himself.' (Heusler 1921: 141–2)

Both kinds of syncretism are exemplified in (24a, b):

(24) a. Ér hefneð yðuar á honom.
you revenge yourselves:GEN:PL on him
'You revenge yourselves on him.'
b. Ér hefnezk á honom.
You revenge-yourselves on him (Heusler 1921: 141–2)

The plural second-person object pronoun *yðuar* in its autonomous form is in the genitive because the verb *hefna* 'to avenge' requires that case for its object. The clitic version, however, is *-sk*, formerly the singular third-person accusative.

Cliticization and morphologization of the reflexive *sik* is accompanied by semantic generalization (see Section 5.2.1). The generalization involves expansion from reflexive to reciprocal, to middle voice and even passive, giving meanings such as:

(25) a. **Reciprocal**
Spyriask ðeir tíðenda.
ask:RECIP they of-news
'They ask one another for news.'

b. **Passive**
Skip búask.
ships build:PASS.
'The ships are being built.'

c. **Experiencer**
Henne hugnaðesk þat vel.
her:DAT pleased-*sk* that well
'She was pleased at that.' (Heusler 1921: 142)

These and other meanings found as *-sk* grammaticalizers are typical of the development of reflexives (see Kemmer 1993). The cliticized form of *sik* became an *-s* suffix in the Eastern Scandinavian languages such as Danish, where it has occasional passive uses, as in (26a), although its more usual function is to express middle (26b), and reciprocal (26c) meanings:

(26) a. **Passive**
Døren åbnedes af en tjener.
door:DEF open-*s* by a servant
'The door is opened by a servant.'

b. **Middle**
Jeg har længtes efter dig.
I have longed-*s* after you
'I have been longing for you.'

c. **Reciprocal**
Vi har mødtes flere gange.
We have meet-*s* several times
'We have met several times.'

The "passive" construction with *-s* is now largely confined to the written language; the more usual passive is formed periphrastically with the verb *blive* 'stay, remain' or with *være* 'to be' and a participle, e.g., *døren blev malet* 'the door was painted.'

The history of Old Icelandic *-sk*, first building a paradigm and then smoothing out its irregularities, leading to a uniform stem, is a common one. Many examples

Table 6.7 *Pre-Sanskrit noun inflection*

| | Singular | Plural |
|---|---|---|
| Nominative | vāk | *vācas* |
| Genitive | vācas | *vākām* |
| Instrumental | vācā | vāgbhis |
| Locative | vāci | vāksi |

*Source:* based on Jeffers and Lehiste (1979: 59)

of this kind of paradigmatization have been cited in the literature. In pre-Sanskrit the inflection of *vak* 'voice' contained stem consonants which sometimes were and sometimes were not phonetically motivated, as shown in Table 6.7. In the (italicized) nominative and genitive plural the alternation *c/k* (caused by a still earlier alternation of **e/*ō* in the vowel of the suffix) must have seemed arbitrary, and the pre-Sanskrit genitive plural *vākām* was replaced in historical Sanskrit by *vācām* (Jeffers and Lehiste 1979: 59–60). The result is a movement toward a single form of the stem in which variation in the stem is either leveled out or, as here, is directly motivated by the phonetic surroundings.

For another example, consider again the Maori passive suffix *-ia* discussed in Section 6.2.4. In this instance, it will be recalled, stem-final consonants were reanalyzed as part of the suffix, giving a variety of allomorphs of the suffix; but uniformity with other stems is coming about through the generalization of *-t*. Derived verb forms such as the causative (with the prefix *whaka-*) seem to be especially susceptible to this kind of leveling (K. Hale 1973):

(27) a. hopuk-ia 'be caught'
whaka-hopu-tia (<*whaka-hopuk-ia) 'cause to be caught'
b. maur-ia 'be carried'
whaka-mau-tia (<*whaka-maur-ia) 'cause to be carried'

The picture drawn by such examples as these is of ragged and irregular paradigms being pulled into shape by analogy and generalization. Yet there are other forces at work too that lead to dispersal and disintegration. Purely phonological factors may contribute to this, as in the following example from Pali, a later form of Sanskrit (Hock 1991 [1986]). Between Sanskrit and Pali the copular verb *as-* 'to be' first underwent leveling, as shown by the data in Table 6.8. In Sanskrit a vowel alternation of *a* and zero in the stem characterized singular and plural forms, reflecting the Indo-European full/zero grade of ablaut. In pre-Pali this *as/s* alternation was partly leveled, yielding the vowel *a* in all plural forms except the third person.

Table 6.8 *Sanskrit and pre-Pali forms of the copula*

| | Sanskrit | pre-Pali[a] |
|---|---|---|
| 1 singular | as-mi | *as-mi |
| 2 singular | asi[b] | *asi |
| 3 singular | as-ti | *as-ti |
| 1 plural | s-maḥ | *as-ma |
| 2 plural | s-tha | *as-tha |
| 3 plural | s-anti | *s-anti |

*Source:* based on Hock (1991[1986]: 171)

[a] The forms identified as pre-Pali are reconstructed, hence the asterisks.

[b] According to Hock, the second-person form is irregular and has no morpheme boundaries.

Table 6.9 *Pre-Pali and Pali forms of the copula*

| | pre-Pali | Pali |
|---|---|---|
| 1 singular | *as-mi | amhi |
| 2 singular | *asi | asi |
| 3 singular | *as-ti | atthi |
| 1 plural | *as-ma | amha |
| 2 plural | *as-tha | attha |
| 3 plural | *s-anti | santi |

*Source:* based on Hock (1991[1986]: 171)

Sound changes in pre-Pali such as assimilation then brought about more irregularity than existed even before the stem leveling, as shown in Table 6.9.

The Sanskrit–Pali development of the irregular paradigm of the verb 'to be' can be explained in terms of understood phonological developments. But irregularity may come about in other quite obscure ways. Andersen (1980: 17) shows that in Bulgarian dialects like that of Macedonia the conjugation of the verb 'to see' has undergone an apparently unmotivated shift in its aorist tense. In Table 6.10, dialect A is Western Bulgarian, dialect B is Macedonian, and dialect C is Southern Serbian. Here dialect A has the older vocalic stem *vide-* while B has taken on the characteristics of a consonantal stem, changing *vide-* to *vid-*. Dialect C has gone even further and in addition to this change has innovated new

Table 6.10 *Differential inflection of the aorist in Bulgarian dialects*

| | Dialect A | Dialects B and C |
|---|---|---|
| 1 singular | vide-x | vid-ox |
| 2–3 singular | vide | vid-e |
| 1 plural | vide-xme | vid-oxme |
| 2 plural | vide-xte | vid-oxte |
| 3 plural | vide-xa | vid-oxa |

*Source:* based on Andersen (1980: 17)

Table 6.11 *Differential inflection of past participles in Bulgarian dialects*

| | Dialect B | Dialect C |
|---|---|---|
| Masculine | video | višel |
| Feminine | vide-l-a | višla |

*Source:* based on Andersen (1980: 17)

stems of the participle that destroy the transparency of the relationship to the stem *vid(e)*.

Compare the masculine and feminine forms of the participle 'seen' in dialect B (which in this respect is conservative) with those of dialect C, as shown in Table 6.11.

The changes in question have one thing in common: they bring the paradigm of the verb 'to see' closer to that of the verb 'to go,' whose forms are uniquely irregular. But what do 'see' and 'go' have in common that would bring about such a development? Why is the perfectly regular vocalic inflection of the verb 'to see' abandoned in dialects B and C, and recreated along irregular, even suppletive, lines? And why should the change be restricted to past tenses (aorist and participle)? Andersen hypothesizes that the explanation is to be found in the frequent use of certain syntagms in which 'go and see' figured together, such as *idoxme i vidoxme* 'went and saw,' *prišele i višel* 'he has come and seen.' It is thus not a "paradigmatic" similarity of sound or of meaning that has conditioned the change, but a "syntagmatic" discourse collocation of the two verbs.

The examples presented here show that while the tendency to conform to a paradigm may appear to be a potent formative force in the ongoing grammaticalization of forms, grammaticalization is not reducible to a uniform process of

paradigmatization. Rather, it involves the disintegration and dispersal of forms as well as their assembly into regular paradigms. Grammaticalization again tends to undermine the picture of stability, of clear categorial boundaries, and of structured groups of forms, showing these to be at the most temporary way-stations between different kinds of dispersal, emergence, and fragmentation. This is in fact to be expected, given the approach to grammaticalization developed in this book: that it emerges out of processes of reanalysis in the syntagmatic domain of language, constrained by speaker–hearer negotiation. We now turn to functional–semantic hierarchies that guide the development of markers of subject and object argument structure.

## 6.4 Argument-structure marking: functional–semantic hierarchies and morphological generalization

We have discussed some examples of unidirectionality of segmental form as "compacting" occurs. We have also seen how grammaticalization can proceed along other dimensions too, such as generalization of paradigms. In the case of the development of Old Icelandic *sik* we also saw spread along a functional–semantic hierarchy in the syntagmatic domain (reflexive, reciprocal, passive, etc.). We illustrate this kind of phenomenon in more detail from object marking in Persian (also known as Iranian), and then go on to suggest how evidence from such generalizations can be used to develop research questions concerning languages for which we have only synchronic data, such as Sacapultec.

### 6.4.1 *Object marking in Persian*

The development of object marking in Persian nicely exemplifies both the unidirectional cline which comprises lexical word > postposition > suffix and generalization along two other dimensions: the animacy hierarchy and the definiteness hierarchy. According to the animacy hierarchy, human nouns are more likely to be included in linguistic rules than animates in general (e.g., animals), and animates are more likely to be included than inanimates:[4]

human > animate > inanimate > abstract

(For the relation of this hierarchy to personal pronouns, proper nouns, common nouns, and other nominal types as well as to case marking and thematic relations, see Greenberg 1974; Silverstein 1976; Dixon 1979: 85.) According to the definiteness hierarchy, definite (referential) nouns are more likely to be included in linguistic rules than indefinite nouns. Given a three-way distinction between

referential definites (e.g., *the*), referential indefinites (e.g., *some/a* in *Some/a man came by trying to sell* The Tribune *this morning*), and non-referential indefinites (e.g., *I need a vacation*), the hierarchy is:

+def/+ref > -def/+ref > -def/-ref (Croft 1990: 116)

For example, definite nouns are readily subjects in English, indefinites less readily so. Passive may be used to avoid indefinite subjects (whether referential or not); and a pseudo-definite subject-slot filler *there* is used when a referential indefinite is the subject of an existential copula sentence, as in *There is a man at the door*. Greenberg (1978b) discusses how definite articles may become indefinite, but not vice versa.

It has been suggested that the motivation for hierarchies such as these is the fact that people are more likely to talk about humans than other things, about referential things than about non-referential ones, in other words, factors known as "empathy" and "attention flow" (see Kuno and Kaburaki 1977; DeLancey 1981). These hierarchies capture many organizational phenomena in language, ranging from such relatively obvious properties of discourse as the likelihood of certain nouns occurring in subject position to complex phenomena such as interaction with case and aspect. The animacy hierarchy has already been mentioned in connection with the generalization of genitive case marking to non-finite clause subjects in Finnish (see Section 5.2.2). Here we show its operation in the development of object marking. The data and much of the interpretation are taken from Bossong (1985: 58–79). At issue is the historical background to the Modern Persian suffix *-râ* in sentences such as (28):

(28) Ketâb-râ mi-xân-ad
book-ACC CONTIN-read-3SG
'He's reading the book.' (Bossong 1985: 63)

In such sentences, the object of the verb receives a suffix written as *-râ*, but pronounced [(r)å], the [r] being dropped after stem-final consonants (Bossong 1985: 59). The suffix *-râ* is found only on the direct (accusative) object, not on indirect (dative) objects, and only under certain semantic and discourse circumstances, which we discuss below.

The path toward an object-marking (i.e., accusative) suffix on the noun began in Old Persian (*c.* 600 BC) with a noun *rādiy* 'goal, purpose' used as a postposition. By the Middle Persian period this form had become reduced to *-rad* and had become a postposition for dative–benefactive objects, only occasionally used for definite accusative objects and never with indefinite ones. The earliest documents of New Persian (from the ninth century AD on) show a suffix *-râ* used as a definite accusative morpheme, but the dative–benefactive use still flourishes. By

the Classical Persian period (twelfth–fourteenth centuries AD) the grammaticalization of *-râ* is complete for all types of definite objects: it is used with all dative and dative-like objects (benefactive, possessive, experiencer) as well as with all accusative objects, provided they are definite. The non-accusative uses are illustrated in the following Classical Persian examples in (28):

(29) a. Hakim-i pesar-ân-râ pand hami-dâd.
wise-man-a son-PL-DAT advice CONTIN-gave
'A wise man was giving his sons advice.'
b. Ma-râ dar šahr dust-ân besyâr-and.
I-POSS in town friend-PL many-3PL
'I have many friends in the town.'
(Bossong 1985: 61; the spelling is modern)

There appear to be, then, three attested stages between the ninth and fourteenth centuries:

Stage I (Middle Persian): postposition *-râ* used for dative-benefactive objects.

Stage II (Early Classical New Persian): suffix *-râ* used for dative-benefactive and definite accusative objects.

Stage III (Classical New Persian): suffix *-râ* used for dative–benefactive objects, and extensions of the dative–benefactive use such as possessor and experiencer and for definite accusative objects.

The change starts with highly specific, individuated objects that are most capable of being affected, namely individual humans. It spreads to all kinds of noun and pronoun objects provided they are individuated (referential). Finally it includes human objects that are only indirectly affected by the action of the verb (possessors and experiencers). This is also a hierarchy of discourse topicality: *-râ* spreads to items down a hierarchy of potential discourse topics, from highly animate participants to ordinary inanimate objects, always provided that they are actually present in the discourse context, that is, that they are referential.

We move now to the Modern Persian period, in which *-râ* has on the one hand been extended to a wider range of NPs, but on the other hand has been restricted with respect to its use with thematic roles. The expansion is motivated by pragmatic discourse strategies that have to do with a foregrounding of the referent. This can be seen clearly in (30), where 'Turkish' is in contrastive focus:

(30) Arabi-0 balad-i? Torki-râ balad-i?
Arabic-ACC familiar-2SG? Turkish-ACC familiar-2SG?
'Can you speak Arabic? And Turkish – can you speak that?'
(Bossong 1985: 67)

The range of *-râ* may even be extended to include indefinites:

(31) Dâlâne derâze târik-i-râ peymud.
corridor long dark-INDEF-ACC passed-through
'He passed through a long dark corridor.' (Bossong 1985: 66)

At this stage, *-râ* functions to focus on a prominent NP that is the object of a verb, regardless of its animacy and definiteness. Such discourse conditioning of a form as it becomes more grammaticalized is a very important general phenomenon.

At the same time as *-râ*'s range has been expanded on the animacy and definiteness hierarchies, its range has actually been contracted on another hierarchy to be discussed in Section 7.4.3, that of thematic roles. With the exception of a few relic phrases, it is now never used in anything but a strictly accusative context, that is, it is used for direct objects only, and is no longer used for dative-like indirect objects. The causes of this contraction of range with respect to thematic roles are not completely understood (see Bossong 1985: 58–79), but may possibly have something to do with a tendency to specialize case markers to the most syntactic, as opposed to semantic, cases, that is, subject and object (see H. Smith 1996 for discussion of the interaction of case markers and syntactic case).

### 6.4.2 *Ergative case marking: a statistical perspective*

The study we have just outlined illustrated morphological generalization over time. In some language families historical data are available from which changing frequencies and discourse environments of forms can be documented. Quite often, however, written historical data are lacking, and trajectories and motivations for grammaticalization can only be surmised from the study of the synchronic distribution of grammatical forms in discourse. Among a number of well-known synchronic studies of this kind are DeLancey's (1981) and Du Bois's (1987) hypotheses about the clausal marking of case roles. Although the specific forms, and the precise way in which they have emerged, cannot be known, this work emphasizes the fact that grammatical forms do not exist in a functional vacuum, but reflect general strategies by the speakers of languages for putting together discourses.

Languages that mark subjects and objects with case morphology may present a distinction between an "absolutive" case, the category for objects and intransitive subjects, and an "ergative" case, the category for transitive agentive subjects (see, e.g., Plank 1979; Dixon 1994). In Basque, the absolutive case suffix is zero, and the ergative case suffix is *-(e)k*:

(32) a. Martin ethorri da.
Martin:ABS came AUX:3SG
'Martin came.'
b. Martin-ek haurra igorri du.
Martin-ERG child:ABS sent AUX:3SG
'Martin sent the child.' (Comrie 1978: 333)

Ergative case-marking systems like that of Basque are widely distributed among the world's languages. Ergative languages in fact often agree with one another down to such details as marking the absolutive case with a zero morpheme. To a speaker of a standard European-style "nominative/accusative language" such a system of cases may seem unmotivated. Why do not all "subjects," whether transitive or intransitive, behave as a single grammatical class? Why should objects be marked in the same way as some subjects?

In order to answer this question, we may ask what common functions link the object of the verb with the intransitive subject (absolutive), and set these apart from the transitive subject (ergative). Du Bois (1987) investigated texts in an ergative language, the Maya language Sacapultec, and determined that "new" information, that is, reference to newer things or persons in the discourse, was often presented in the object of the verb if the clause was transitive, and in the subject if the clause was intransitive. Consider the following two clauses in Sacapultec (spoken in succession by a single speaker):

(33) a. š-e:-pe: e: išeb' al"ʔo: m,
CMP-3PL:ABS-come PL three boy-PL
'Three boys came,'
b. š-0-a:-ki = -siky'-aʔ l pe:ra
CMP-3ABS-MVT-3PL:ERG-pick:up-MVT the pear
'(They came) and picked up the pear.' (Du Bois 1987: 824)

(Here, CMP is the completive aspect prefix and MVT is a morpheme meaning 'movement.') In (33a), the three boys are introduced into the narrative with the verb 'come.' In Sacapultec, the argument roles are signaled by affixes on the verb rather than by affixes on the NPs. Since this verb is intransitive, its subject is 'boys' in the absolutive case; the agreement prefix *e:* on the verb reflects this. In (33b), the newer item is the pear; it is the object of the transitive verb *siky'* meaning 'pick up,' and is likewise in the absolutive case. There is a verbal prefix, which happens to be zero, and which reflects the absolutive case of its object, the pear. The verb has, in addition to the zero aspectual prefix and a 'movement' prefix, a second agreement prefix, *ki-*. This *ki-* is a third-person-plural ergative and agrees with an unexpressed ergative agent (the situation is roughly the same as the English 'Three boys came and 0 picked up . . .').

In these texts (and it turns out in texts from other languages too) agents are introduced as new entities primarily in intransitive events. New entities in the discourse introduced in the role of transitive agent are much more rare. One telling statistic is the distribution of the three basic roles (transitive agent, intransitive subject, and transitive object) over the appearance of full nouns, since there is a high correlation between newness in the discourse and reference through lexical nouns. In English sentences such as (34a, b), all three roles – transitive agent and transitive object in (a), intransitive subject in (b) – are represented by full lexical nouns:

(34) a. The paper-boy delivered the magazines.
a. The letter arrived late.

Yet sentences such as (34a), with a lexical noun in the role of transitive agent, are found to be rare in actual discourse. More commonly, transitive agents are represented by a pronoun (i.e., *He delivered the magazines*). It must be emphasized that the notion of discourse distribution is critical here. It is not that sentences such as (a) are ungrammatical, or sound strange, or are difficult to elicit in isolation from native speakers; quite the contrary. Rather, empirical evidence in the form of quantitative studies of spoken discourse reveals a marked skewing toward the representation of transitive agents by pronouns rather than by lexical nouns.

In Sacapultec discourse, Du Bois found, a total of 56.5% of all lexical mentions were in the absolutive case category, that is, intransitive subject or transitive object (Du Bois 1987: 827). Within the absolutive case, the two roles were fairly evenly distributed: intransitive subjects comprised 32.8% of lexical noun mentions, and transitive objects 23.7%. By contrast, only 3.4% of full lexical nouns referred to transitive agents. (The remainder of the lexical nouns were found in other sentence roles.)

Evidently Sacapultec has grammaticalized in its case marking not some clause-level system of roles involving "agency" and "patienthood," nor even a semantic distinction of animacy, as has sometimes been suggested for ergative languages, but a higher-level function involving information flow, that is, the different likelihoods that new information will be presented in one position in the clause rather than another.

According to this analysis, case-marking systems seem to emerge as a result of some general discourse tendencies. One of these is to have only one piece of significant new information per clause. Transitive clauses, which contain two arguments, must therefore "manage" their argument structure so as to have at the most one of these two arguments as a lexical noun. Another tendency is to keep the transitive agent anaphoric or "old" (what Du Bois calls the "Given Agent Constraint" – Agent being the designation for the transitive agent) and to assign

new information preferentially to the object of the verb. In languages that signal the ergative case only if the ergative is a lexical noun, then, and have a different system of marking for pronouns, the ergative case can be seen as the case that marks the transitive agent when it is, contrary to the general tendency, new to the discourse. The grammaticalization of ergative case marking therefore may consist of a spread of the ergative case to all transitive subjects, both lexical nouns and pronouns.

By contrast, nominative–accusative systems appear to have grammaticalized in their case marking the syntactic argument roles subject and object, perhaps via a discourse strategy that aligned agents, whatever their status with respect to transitivity or to old or new information (Du Bois 1985). If this is so, it may be that at least some ergative systems arise out of marking of new information, whereas some accusative systems arise out of marking of agency.

Such quantitative studies as Du Bois (1987) of the synchronic relationships between forms and discourse functions have significant implications for the study of grammaticalization, in that they suggest explanations from actual usage for the emergence of a grammatical function. It should be stressed, however, that the question of *which* form or set of forms comes to express this function is a separate one. While the grammaticalization of ergative case morphology may "fall out" from discourse pressure to distribute arguments in certain ways, the source of the forms themselves varies. In Malay, for example, an agentive–ergative preposition *oleh* seems to have its origin in a verb of a separate clause; a sentence such as (35) would then have originated from something like 'The letter was written (and) my brother did (it)':

(35) Surat itu ditulis oleh abang saya.
letter the 3AG: write ERG:PREP brother my
'My brother wrote the letter.'

Here the former verb *oleh*, now the ergative case preposition, once had a range of meanings apparently encompassing 'get, obtain, do, manage, return.' In other languages, ergative constructions emerge from quite different sources, such as the passive with an agent in the instrumental case. As we would expect from grammaticalization in general, the type of source is constrained by discourse strategies operating on pragmatically and semantically relevant structures. Among historical studies, see S. Anderson (1977), Garrett (1990), A. Harris and Campbell (1995); Chung (1977) on Polynesian languages, Shibatani (1991) on Philippine languages; Butt (2001) shows that where historical evidence is available, as it is for Indo-Aryan, a full account must address not only ergative–absolutive and nominative–accusative morphology, but use of other cases as well, such as dative for subject.

Table 6.12 *Old English strong*[a] *adjective singular inflection*

| | Masculine | Neuter | Feminine |
|---|---|---|---|
| Nominative | god | god | god |
| Genitive | godes | godes | godre |
| Dative | godum | godum | godre |
| Instrumental | gode | gode | godre |
| Accusative | godne | god | gode |

[a] The strong declension was used in the absence of a demonstrative.

## 6.5 Loss

As we saw in connection with the Russian instrumental (Section 5.7), and the Persian object marker (Section 6.4.1 above), morphemes can often remain stable for very long periods, shifting their function in broadly predictable ways but persisting in their shape. Nonetheless, at the extreme end of the history of a particular form as a grammatical marker we may find loss, either of form alone or occasionally of both form and function. Examples of the loss of a form alone occur whenever two or more competing forms exist for the same function, and one is eventually selected at the expense of the others. We have cited many examples of this phenomenon, including the specialization of the French negative *pas* from among a wider set of possibilities, or the selection of periphrastic tenses and aspects over inflectional ones in Late Latin and early Romance.

Similarly, whole inflectional paradigms can pass out of general use, as has happened with the French "passé simple" such as *elle s'évanouit* 'she fainted.' The same has almost happened with the German "imperfect" (i.e., preterit), where *er las* 'he read' is fast receding. In both these instances the older paradigm remains in written and formal registers, but is essentially dead in the colloquial registers. "Renewal," that is, the replacement of a dying form by a newer, usually periphrastic, form with a similar meaning, is common in such cases. Thus the French "passé simple" has been replaced as the ordinary past tense of the verb by the periphrastic perfect *(elle s'est évanouie* 'she fainted'), and the German imperfect also is giving way to the perfect *(er hat gelesen* 'he read').

More unusual is loss of both the morphological function that a form once served and loss of the form itself (or absorption into the stem as a meaningless component). In Old English, for example, adjectives still had case, number, and gender suffixes; thus the singular of the adjective meaning 'good' was as shown in Table 6.12.

None of these suffixes has survived into PDE as a productive morpheme; however, in the modern adverb *seldom* we find a relic of the dative plural in *-um* of the adjective *seld* 'strange, rare.' The suffix *-om* in PDE *seldom* is said to have become "de-morphologized," that is, to have lost its morphological value (for some discussion of de-morphologization, see Joseph and Janda 1988). From another, more positive, perspective the process of de-morphologization can be seen as one of "phonogenesis" (Hopper 1990, 1994), whereby "dead" morphemes become sedimented as phonological segments and over long periods actually create and repair the phonological bulk of words, rather like the way the shells of dead molluscs create geological formations. The Modern Irish verbs in the left-hand column in (36) derive from simple verb stems to which were attached one or more adverbial prefixes with directional or locative:

(36)

| **Modern Irish** | **Early Old Irish** |
|---|---|
| tag- 'come' | to-theig 'to-go' |
| imigh 'go, leave' | imb-theg 'about-go' |
| friotaigh 'resist' | frith-to-theg 'against-to-go' |
| fog- 'leave' | fo-ad-gab 'under-toward-take' |
| faigh 'get' | fo-gab 'under-take' |
| abair 'say' | ad-ro-ber 'toward-for-bear' |

(data from Michael Noonan [p.c.])

But the Modern Irish forms are no longer synchronically analyzable as having prefixes – the earlier prefixes are now simply part of the phonology of the verb stem. In this way phonological segments can often be seen to consist of old morphemes; the *-nd* of English *friend, fiend* is a relic of the Germanic present participle *-ende* (cf. German *freuend* 'rejoicing'), and these two nouns derive from verbal roots meaning, respectively, 'love' and 'hate.'

De-morphologization can have a real effect on phonology because it may bring about phonotactic changes, that is, changes in canonical syllable shape (introducing, e.g., new consonant clusters) and word length, and this in turn may affect tone and stress. An instance of the effect of de-morphologization on phonotactics has been described by Dixon in the Australian language Olgolo (Dixon 1982 [1969]). In Olgolo many word-initial consonants were lost through erosion. As a result, a considerable number of words began with vowels, an "unnatural" situation which speakers of the language appear to be in the process of remedying by creating noun prefixes out of old demonstratives. These ex-demonstratives marked semantic classes; consequently the new initial consonants still roughly reflect such semantic divisions as animals and insects (*ŋh-*); fish, oysters, and eels (*y-*); and a broad class of inanimates that include trees, grasses, sun, fire, and language (*w-*). The most important effect has been a phonological one: to restore to the language many more instances of word-initial "natural" (i.e., CV) syllables.

The end product of grammaticalization is thus phonology in the very literal sense of phonological segments. Phonogenesis plays the vital role of ensuring that the attrition which occurs in the natural course of change is compensated for by accretion. De-morphologization in its end stages is therefore not reducible to loss, but rather involves a kind of "phonological strengthening." There is an interesting parallel here to the pragmatic strengthening that we saw always accompanies semantic loss in earlier stages of grammaticalization (see Section 4.5).

Sometimes de-morphologization resulting in phonologization will not be complete, but will result in the emergence of a new grammatical form. This is what has for the most part been analyzed recently as "exaptation" (or, in Greenberg's terms "regrammaticalization") (see Section 5.7).

## 6.6 Conclusion

In this chapter we have illustrated a variety of changes that involve various degrees of fusion over time, as well as of pattern reorganization and structuration. As we have seen in other chapters, there is a constant tension between changes that pertain to the flow of speech (syntagmatically) and those that pertain to the choices in any one position (paradigmatically). How these develop is best understood in terms of discourse strategies.

# 7

# Grammaticalization across clauses

## 7.1 Introduction

Ordinary discourse does not consist of isolated, context-free utterances, but of linked discourse units comprising reports, orders, comments, descriptions, and other kinds of linguistic activity. These units, usually expressed by clauses, typically consist of a verb and indicators of the arguments of the verb, in the form of lexical nouns, pronouns, or pronominal affixes. All languages have devices for linking clauses together into what are called complex sentences. These tend to be classified in grammars according to functional–semantic principles, for example, whether a clause functions as an NP (complements, or "noun clauses," that are arguments of the clause), modifies an NP (relative clauses), or has adverbial functions (e.g., temporal, causative, or conditional clauses). However, the form of a "complex sentence" may differ quite radically among languages and among speakers and occasions of speech in one and the same language, from fairly simple juxtapositions of relatively independent clauses characteristic of casual speech, such as (1), to complex dependent rhetorical constructions typically arising in the context of traditions of written grammar, such as (2):

(1) Within the decade there will be an earthquake. It is likely to destroy the whole town.

(2) That there will be an earthquake within the decade that will destroy the whole town is likely.

It has been customary to discuss the development of markers of clause linkage such as the two instances of *that* in (2) in terms of grammaticalization. For example, the development of complementizers, conditional conjunctions, relativizers, and so forth are standard topics exemplifying the grammaticalization of lexical items or the increased grammaticalization of already grammatical items in specific contexts (in this case, the context of clause combining). So are syntactic changes whereby initially separate clauses may become totally interlaced such that the boundaries between clauses may become obscured at the surface level (e.g., *(It) seems that he is right* > *He seems to be right*), or at least a clause may become attached to a constituent inside the matrix clause.

Until recently, however, less attention has been paid to the possibility of including the process of clause combining itself within grammaticalization, except notably in the work of Givón. As mentioned in Chapter 2, he proposed (1979: 209) a path of grammaticalization of the type:

discourse > syntax > morphology > morphophonemics > zero

By "discourse" here he meant the loose, unplanned, informal mode of communication in language. Givón illustrated the first three stages of the path (discourse > syntax > morphology) by such phenomena as shifts from topic into subject, and topic sentences into relative clauses, finite clauses in concatenated structures into non-finite complementation structures (e.g., the serial type *I want I go* > *I want to go*). If grammaticalization is defined broadly so as to encompass the motivations for and development of grammatical structures in general, then processes of clause combining clearly fall squarely within its domain, as Givón suggested.

In this chapter we show first that synchronic clause combining can be considered from the point of view of a unidirectional cline from relatively free juxtaposition to syntactic and morphological bondedness within the framework of grammaticalization broadly construed. We then focus on a few examples of the development of clause combining across time where the theory of grammaticalization may either help us understand the facts of complex sentence structure, or may suggest a different way of thinking about it than has been customary.

## 7.2 A cline of clause-combining constructions

Many studies of complex sentence structure suggest a sharp distinction between coordinate and subordinate clause structure. This tradition has been based in part on evidence from Indo-European languages and especially the written records that give insight into their history. In the 1980s the distinction was repeatedly called into question as a result of the study of non-Indo-European and of spoken languages (see especially Haiman and Thompson 1984 on the problem of defining subordination cross-linguistically). Here we have space to sketch only one framework for the study of clause combining. More thorough treatments suggesting alternative viewpoints are to be found in Foley and Van Valin (1984), Shopen (1985, vol. 2), Haiman and Thompson (1988), Austin (1988, on Australian languages), and Bybee, Haiman, and Noonan (2001).

A complex sentence, syntactically defined, is a unit that consists of more than one clause. A clause that can stand alone can be referred to as a "nucleus" (Longacre 1985). A complex sentence may consist of a nucleus and one or more additional nuclei, or of a nucleus and one or more "margins," relatively dependent

clauses that may not stand alone but nevertheless exhibit different degrees of dependency. Among clauses which form margins, three types can be semantically distinguished: "those which function as noun phrases (called complements), those which function as modifiers of nouns (called relative clauses), and those which function as modifiers of verb phrases or entire propositions (called adverbial clauses)" (Thompson and Longacre 1985: 172). As will be discussed below, adverbial and appositive relative clauses may be less dependent than restrictive relative and complement clauses in some languages, or at some stages of a language.

From the point of view of evolution and of language acquisition, the initial formation of a complex clause would appear to involve the combining into one integrated structure of two separate and autonomous nuclei that are mutually relevant (or presented as mutually relevant). The act of combining the clauses and signaling this combination linguistically is grounded in rhetorical production strategies. We have no historical textual evidence of a stage of a native language without complex clauses, followed by the emergence of complex ones. In other words, to our knowledge human languages have had complex sentence structure available throughout recorded history. But reorganization of complex combinations is well evidenced, as we will see below, as is the association of certain complex sentences type with certain genres, especially of planned discourse.

Complex sentences range in type from multiple nuclei that are juxtaposed under one intonation contour but have no segmental (overt morphological or syntactic) indication of a grammatical relationship between them, to combinations of nucleus and margin in which this relationship is highly compressed. To simplify, we can think initially of a cline with three "cluster points" as follows (the cline is based on discussion by Matthiessen and Thompson 1988; C. Lehmann 1988, 1989b; Langacker 1991):

(a) "Parataxis," or relative independence, except as constrained by the pragmatics of "making sense" and relevance.

(b) "Hypotaxis" or interdependency, in which there is a nucleus, and one or more clauses which cannot stand by themselves, and are therefore relatively dependent. However, they are typically not wholly included within any constituent of the nucleus.

(c) "Subordination," or, in its extreme form, "embedding," in other words, complete dependency, in which a margin is wholly included within a constituent of the nucleus.

These cluster points can be characterized by a "cline of clause combining":

parataxis > hypotaxis > subordination

This can further be elaborated by specification in terms of combinations of the features ±dependent, ±embedded:[1]

| parataxis | > | hypotaxis | > | subordination |
|---|---|---|---|---|
| −dependent | | +dependent | | +dependent |
| −embedded | | −embedded | | +embedded |

In establishing these three cluster points, we preempt and redefine the terminology of two traditions, and expand two overlapping pairs into a three-way distinction. One pair – parataxis versus hypotaxis – derives from a primarily nineteenth-century tradition in which parataxis was understood to include all kinds of juxtaposition, and hypotaxis to include all kinds of dependency. The other pair – coordination versus subordination and especially embedding – derives from more recent traditions, in which coordination and embedding are defined formally in terms of constituent structure.

The minimal process in clause combining is unification and bonding, at least pragmatically. Such bonding is often, most especially in the case of subordination, accompanied by hierarchical downgrading and desententialization (C. Lehmann 1988), hence decategorialization of one member of the complex structure into a margin. A nucleus canonically contains a finite verb. Therefore decategorialization typically entails reduction of the finiteness of the verb. Of particular interest to us is the extent to which the cline of dependency matches up with a cline of grammatical integration, for example, finiteness on the left and non-finiteness on the right of the cline, expressed by clausal remnants such as infinitives and participles. A special case of integration is that in which bonding brings about what C. Lehmann calls "interlacing": the sharing of participants (e.g., same subject), or of tenses and moods, and also the interweaving of originally separate clauses into the surface structure of the matrix (in *She seems to be smart, she* appears in the matrix but is actually the subject of the embedded clause, as shown by *It seems that she is smart*).

The question is whether the different types of clause combining are motivated, and if so, by what. Givón has suggested that there is a cognitive form–function parallelism of the following type: "The more two *events/states* are integrated semantically or pragmatically, the more will the clauses that code them be integrated grammatically" (Givón 1990: 826). This is a statement about diagrammatic iconicity as it pertains to the overt form that a clause takes, not its covert, abstract structure, and can be illustrated by the various forms of complementation in English. Under most current syntactic analyses, the four sentences in (3) involve a "matrix" and a "subordinate" clause at some level of syntactic abstraction; however, they also show increasing degrees of overt morphosyntactic integration. From a discourse perspective they can also be seen to represent increasing degrees of connectedness

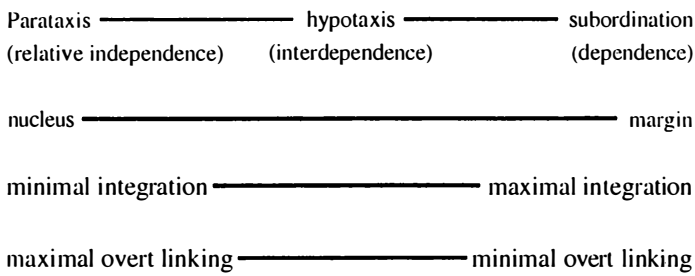


Figure 7.1 *Properties relevant to the cline of clause combining*

between states of affairs (or, according to Langacker, increased grounding in the subject's immediate experience of the event):

(3) a. We realize that you have to make a profit.
b. His wife only pretended to believe his implausible story.
c. Portia really enjoys walking along the beach.
d. Numerous witnesses heard the bomb explode. (Langacker 1991: 439)

In other words, the hypothesis is that the more overt and independent devices for signaling clause linkage (e.g., clitics such as *that* in (3a)) are correlated with minimal semantic–pragmatic integration, and the least overt (in some languages an inflectional affix, in others like English no marking at all) are correlated with maximal semantic–pragmatic integration.

In thinking about the cline of clause combining from the point of view of grammaticalization, then, we need to think of the correlations among at least the properties in Figure 7.1.[2]

We illustrate some correlations, both weak and strong, between the various factors immediately below, and then go on to discuss some examples of the development of complex sentence structures that illustrate the properties in Figure 7.1.

### 7.2.1 *Parataxis*

The simplest kind of relationship between two clauses is juxtaposition in which two or more nuclei occur next to one another and the semantic relationship between them is by inference only:

(4) Fort Sumter has been fired on. My regiment leaves at dawn.

The nature of the inferential relationship between such juxtaposed clauses has been discussed in connection with examples (4a) and (4b) in Section 4.2.3. Two juxtaposed clauses of this kind with independent intonation contours and without any overt signal of linking do not constitute a single complex, and are therefore

not of concern here. However, when juxtaposed clauses are linked in some way, such as by intonation, or by virtue of sharing a single lexical noun subject, there is reason to think of the two clauses as united grammatically into one sentence by parataxis. Caesar's putative declaration, already cited in Section 2.3 as an example of diagrammatic iconicity, is a well-known example of parataxis without overt clause linkage:

(5) Veni, vidi, vici.
'I came, I saw, I conquered.' (*c.* 146, Suetonius, Jul. 37)

Each of the three clauses is autonomous. Each constitutes a nucleus. But (5) is considered to constitute one sentence with multiple nuclei because the punctuation represents a single unit, that is, a single overarching intonation contour.

Parataxis is in many languages a normal way of forming complex sentences. In Chinese, for example, paratactic clauses may function exactly like clauses which in other languages are overtly marked as margin and nucleus:

(6) Ta mei nian shu, ta da qiu le.
he NEG study book he hit ball ASP
'He didn't study, he played ball.' (Thompson and Longacre 1985: 175)

This sentence would be the usual way in Chinese of saying 'Instead of studying, he played ball' (in this English version, 'instead of studying' is expressed adverbially, and therefore as a marginal element). In some registers of English, simple juxtaposition over a single intonation contour is a common way to express conditional sentences:

(7) You keep smoking those cigarettes, you're gonna start coughing again.

and even for relative clauses:

(8) That guy [0] just walked out the store reminds me of the photo in the post-office window.

Paratactic clauses of this type are often said not to show any overt linkage markers. If this is so, then there is clear evidence for the independence of parataxis and maximal overt linking as characterized in Figure 7.1. A question that still needs to be resolved is to what extent the different intonation contours involved in paratactic clause combining may function exactly like overt grammatical markers. For example, (7) is interpreted as a conditional only if the first clause ends in a rising intonation. Otherwise, the construction is considered incoherent.[3] It has been customary to treat only explicit connective words such as *and*, *if*, *who*, or segmental morphology such as clitic *-que*, 'and' in Latin, in discussions of clause combining. However, recent interest in information flow and differences between orality and

literacy and especially the close study of spoken language in conversation have led to important developments in understanding the role of intonation as a morphosyntactic phenomenon (see, e.g., Bolinger 1984; Chafe 1988; Couper-Kuhlen 1993, 1996; Ford 1993; Couper-Kuhlen and Selting 1996). We will not discuss this issue further here, however, because insights into changes in such contours are hard if not virtually impossible to achieve from written texts.

Constructions consisting of adjacent nuclei under one sentential intonation contour and having an explicit connective word such as 'and,' are considered to be more "grammaticalized" than those without, that is, they mark the grammatical relationship. Such clauses are said to be "coordinated":

(9) I came and I saw and I conquered.

(10) Emily is training to be a speech therapist, and Joel works for a law firm in Philadelphia.

Overt clause linkage markers in coordinate sentence structures (equivalents of *and*, *but*, *or*) tend to be developed relatively late in languages, or to be borrowed from "high" registers (Mithun 1988). They are unstable and tend to be renewed frequently (Meillet 1915–16 [1958]). The development of *plus* (originally borrowed from Latin, and recently from mathematical discourse) for *and* is an example in contemporary American English.

### 7.2.2 Hypotaxis

The equivalents of the "coordinated clauses" of modern European languages are in many other languages not structured with overt coordinating conjunctions, but are either presented as simple paratactic clauses, as in the case of (9) and (10), or as a margin with a nucleus, as in the following examples from Japanese:

(11) a. Koto o nui-de hanga ni kaketa.
coat OBJ take: off-*de* hanger on hung
'I took my coat off and hung it on a hanger.'

b. Wain o nomisugi-te atama ga itai.
wine OBJ drink:too:much-*te* headache SUBJ have
'I drank too much wine and have a headache.'

In (11) the suffix *-te/-de* on the verb stem signals that the clause in question is interdependent and more marginal than an independent nucleus. However, it is not fully dependent. In other words, it is hypotactic. In many languages of Africa, the Americas, New Guinea, and Asia a construction similar to the Japanese *-te* construction is used to link clauses together over long stretches of discourse. This phenomenon is known as "clause chaining." In such chains, usually only one of the

clauses is a nucleus containing the full range of verbal markers for tense, aspect, mood, and so on. If the language is verb-final (OV), the fully marked verb is the last in the series. (And at least in some verb-initial African languages, this verb is the first in the series; see Longacre 1990.) Often the verbal inflections in the chained clauses (margins) are restricted to carrying information about the participants, not temporality. This is especially true of New Guinea languages, where the interior verbs (known as "medial" verbs) are suffixed with indicators of the person and number of the subject of the following verb but not for tense, aspect or mood. The following is an example from Hua with a medial (MED) ending *-gana* that signals switch reference (SW) (i.e. that the subject of the second verb is not the same as that of the first):

(12) Minaroga rmu-gana baie.
down:there go:down-MED:SW stay:3SG:NON-FUT
'I went down there and he stayed ~ After/because I went down there, he stayed.' (Haiman 1984: 68)

Hypotaxis is not limited to clause chaining. Among other hypotactic constructions are appositional relatives in English. These are semantically and even syntactically equivalent to appositional (parenthetical, clarificational) structures, and even to coordinate clauses. For example, (13a) is equivalent to (13b):

(13) a. Bill Smith, who is our president, would like to meet with you.
b. Bill Smith would like to meet with you. By the way, he is our president.

Furthermore, the matrix NP and the relative can be reversed in order, with only minor pragmatic differences:

(13) c. Our president, Bill Smith, would like to meet with you.

Appositive relatives can even carry their own illocutionary force, that is, they can function as speech acts independent of the speech act of the matrix clause. This means that they can function as questions or imperatives within statements, something which canonically embedded clauses cannot do. An example from Latin is:

(14) Perutiles Xenophontis libri sunt, quos legite quaeso,
highly-useful Xenophon's books are, which read-IMP/PL ask-ISG,
studiose!
studiously
'Highly useful are Xenophon's books; please read them thoroughly.'
(*c.* 40 BC, Cic.Cat.M.59; cited in C. Lehmann 1988: 194)

Other hypotactic constructions include adverbial clauses, including temporals ('when'-clauses), causals ('because'-clauses), conditional ('if'-clauses), and

concessives ('although'-clauses). Example (7) contains two nuclei, and is paratactic. In other, more formal or "literate," registers, the same relationship may be indicated with explicit morphology:

(15) If you keep smoking those cigarettes, you're going to start coughing again.

In (15) the *if*-clause cannot stand on its own. Traditional grammars have treated adverbial clauses as subordinate or embedded. But as Matthiessen and Thompson (1988) show, the relationship of dependency is different from that of the prototypical cases of embedding. Specifically, there is a semantic difference. For example, in (16), *before leaving* is equivalent to *before his departure*, a nominalization that presents an event as an entity, not to *before noon*, which is an adverbial phrase with a noun:

(16) Before leaving Krishnapur, the Collector took a strange decision.
(Matthiessen and Thompson 1988: 180)

As we will see below, adverbial clauses actually arose out of the reanalysis of adverbial phrases as adverbial clauses; however, they have not reached the level of incorporation that, for example, complements have done.

Adverbial clauses themselves show a continuum of looser-to-tighter integration, a continuum that correlates with their function. Thus an explanatory causal can have independent illocutionary force, as in (17a), while a causal giving the grounds for the consequent cannot do so (17b):

(17) a. The Knicks are going to win, because who on earth can stop Bernard?
(G. Lakoff 1984: 474)
b. *The Knicks are going to win because do they have the best players?

### 7.2.3 Subordination

Subordinate clauses are dependent on their matrix clauses in various ways. For one, they cannot have different illocutionary force from the matrix. For another, they are equivalent to the constituents they express. In addition, they typically are interlaced in some way. In the following example of an English restrictive relative, *who just walked out of the store* is structurally equivalent to nominal modifiers such as *the*. Furthermore, it is surrounded by material from the matrix clause (*I think the guy ... resembles the photo*):

(18) I think the guy who just walked out of the store resembles the photo in the post-office window.

In the following example of a Latin conjunct participial construction, the predicative adjective phrase *patria pulsum* is equivalent to a modifier of *Aristides*. The

event of Aristides' expulsion is expressed as hierarchically dependent on the object argument (*Aristides*):

(19) Aristidem patria pulsum viderunt.
Aristides-ACC country-ABL expelled-ACC saw-3PL
'They saw Aristides, who had been exiled.'
(Haiman and Thompson 1984: 515)

Note that (19) contrasts with the considerably more hypotactic ablative absolute construction in (20); here there is no relationship between the absolute clause and the verb:

(20) Aristide patria pulso, Persae Graecos
Aristides-ABL country-ABL expelled-ABL, Persians Greeks-ACC
aggressi sunt.
attacked AUX
'Aristides having been exiled, the Persians attacked the Greeks.'
(Haiman and Thompson 1984: 515.)

Subordinate clauses on the right-hand side of the clause-combining cline in Figure 7.1 function both semantically and syntactically as expressions of a constituent. This is particularly obvious in late-stage complementation types, where a clause functions as an argument of the matrix. In (21), *that the Titanic sank* is equivalent both to the nominalization *the sinking of the Titanic* and to the noun phrase *the disaster*:

(21) That the Titanic sank was unexpected.

## 7.3 The grammaticalization of clause linkers

The world's languages display a wide variety of techniques for linking clauses into tighter amalgamations. These techniques range from forms and expressions that are indistinguishable from lexical items, such as 'time,' 'place,' to affixes indicating subordination whose origins are completely unknown. Still, significant generalizations about the origins of such forms can be made.

We have seen that grammaticalization does not involve special principles that make reference only to morphosyntax, but is a subset of the types of language change in general. The historical development of connectives tends therefore to be similar to that of other lexical items, though their positional and suprasegmental features may make them subject to special kinds of changes. Clause linkage markers have their sources in nouns, verbs, adverbs, pronouns, case morphemes (including prepositions and postpositions), derivational affixes, and in phrasal combinations of these. Fairly recently, for example, in spoken English the prepositional

phrases *on the basis* (*of*) and *in terms of* have come to be used to link clauses together:

(22) He's asked for the special retirement package *on the basis* he's been with the firm over twenty years.

(23) They're a general nuisance *in terms of* they harrass people trying to enjoy the park.

Once they are recruited as clause linkage markers, the originally lexical constructions typically undergo the same types of changes as they would if they were members of a noun-to-affix or of a verb-to-affix cline.

Typical of hypotactic developments (though by no means necessary or diagnostic of them) is the recruitment to connective function of deictics and other demonstratives. The motivation here is the extension of deictic reference from entities referred to in the non-linguistic world to anaphors and cataphors of NPs and then to anaphors or cataphors of propositions (clauses). In other words, deictics may be used for textual functions involving clause reference in order to achieve overt linking of clauses. For example, in Gunwinggu, an Australian aboriginal language, we find clauses occurring where the linkage is signaled by deictics anaphoric to the preceding clause as well as by a single overarching intonation contour. In (24) *gunu* 'that' refers back to 'our language we write':

(24) ... dja mi:n bu ŋadman gadbere gunwo:g garibi'bi:mbun,
... and not in:regard:to ourselves our language we-write,
gunu gari'wagan
that we-don't:know
but we don't know at all how to write our own language'
(Berndt and Berndt 1951: 37; cited in Mithun 1984: 498)

Such textual functions are *de dicto*, that is, they refer to parts of the discourse as linguistic forms rather than to the semantic content of the forms (*de re*). (For the *de dicto/de re* distinction, see Frajzyngier 1991, 1996.)

Sometimes a more explicit deictic phrase is used containing a lexical noun rather than simply a pronoun. One example, the development of *while*, has been discussed in Section 4.3.2. The major difference from the development of prepositions discussed in Section 5.3.1 is that clause linkage markers, when they function in ways similar to prepositions, introduce whole clauses, at least at first. In so doing they maximize the constituent with which they are associated.

Clause linkage markers are in their origins presumably motivated by speakers' desire to be clear and informative, particularly to give directions to hearers for interpreting clauses in terms of their linguistic environment (see Halliday and Hasan 1976). Initially they serve to signal the functional relationship of the combined

clauses to each other (as in the case of the deictics illustrated above), and to mark syntactic boundaries (which may be obscured by later syntactic interlacing). The cross-linguistic study of clause linkage markers and the observation that they tend to fall into clearly definable semantic–pragmatic sets has led linguists recently to characterize somewhat more fully than in the past the conceptual and rhetorical functions of many types of clause combining.

For example, it has been observed (Haiman 1985a; Traugott 1985b) that conditional connectives derive from sources such as the following (examples are from Traugott 1985b):

(a) Forms with modally related meanings, e.g.: *suppose* (often found as the only marker of the "protasis" or *if*-clause in creoles); Mandarin Chinese *yào* 'wish, be necessary, if'; Minangkabau (Sumatra) *kò'* 'perhaps, maybe if.'

(b) Interrogatives: Hua *-ve* 'interrogative, topic status, if'; Russian *esli* < *est* 'be' + *li* 'whether.'

(c) Temporals expressing duration, or temporals that are ambiguous between duration and punctuality: Hittite *man* 'when, if, potential'; Tagalog *(ka)pag(ka), kung* 'if, then, while'; Indonesian *jika* 'if, when.'

(d) Copula constructions: Swahili *i-ki-wa* 'it being that' (*-w-* 'be'); Japanese *nara* 'be,' Chickasaw *(h)oo* 'be.'

(e) Forms signaling something as known or given: English *given that*, Latin and Romance *si* (<*sei* 'so' < **s* 2nd person deictic + *ei* locative); Sanskrit *yád* 'topic, conditional'; Indonesian *kalau* 'if, as for.'

Conditionals raise possibilities and cast doubt on propositions; therefore the presence of modalities and interrogatives among the sources of conditionals seems naturally motivated by the function of conditionals. The fact that conditionals derive from durative temporal relationships and copulas can be seen to reflect the fact that conditionality presupposes an extant (durative) condition. The presence of topic markers among sources for conditionals may seem more surprising, however. The recruitment of such topic markers for conditional marking, as well as other factors such as clause order patterns, suggested to Haiman (1978) that conditionals are topics. However, the presence of non-topic sources, especially modalities, as well as the pragmatics of certain uses of conditionals, suggests that conditionals are only partially topics in function (for discussion, see Akatsuka 1986).

The point here is essentially that grammaticalization of items, whether lexical or morphological, is constrained by the grammatical function to be expressed, and by the appropriateness of the inferences from the source items for the function in question. With sufficient evidence from cross-linguistic studies, the researcher can extrapolate pragmatic functions from the forms recruited for grammatical

purposes. This is especially useful when new areas of grammatical structure are studied; in recent years, for example, evidentials have come under scrutiny (see, e.g., L. Anderson 1986; Chafe and Nichols 1986; Comrie 2000).

Once a form has been recruited for a new function, it will itself be subject to new inferences from that function, and these new inferences will in turn permit further grammaticalization. Thus it appears that temporals can be the sources of conditionals (and causals), not vice versa; conditionals can in turn be the source of concessives (as can temporals such as *while* and focus particles such as *even* or universal quantifiers such as *any* as in *anyhow*) (König 1986; M. Harris 1988). Thus we find *if* being used as a concessive in:

(25) This is an interesting, if complicated, solution. (König 1986: 239)

Concessive meanings develop late in the history of specific clause linkage markers partly because the concessive is more abstract, partly because it is more complex logically.

Once the principle of an extremely close cognitive relationship between the form of a grammatical marker and its function has been appreciated, the reasons for both the range and the limitations of the sources for particular clause linkage markers should seem quite natural. We take a more detailed look here at some of the sources of complementizers.

As discussed in Chapter 1, one source of complementizers is verbs of saying. The grammaticalization of a verb of saying as a complementizer, and the generalization to verbs of desiring, fearing, and other mental states, is very widespread (see, e.g., Lord 1976; Klamer 2000). The origins of 'say' as a complementizer can perhaps be understood from its constant use in discourse in which, for example, wanting, fearing, wondering, etc. are not purely private matters but are to a great extent the result of public construction of the object through speech. The Greek New Testament has numerous examples to illustrate this, e.g.:

(26) Hoi de anthrōpoi ethaumasan legontes potamos estin houtos hoti
the then men wondered saying what:kind:of is this that
kai hoi anemoi kai hē thalassa hupakouousin autō.
and the winds and the sea obey him
'And people were amazed, saying: "What kind of man is this, that the winds and the sea obey him?"' (Matthew VIII, 27)

Here *legontes* 'saying' is a verbal participle that is virtually a complementizer of *ethaumasan* 'were amazed.' It is as if a person can be generally in an amazed state of mind, but as soon as the amazement is attributed to a specific source, it must be articulated aloud. A modern translation might well be: 'And people wondered to one another what kind of man this was, that the wind and the sea obeyed him.'

Another source of complementizers is closely associated with nominal forms, hardly a surprising factor when we consider that complements are essentially clauses functioning as NPs. One nominal source of complementizers is pronouns. We will discuss the history of pronominal deictic *that* below in Section 7.4.1. Other nominal sources include case morphemes of various types. These may be prepositions or postpositions, including case prefixes and suffixes attached to a verb phrase or nominalized form of the verb. The following is from the Tungusic language Evenki:

(27) ənii-m əə-ć́əə-n saa-rə si tənəwə əmə-nəə-wəə-s.
mother-my NEG-PAST-3SG know-(?) you yesterday come-PART-ACC-2SG
'My mother doesn't know that you arrived yesterday.' (Comrie 1981: 83)

The accusative case morpheme is added to the resultative participle of the verb *come* and the participle is seen to be nominal from both the case ending and the second-person-singular possessor suffix. Genetti (1991) provides a detailed account of the development of postpositions into subordinators in Newari, and of cross-linguistic evidence of similar changes in other Tibeto-Burman languages.

Often the parallelism with an ordinary noun phrase is obvious, as in instances such as the Evenki one in (27), and in English:

(28) a. He left without telling the guide.
b. He left without his compass.

Sometimes the similarity is not so clear because the historical origins have become obscured. For example, in English the infinitive in *to* functions as the object of some complement-taking verbs, but the parallelism with the "allative" proposition *to* may not seem obvious:

(29) a. We want *to* ask you a few questions.
b. We handed the box *to* the officer.

Absent historical data, one might wrongly assume that the two instances of *to* were simply fortuitous homonyms. However, because the reanalysis of a dative–allative particle as a complementizer is widespread, it is methodologically appropriate to assume that there might indeed be some motivation for the form. For instance, in Maori *ki* is both a dative and an allative, and is a complementizer with the same kinds of verbs as English *want*, etc.:

(30) a. **Allative**
E hoki ana au ki te kaainga.
PRES return PROG I to the village
'I am going back to the village.'

b. **Dative**
Ka hoatu te taurekareka ki te rangatira.
AOR given the slave to the chief
'The slave was given to the chief.'

c. **Complementizer**
E hiahia ana raatou ki te haere.
PRES want PROG they COMP the go
'They want to go.' (Noonan 1985: 47–8)

Similarly French *à* in (31) has its origins in the Latin preposition *ad* 'to,' which when construed with a verb required the verb to be in the nominalized form known as the "gerund."

(31) La musique contribuait à épaissir l'atmosphère.
the music contribute-IMPF to thicken-INF the atmosphere
'The music contributed to thickening the atmosphere.'
(Simenon; cited in Gamillscheg 1957: 462)

In Latin, given the verb root *viv-* 'live,' the infinitive *vivere* and the gerund *vivendum* could be formed, for example:

(32) Ad beate vivendum virtute opus est.
to blessedly live-GER courage-ABL need is
'To live blessedly there is need of courage.' (Gamillscheg 1957: 462)

In Late Latin *ad* was already being construed with the infinitive:

(33) Quomodo potest hic nobis carnem dare ad
how can this-MASC/NOM us-DAT meat-ACC give-INF to
manducare?
eat-INF
'How can this man give us meat to eat?'
(*Vulgate*; cited in Gamillscheg 1957: 462)

Later the infinitive gained ground at the expense of the gerund, and prior to the Old French period had replaced it altogether. The use of an allative–dative marker as a complementizer is common when (as in English *want to V*, etc.) the tense of the complement is determined by the nature of the main clause verb (Noonan 1985: 47–8), perhaps especially when the infinitive suggests an action which is potential or future. It is possible to see in this kind of phenomenon a common tendency toward a mental association of "prospective" space with "prospective" time. The pointing forward of the allative–dative to the goal is inevitably linked to the "forwardness in time" of the complement of *want*. Most verbs expressing commands, requests, expectations, wishes, etc. have as part of their semantics a goal, whether another person's action, or a desired object (for a cross-linguistic study, see Haspelmath 1989).

Evidence from the history of English *to* does in fact illustrate the kind of change involved, even though its origins are far from perspicuous. *To* originally served as a preposition meaning 'toward' introducing a nominalized verb. It was, in other words, comparable with the Latin gerund. The nominalized noun was in OE the infinitive, that is, the verb stem suffixed with *-an/-ian*, as in *wyrcan* 'do, perform,' inflected with the dative case marker *-e*, i.e., *to wyrcanne*:

(34) ne ðe nan neodþearf ne lærde to wyrcanne ðæt ðæt þu
nor you: DAT no need not taught to perform that that you
worhtest.
performed
'nor did any necessity teach you to perform what you performed.'
(*c.* 880, Boethius 33.79.16)

In other words, the origins of the PDE *to*-infinitive lie in a verbal noun in a prepositional phrase.

The loss in the Middle English period of the case inflection, including case inflection on the infinitive, allowed the *to* eventually to be reanalyzed as an integral part of the verbal noun, which then could itself be prefixed with a new preposition *for* in certain lexical environments (see, e.g., Warner 1982; Los 1999; Fischer 2000), e.g.:

(35) þe hog louyth wel for to be in a foul place.
'The hog well loves to be in a foul place.'
(*c.* 1400, Lavynham; cited in Visser 1963–73: 1314)

## 7.4 Examples of the development of complex sentence constructions

We turn now to sketches of a few examples of the development of complex sentence structures, with the prime purpose of demonstrating the directionality of the change along various parts of the cline from juxtaposition or relatively loose adjoining to embedding. For detailed diachronic studies of one such sequence of changes, the development of sentential complementation in Germanic, see Kiparsky (1995), and in the Babylonian dialect of Akkadian (one of the earliest written languages), see Deutscher (2000).

### *7.4.1* That-*complementation in English*

Among standard examples of *that*-complementations in English are those that serve as objects as in (36) and those that serve as subjects as in (37):

(36) Bill thought that John had left.
(37) a. It was obvious that John had left.
b. That John had left was obvious.

We sketch here some of the characteristics of the emergent *that*-complement structure in Old and Middle English.

Although the earliest records show that OE *þæt* behaved in some respects like its PDE equivalent, there are many examples of usage that suggest traces of a pronominal origin and a more hypotactic structure than is characteristic now (Mitchell 1985; Traugott 1992). Consider:

(38) Ða on morgenne gehierdun þæt þæs cyninges þegnas
when/then in morning heard-PL DEM DEM:GEN king's thanes
þe him beæftan wærun þæt se cyning ofslægen wæs, þa ridon
who him behind were COMP the king slain was then rode
hie þider.
they thither
'When in the morning the king's thanes who had been left behind heard that he had been killed, then they rode up there.' (ChronA (Plummer) 755.23)

The first *þæt* is a pronoun which anticipates the later complement clause, and the second *þæt* is the complementizer. There is a paratactic structure to complex sentences of this kind that may help us understand the functions of the two instances of *þæt*. As is usual in the older texts of OE, the relative clause is not embedded, but is located after the whole nucleus. What looks like a complement clause is still in part an appositional clause resuming the first *þæt*. The OE text is, then, not such a compressed rhetorical unit as our translation would suggest. It is more like the hypotaxis illustrated in (39):

(39) Then in the morning the king's thanes heard this
(these thanes had been left behind earlier)
that the king had been slain.
Then they rode up there.

The pattern of demonstrative pronoun + resumptive demonstrative represented by the *þæt* + *þæt* construction makes it possible to link the nuclear clause with its verb 'heard' to the margin headed by *þæt*, even though the relative clause 'who had been left behind earlier' intervenes. The stage represented by this example is already something more than merely paratactic, since the initial *þæt* of 'that the king had been slain' already marks the clause as a complement (a truly paratactic version in OE word order would be: 'Then in the morning heard the king's thanes this: was the king slain,' with adverbial – finite verb – subject order in the first clause, finite verb – subject in the second).

The pronominal status of the source of complementizer *þæt* is particularly striking in (40):

(40) Þæt gefremede Diulius hiora consul þæt þæt angin wearð
DEM arranged Diulius their consul COMP DEM beginning was
tidlice þurhtogen.
in-time achieved
'Their consul Diulius arranged (it) that it was started on time.'
(*c.* 880, Orosius 4 6.172.2)

The preverbal *þæt* in this example is a fronted (topicalized) object pronoun anticipating the complement introduced by the second *þæt*. (The third *þæt* is simply the quasi-definite article with the neuter noun *angin* 'beginning'.) Such correlative structures, especially correlatives which mark the beginning of both clauses, and their interdependency, are typical of hypotaxis in OE (and many earlier Indo-European texts). Such features are reminiscent of oral language and of strategies clarifying interdependencies in the flow of speech (for oral residue in early Old English prose syntax, see O'Neil 1977; Hopper 1992).

The majority of instances of *þæt*-complements in OE are like (41), however, and do not reveal the pronominal origins of the construction overtly:

(41) Dyslic bið þæt hwa woruldlice speda forhogie for manna herunge.
foolish is COMP someone worldly goods despise for men's praise
'It is foolish to despise worldly goods in order to win the praise of men.'
(*c.* 1000, ÆCHom I, 4 60.32)

It appears that the complementizer *þæt* started out as a "copy" in the margin clause of the object pronoun in the nucleus. It was reanalyzed from a pronoun which was a constituent of the matrix clause to a complementizer that had a whole clause within its scope. Example (42) shows the use of *þæt* spreading to non-accusative object environments:

(42) And þæs us ne scamað na, ac þæs us
And DEM:GEN we:ACC not shames never, but DEM:GEN we:ACC
scamað swyþe þæt we bote aginnan swa swa bec tæcan.
shames much COMP we atonement begin so as books teach
'And we are not at all ashamed of that, but we are ashamed of this: of beginning atonement in the way that the books teach.' (*c.* 1010, WHom 20.3 160)

The impersonal verb *scamað* 'shames' in OE requires its experiencer argument (the person who is ashamed) to be in the accusative case, and the stimulus of the shame (the thing of which the experiencer is ashamed) to be in the genitive. Consequently, if *þæt* were still analyzed as an argument of the nucleus, it would have to be in the genitive case, since it is "stimulus" for *scamað*.

In the following example two features show that the *þæt* clause is in a hypotactic construction:

(43) ...þohte gif he hi ealle ofsloge, þæt se an ne
...thought if he them all slew-SUBJUNCT, that that one not
aetburste þe he sohte.
escape-SUBJUNCT that he sought
'... thought that if he slew them all, the one he sought would not escape.'
(*c.* 1000, ÆCHomI 5 82.10)

The reasons for thinking of the *þæt*-clause here as a complement include:

(a) The clause introduced by *þæt* is dependent and not appositive, since it is in the subjunctive, the "irrealis" mood required by the verb *þohte* 'thought.'

(b) The complementizer is clearly no longer a pronoun. If it were, one would expect it to precede the *if*-clause that depends on *þohte*.

However, the second point also shows that the complementizer is associated directly with the proposition 'the one he sought would not escape,' and is not yet a marker of the whole dependent structure. Another way of stating this is to say that *þæt* is not as fully syntacticized as it is in PDE. In PDE the incorporation of the conditional clause into the complement would be favored, as in the modern translation of (43).

The complement clauses discussed so far have been object complements. We now turn briefly to subject complements such as are illustrated by PDE (44):

(44) a. It amazes me that they found the purse.
b. That they found the purse amazes me.

It has been assumed for OE that complements in impersonal constructions illustrated by predicate constructions such as (41) and impersonal constructions such as (42) are subject complements (Lightfoot 1979). That is, it is assumed that the subject of 'is foolish' is the entire clause 'that someone despise worldly goods to win men's praise,' and that the subject of 'shames' is the entire clause 'that we begin atonement in the way the books teach.' There is no indisputable evidence, however, that subject complement clauses existed in OE. For one thing there was in OE a "heavy constituent constraint" that constituents that were long and full of content words should occur after lighter and shorter constituents. There are no examples of complements preceding the matrix verb.

Complements in constructions such as (41), with adjectival or nominal predicates, may simply have been hypotactic complements of those constituents, just as the *þæt*-clause is the complement of *weddes* in (45):

(45) þonne beo ic gemyndig mines weddes þæt ic nelle
then am I mindful my-GEN pledge-GEN COMP I not-will
heonunforð mancyn mid wætere adrencan.
henceforward mankind with water drown
then I am mindful of my pledge that henceforward I will not drown mankind with water.' (*c.* 1000, ÆChom I,1 22.11)

Similarly, complements in impersonals may have been complements of NPs in those constructions; in (42) the *þæt*-clause may be the complement of *þæt*.

An approach from grammaticalization which emphasizes continua of change and fixing of structure through plausible discourse strategies suggests that "movement" is relevant only at a later stage (ME) when the subject position came to be obligatorily filled. Even then, constructions such as (41) and (42) were not obligatorily (though frequently) introduced by 'it' or 'that.' The crucial evidence for the emergence of subject complements is the presence of complements in subject position. While *to*-infinitives appear in this position in early ME, finite complements do not until the fourteenth century (Warner 1982: 81). An example is:

(46) þat þe þre kingis camen so fer bitokeneþ Cristis lordship.
'That the three kings came so far signifies Christ's lordship.'
(*c.* 1400, Wycliffe, WSerE i, 341.28; cited in Warner 1982: 23)

Evidence from constraints on the occurrence of subject complements in PDE (e.g., absence of inversion, as in **Did that John showed up please you?*) shows that full embedding in the sense that S can function as NP in subject position has not occurred even yet, and that these constructions are still hypotactic (Koster 1987; subject complements are "satellites" in his terminology). All the same, the history of English finite complements shows a clear continuum from looser to tighter syntactic structuring, and spread from object to subject position.

### 7.4.2 *Quotative* say*-constructions in Akkadian*

When we study Old English, we are investigating a language that had a relatively long tradition of writing, exemplified by genres such as poetry, translations, and, over time, a developing tradition of historical, philosophical, and legal writing. Even though several aspects of Old English prose are often regarded as having oral residues, they nevertheless provide evidence that complementation via complex sentence structure was firmly entrenched from the earliest attested period. It is often thought that a special subset of complementation structures, quotatives in which someone else's speech is reported, arose out of simple juxtaposition of 'X says/said' followed by the quotation (see Section 7.3), but there has been little direct historical evidence for such development. Recently, however, Deutscher

(2000) has provided a detailed account of developments in Akkadian, a Semitic language of ancient Mesopotamia (roughly modern Iraq). He shows that the oldest Akkadian documents (*c.* 2500 BC) are dominantly paratactic with respect to complementation structures in general, and quotative ones in particular. By the end of the Akkadian period (*c.* 500 BC), complementation strategies with apparent dependency have developed. Unfortunately, even in this instance all the stages of development are not transparent. However, the development is worth sketching here as it gives textual evidence for parataxis > hypotaxis.

According to Deutscher, in the oldest period, Old Akkadian (*c.* 2500–2000 BC), the typical quotative construction is 'X says: "QUOTE"' (where QUOTE is short for Quotation and P is short for Particle), as in (47):

(47) iqabbi atta ward-am tašām-ma.
he:says you slave-ACC you:bought-P
'He says: "you bought the slave."' (Deutscher 2000: 68)

In addition, there is a construction, typically used at the beginning of a letter, royal inscription, or legal document of the type *enma QUOTE*, as illustrated in (48). *Enma QUOTE* is never introduced by a verb of speaking. Its etymological origin is unknown, but Deutscher speculates that it might have derived from a verb of saying. In any event, it seems to serve a presentative function, translatable as 'This is what X says.'

(48) enma Narām-Sin dann-um šar kibrāt-im arba'-im.
enma Naram-Sin strong-NOM king:of corner-GEN four-GEN
'This is what Naram-Sin the strong, king of the four corners (of the earth), said " (Deutscher 2000: 69, citing Gelb and Kienast 1990)

It is sometimes followed by the emphatic particle *-ma*, which is enclitic to the person speaking (expressed by a personal name or a personal pronoun).

By the period of Early Old Babylonian (*c.* 2000–1800 BC) *enma X-ma* has come to be written *umma X-ma*. More importantly for the present discussion, it is no longer restricted to solemn pronouncements. Furthermore, it is occasionally found, still paratactically, after a speech-related verb, e.g. 'answer,' 'write' (cf. 'he answered saying'). At first it cannot coocur with *qabum* 'say,' presumably because it would be redundant. But later this restriction too is relaxed, and *umma QUOTE* appears before 'X said' in what Deutscher says appears to be an emphatic construction:

(49) umma šū-ma 4 lahrātim āhuz iqbi.
umma he-P 4 ewes:ACC I:took he:said
'He said: "I took four ewes" he said.' (Deutscher 2000: 74)

Arguing that the development of quotatives is a "model textbook example" of grammaticalization (2000: 66), Deutscher suggests that for a construction like

the one in (49) to appear, *umma X-ma* must have undergone semantic bleaching or otherwise it would have been redundant. Also, in this construction it underwent divergence. It continued to be used to introduce independent clauses but in the context of a speech-related verb it became virtually obligatory by Later Old Babylonian (*c.* 1800–1600 BC).

There is a lack of texts between Late Old Babylonian and Middle Babylonian (*c.* 1500–1000 BC) so the next steps of development are obscured, but by the Middle period the person marker X followed by *-ma* had been reduced, so we find *um-ma-a* (written by Deutscher as *umma*). As Deutscher says (2000: 80), this is presumably because the identity of the speaker in *X-ma* is redundant to the person marking in the 'say' verb. Once *umma* ceases to be associated with a speaking person, it can no longer occur independently, and the original use disappears. So by Middle Babylonian we find morphophonological reduction and the emergence of a dependent (i.e. hypotactic) construction, as in (50) (PN is short for 'personal name'):

(50) eql-a ša $PN_1$ ... ana $PN_2$ ittadin ummā bēl-ka iqbâ.
field-ACC of $PN_1$ ... to $PN_2$ he:gave umma lord-you said:to:me
'He gave the field of $PN_1$ to $PN_2$ saying "Your lord ordered me (to do it)."'
(Deutscher 2000: 81)

In the later period *umma* was extended to verbs of cognitive experience such as 'hear.'

By Neo-Babylonian (*c.* 1000–500 BC) *umma* can no longer be independent, but has become a clitic. It has also been extended to verbs like 'ask,' 'agree,' 'become hostile,' and most importantly 'fear,' a context in which the quotation appears to be not a direct quotation but an imagined proposition:

(51) gabbi iptalhū umma ana qātē kalbāni muššurāni.
all they:feared umma to hands:of dogs we:are:delivered
'They all feared: "We are delivered to the dogs."' (Deutscher 2000: 83)

Deutscher points out (2000: 90) that in ancient Egyptian a similar development is attested. An infinitival form *r-dd* of the verb 'say' was extended to non-speech verbs like 'hear and fear,' but it went considerably further and was extended to verbs like 'know,' and eventually became a complementizer used with all complement-taking verbs.

### 7.4.3 Relative clauses in English and Hittite

We turn now to the development of relative clause structures, with particular attention to some of the discourse strategies that may contribute to increased dependency, especially in the second part of the cline of hypotaxis > subordination.

Relative clauses correspond in many ways to adjectives, and indeed are sometimes called adjectival clauses. Languages exhibit different degrees of integration and interlacing of relative clauses, ranging from clauses which are placed outside the nucleus (see K. Hale 1976) to clauses which are closely attached to a head noun inside the nucleus.

Before we proceed, some terms will be necessary. Following Keenan (1985), we will use the notation Srel for the relative clause (whatever its degree of integration), and NPrel for the NP in Srel that corefers to (and modifies) another NP in the matrix. Thus in *The woman whom you met just left*, Srel is *you met the woman*, and NPrel is the object of *you met*, i.e., *the woman* [you met [the woman]NPrel] Srel] *just left*. The position of NPrel may be marked in a variety of ways which we will discuss further below: it may be marked by an inflected personal pronoun (e.g., *she*), an inflected demonstrative or interrogative pronoun (e.g., *who*), an uninflected subordinator (e.g., *that*), or nothing (the so-called "gap," as in *the woman you met*), or some combination of these. We will discuss some of the discourse strategies associated with different NPrel markings at the end of this section. First we consider degree of integration as evidenced by position.

In his discussion of the early history of relative clauses in English, O'Neil (1977) shows that they started out essentially as adjuncts, that is, as paratactic clauses close to the end of the sentence. He hypothesizes that their path to integration within the matrix clause was via a stage of topicalization which moved certain relative clause structures to the left of the sentence; this is a stage of hypotaxis. Finally, clauses came to be embedded as dependent clauses immediately associated with their head nouns.

We introduce the paratactic stage of adjunction with example (52) (the uninflected relativizer *þe*, which is also widely used as a subordinator in OE, is glossed as SUB for "subordinator"):

(52) & þa men comon on East Engle þe on þæm anum scipe
and the men came to East Anglia SUB on that one ship
wæron swiðe forwundode.
were very wounded
'and the men who were on that sole (surviving) ship came to East Anglia severely wounded.' (ChronA [Plummer] 897.51; cited in O'Neil 1977: 200)

The subordinator marks the clause boundary and the relevance of the clauses to each other. However, since it is uninflected (like PDE *that*), it indicates nothing about the case of the relative.

More common in OE is a construction often known as "correlative" (the term has to do with correlation between clauses, not with the relative!). In this type of relative, both the relative clause and the matrix clause are full clauses.

Srel contains a pronoun anaphoric to the NP that it modifies (Keenan 1985: 164). This kind of construction is illustrated by (53), in which the uninflected subordinator *þe* or *þæt* is followed by a personal pronoun in the nominative case:

(53) & þær is mid Estum an mægð þæt hi
and there is among Ests a tribe:FEM:SG SUB they:NOM:PL[4]
magon cyle gewyrcan.
can cold make
'and there is among the Ests a tribe who are able to freeze (the dead).'
(*c.* 880, Orosius 1.21.13)

In (54) the adjoined clause is "impersonal," that is, there is no nominative subject associated with the verb in Srel (*lyst-* 'please'); rather there is an Experiencer ('anyone') in the dative case:

(54) & ic gehwam wille þærto tæcan þe hiene his
and I whoever:DAT will thereto direct SUB him:ACC it:GEN
lyst ma to witanne.
would-please more to know
'and I shall direct anyone to it who would like to know more about it.'
(*c.* 880, Orosius 3 3.102.22)

Very frequently in OE Srel is considerably far removed from the NP it modifies, because of the "heavy constituent shift" mentioned in Section 7.4.1, in this case the tendency to position long modifiers or modified constructions at the right margin of the sentence, see, e.g., (52). Sometimes, however, they are found integrated into the matrix, as in (55):

(55) Ure ieldran þa þe þas stowa ær hioldon, hie lufodon
our forebears those SUB these places previously held, they loved
wisdom.
wisdom
'Our forebears who previously possessed these places, they loved wisdom.'
(*c.* 880, CP LetWærf 31; cited in O'Neil 1977: 202)

O'Neil (1977) suggests that this kind of integration (he calls it "intraposition") and dependency occur when relatives are adjoined directly to the clause in which the head occurs, and is most frequent when a subject that is topicalized is relativized, as is the case in (55). This is clearly a more hypotactic structure than those discussed previously, since the relative occurs between the subject ('our forebears') and the predicate ('loved wisdom'), rather than after the predicate. But it is not fully embedded, since there is an anaphoric pronoun *hie* that points back to the subject, as the speaker keeps track of the flow of speech.

Fully embedded relatives that have no anaphoric elements and are positioned immediately after their nominal heads, whatever the position of those heads in the clause, do not occur with any frequency until ME. A ME example is:

(56) Thilke penance that is solempne is in two maneres.
'The penance that is ceremonial is of two kinds.'
(*c.* 1390? Chaucer, *CT*, Parson's Tale, 106)

Just because relative clauses came to be embedded in English, we should not assume that embedding is a necessary endpoint of relativization. There is nothing intrinsically unstable about hypotactic relative clauses, which are very widespread and are known to have existed in the Indo-Aryan languages for several millennia (see Klaiman 1976). Embedding of relatives, as of complements, is a language-specific phenomenon, and of variable strength in any one language.

We turn now to a partially different history of relative clauses, one that has been postulated for Hittite, a language that flourished from *c.* 1600 to 1200 BC. We will again be concerned with correlative relatives, but this time with their possible origins. Such relatives are found in languages as different from one another as Old English, Medieval Russian, and Warlpiri. A putative example from Hittite[5] is given in (57):

(57) nu Ú-NU-TUM ku-it ku-e-da-ni pé-eš-ki-it na-at Ú-UL
and utensil REL-INDEF to-someone he-gave and-it not
ši-i-e(!)-eš-ki-it.
he-sealed
'and the utensil which he gave to someone, he did not properly seal it.'
(Held 1957: 43)

This is translatable as 'He did not properly seal a utensil which he gave to someone, or 'He gave someone a utensil without sealing it properly.' The elements *nu* and *na*, glossed 'and,' are sentence connectives which signal clause boundaries: they give the sense of the two clauses being adjoined rather than grammatically connected. The special marker *ku* is a pronoun with a stem *kw-*, which like its Latin cognate *qui-* (*quis* 'who?,' *qui* 'who (rel.),' *quidam* 'some, a certain') served as an inflectable relative-interrogative-indefinite pronoun stem.

The grammaticalization of correlatives in Hittite has been reconstructed by Justus (1976) with particular attention to the discourse strategies involved. She suggests that Hittite provides evidence of an initial stage in which a clause could be used to provide a "thematic" starting point which includes information that is assumed to be partially present in the hearer's consciousness, but which is presented as the center of attention (or "focus") for one or several following clauses. At this stage no marker was required. An example of such a construction is:

(58) $^{m}$Tamnaššun-a huŠwantan ISBATU š-an
Tamnašš-ACC alive-ACC they:seized PARTICLE-him
$^{uru}$Hattuša uwatet.
city:H.:DIRECTIONAL brought:3SG
'Tamnaššu (whom) they seized alive, he brought to Hattuša.'
(Justus 1976: 234)

Justus argues that the use of the relative-interrogative-indefinite pronoun *kw-* to mark the focal NP ('utensil') in thematic clauses of the type in (57) ('utensil he gave to someone') is a characteristic of somewhat later Hittite texts than is illustrated by (58). But even at this later stage, she says, the clause with the marked NP is only loosely connected to the "nucleus." An example such as (57), therefore, is to be construed as something like 'He gave a (some) utensil to someone and he didn't seal it,' with *ku-it* functioning as the indefinite marker of a noun phrase in an independent clause rather than a "relative pronoun." Justus suggests that when correlative clauses emerge, at first what appears to be a correlative clause is in fact a topic clause that states a theme whose domain is not just the next clause but, potentially, several following clauses. Eventually the *kw-* came to be understood as grammatically linking the theme clause to the following clause, as evidenced by comparison of earlier and later copies of the same legal text (Justus 1976: 237–8). What we have in Hittite, then, is an example of a relative clause construction which was originally not formally embedded but simply part of the way in which discourses are organized in a particular language, and which subsequently came to be grammaticalized as an embedded clause.

The preceding remarks about the emergence of relative clauses are valid only for the postnominal and correlative types. Another type of relative clause, known as the prenominal type, is represented by the Tamil example in (59):

(59) Anda paaDattai paDitta paiyaNai kuuppiDu.
that lesson:ACC learn:PARTIT boy:ACC call:IMP
'Call the boy that learned that lesson.' (Klaiman 1976: 160)

There is no relative pronoun, and the relative clause is embedded before the matrix noun and linked to it by a participial or special relative ending on the verb. According to Keenan (1985), only languages of the OV type have this kind of relative (though they typically also use postnominal relatives as well).

The prenominal, participial type of relative clause represented in the Tamil example is probably not diachronically related to the other types we have discussed. It is in fact difficult to show any grammaticalization of prenominal relative clauses at all, since languages that have them appear always to have had them in virtually just that form. If change occurs, it does not result from any gradual extraposing or postposing of the participial relative but by starting anew, as it were, with the

adjunct type. Not uncommonly both types exist together as possibilities, as in Estonian (see example (24) in Section 5.5). When this is the case, the prenominal participial clause is usually older and indigenous, the more clausal type newer and borrowed,[6] although the reverse is also known, as for example in Western Armenian, which has developed a preposed relative clause through Turkish influence:

(60) a. maš-ac verarku-n
use-PTCP coat-ART
'the used coat'
b. ays verarku-n maš-ac mart-ə
this coat-ART use-PTCP man-ART
'the man who used this coat' (Haspelmath 1999b: 364)

The development of preposed relatives is a topic for further study.

As indicated at the beginning of this section, NPrel (we should now specify postnominal NPrel) can be marked by a number of different types of relativizer. One is personal pronouns, as in (59). These appear to be "place markers" in the discourse for NPrel, and are indexical of that position. Another type of marking is provided by "relative pronouns": inflectable pronouns that serve specific relativizing functions (e.g., they may move out of NPrel position to the beginning of Srel, as does the *wh*-pronoun in English). Such pronouns are demonstrative, interrogative, or indefinite pronouns in origin (*wh*-pronouns in English, *kw*-pronouns in Hittite). The sources of relative pronouns reflect the function of a relative clause in specifying or determining a noun from out of a domain of possible referents. Although there is rarely evidence that relative clauses derive directly from the grammaticalization of questions, this has sometimes been suggested, and it is easy to see the similarity between the two. A sentence such as (61) with a relative could with very little change be distributed over two parts of a discourse, as in (62):

(61) The sheep which he stole was Squire Trelawney's prize ram.
(62) Which sheep did he steal? – The sheep was Squire Trelawney's prize ram.

In the history of English, there is in fact no reason to suppose that *wh*-relatives arose in this way, since there is no trace of interrogative word order. Instead, it appears that the *wh*-relative was modeled on the already existing relative structure (see Harris and Campbell 1995: 284–5). However, in a language in which relative clause constructions are emerging, the hypothesis that relativization may arise out of question-and-answer routines as in (63) is more plausible. For example, in Hittite texts it is sometimes impossible to tell whether the topic clause is to be interpreted as a question, to which the subsequent clause is the answer, or as a correlative-nucleus construction: "The *kuis* and *kuit* may be relatives or interrogatives, depending on

whether the two clauses are to be taken together or individually" (Held 1957: 40). An example is:

(63) Ki-i-wa ku-it U-UL-wa SA SAL $^{TUG}$-NÍG.LÁM.MÉS.
this which not garments of woman
'That which [is] this [here], are they not the garments of a woman?'/
'What [is] this? Are they not the garments of a woman?' (Held 1957: 40)

A third type of marking of the NPrel position is provided by uninflected relativizers. These may be derived by grammaticalization from demonstrative pronouns, as presumably was OE *þe*, itself replaced by *that*. Such relativizers are often subordinators (or, more technically, complementizers). They are more grammatical than the pronouns from which they derive not only in their reduced form (they cannot carry inflections), but also in their more highly restricted privileges of occurrence. For example, in English neither the earlier *þe* nor the current *that* permits a preposition to precede, although the relative pronoun may:

(64) a. nyhst þæm tune þe se deada man on lið
next that homestead SUB that dead man in lies
'next to the homestead that the dead man lies in/next to the homestead in which the dead man lies/which the dead man lies in'
(*c.* 880, Orosius I 1.22.2)

b. *nyhst þæm tune on þe se deada man lið
'*next to the homestead in that the dead man lies'

On a scale of integration as evidenced by marking of NPrel (as opposed to position), the personal pronouns are least grammaticalized, the relative pronouns more so, the subordinators yet more so. The most grammaticalized way of marking NPrel along this continuum is zero or "gapping."

A topic much discussed in connection with relative clauses is the fact that not all potential NPrels can be relativized in a particular language, and it is predictable which NPrels may be relativized from the function in Srel and from the form of NPrel. Keenan and Comrie (1977) identified a functional "Accessibility Hierarchy" to account for these facts, now known as "the Keenan–Comrie Accessibility Hierarchy" (for further discussion, see Keenan 1985; Comrie 1989 [1981]). This hierarchy has the following form in Comrie (1989 [1981]: 156):

subject > direct object > indirect object > non-direct object > possessor

where possessor (an oblique relation), is "low" on the hierarchy, and subject (a grammatical relation), is "high" on the hierarchy. If NPrel is expressed by a gap (and/or a subordinator) low on the hierarchy, then it can generally relativize all higher positions with the same form (Keenan 1985: 154). By contrast, if NPrel has

the form of a personal pronoun, then only positions lower on the hierarchy can be predicted.

For instance, the fact that in English we can say *The woman I took the money from* (where NPrel is object of a preposition) allows us to predict that all positions to the left on the hierarchy may be relativized. Thus we can say *The woman I saw* (where NPrel is the object) and (with subordinator) *The woman that left*, or (in some varieties) I *know a woman will help you*.[7] The situation where NPrel is expressed by a personal pronoun is the opposite: here the fact that OE (and other languages such as Urhobo and Yiddish [Keenan 1985: 147]) allows subject NPrel pronoun forms predicts that other NPrels to the right on the hierarchy are allowed to be relativized. However, there are exceptions. For example, languages such as Hebrew do not allow subject NPrels to be expressed by personal pronouns, though Hebrew does allow NPrels that are objects or serve other functions on the right of the hierarchy to be so:

(65) ha-sarim she-ha-nasi shalax otam la-mitsraim...
the-ministers that-the-president sent them to-Egypt...
'the ministers that the president sent to Egypt' (Keenan 1985: 146)

Keenan and Comrie suggest that the accessibility hierarchy "directly reflects the psychological ease of comprehension" (1977: 88). We would rephrase this suggestion in somewhat different terms. We could hypothesize that the accessibility of highly grammaticalized forms of NPrel from left to right on the hierarchy (i.e., the motivation for relativizing first subjects, then direct objects, etc.) is a function of the tendency to integrate relationships that are frequently established, and that functions on the left of the hierarchy are frequently established because they are natural discourse collocations. On the other hand, what amounts to double marking (by a relativizer and a personal pronoun) in languages which allow or require the NPrel position to be marked by a personal pronoun inflected for number, case, and gender works from right to left on the hierarchy, affecting the oblique and object positions before the subject, because such extra, complex marking serves the purposes of identifying relationships that might not otherwise be fully clear to hearers.

This generalization may hold for other pronominal forms of NPrel as well. It is a well-known fact of the history of English that early ME had one relativizer, the subordinator *that*. When the new pronominal relativizer *wh-* came in, it did not start with subjects, but with indirect objects and possessives (for a detailed study of the development in Middle Scots, see Romaine 1982), in other words, on the right of the hierarchy. Presumably the more distinctive *wh-* forms served the purposes of identifying the less accessible, non-thematic, NPs precisely because the *wh-* forms were less generalized in their use, and therefore more informative.

## 7.5 From complex to simple clauses

The examples of the development of *that*-complements and of relative clause constructions have exemplified how paratactic structures may develop through hypotaxis to embedding. Throughout the changes, the clauses serving as (pre)-complement or (pre)-relative have remained relatively identifiable as clauses in surface structure. Over time, however, the unification and bonding that occur in this set of changes may eventually lead to further reduction into simple clauses, most particularly as exemplified by shifts from head to dependent status, somewhat as in the case of changes from main verb to auxiliary verb.

### *7.5.1 From clause chaining to verb inflection in Lhasa*

Our first example illustrates the way in which a hypotactic clause-chaining structure develops into an inflectional one with loss of clause boundary and hence of clausal identity in surface structure. Here we have a case of the development of maximal integration. The data are from Lhasa, a Tibeto-Burman language. The analysis and examples are from DeLancey (1991).

Like all Tibeto-Burman languages, Lhasa evidences clause chaining, which expresses sequence of events, as in (66). One or more verbs with non-final affixes are followed by a finite verb with tense–mood affixes.

(66) Khos las=ka byas-byas zas -pa red.
he:ERG work did-NF ate PERF
'He worked and ate/having worked, he ate.' (DeLancey 1991: 9)

The "non-final" (NF) suffix *-byas* marks the verb as one of a series, and in this respect is comparable with the Japanese *te/de* suffix mentioned above. The "final" verb, *zas* (glossed 'ate'), is inflected with a finite tense–aspect marker *-pa red* (historically derived from a nominalizer *-pa* and the copula *red*).

Constructions of the type in (66) express multiple events. However, according to DeLancey, three verbs, *'gro* 'go,' *yong* 'come,' and *sdad* 'sit, stay,' can occur as finite verbs preceded by verbs with or without the NF marker, and these constructions can express a single event, rather than a sequence of events. In such constructions *'gro* expresses not 'go' but distal directionality, *yong* 'come' expresses not motion but proximal directionality, and *sdad* 'sit, stay,' not stasis but aspectual continuation (as in *keep V-ing*):

(67) a. Kho 'dir gom=pa brgyab (-byas) yongs- pa red.
he here:LOC walked (NF) came PERF
'He walked here.' (not '*He walked here and came.')

b. Khos las=kabyas (-byas) sdad- pa red.
he:ERG work did (NF) stay PERF
'He was working/kept working.' (not '*He worked and stayed.')
(DeLancey 1991: 8–9)

DeLancey argues that because clause chaining is very frequent in Lhasa, some verbs, such as the three in question, may have come to be used frequently with non-final verbs where a sequenced event interpretation was pragmatically either redundant or implausible, and hence they came to be reanalyzed not as full verbs, but as markers of aspect. For example, *'gro* 'go' is informative as a motion verb in construction with a non-motion verb such as 'eat,' but it is redundant with respect to motion in constructions with a verb of motion such as 'walk,' 'flee.' In the latter context, motion is demoted, directionality promoted.

The three verbs 'come,' 'go,' and 'stay' in their non-motion meaning may cooccur with non-final markers, or they may not, which suggests that they are no longer full verbs in these uses. DeLancey calls them "serialized" verbs. Other former full verbs, among them *tshar* 'finish,' and *myong* 'taste,' often occur as serialized verbs, and in such constructions express perfect. In volitional predicates with first-person actors in statements and second-person actors in questions (i.e., in highly local contexts based in speaker–hearer reference) they do not cooccur with non-final forms, and they do not have independent word tone. This suggests that they have gone further on the cline of grammaticalization than 'come,' 'go,' 'stay.' Example (68) illustrates *tshar* in its three coexistent uses: (a) main verb meaning 'finish' in an event separate from that expressed by the non-final verb, (b) serialized verb meaning 'finish' or 'perfect' in an event expressed by the non-final (or bare) verb, and (c) grammaticalized suffix meaning 'perfect' functioning in the tense–aspect slot:

(68) a. Kho phyin-byas tshar -ba red.
he went-NF finish PERF
'He went and finished it.' (main verb)
b. Kho phyin tshar -ba red.
he went finish PERF
'He has gone.' (serialized form, without NF marker)
c. Nga krom-la phyin-tshar.
I market-LOC went-PERF
'I've gone to the store.' (affix) (DeLancey 1991: 10–11)

Yet other former verbs have been morphologized to the extent that they do not only fail to carry their own tone; they also lose nasalization. An example is *song* [sõ], [so], [s] 'evidential perfective' < *song* "which is an old suppletive perfective stem of 'go,' supplanted in this use in the modern languages by *phyin*" (DeLancey 1991: 11).

The examples of the grammaticalization of the verbs show a cline of dependency from hypotaxis in clause chaining to the complete dependency of inflectional bonding. They also show the reduction of complex structure to simpler structure, and the accompanying total loss of boundary markers, in other words, integration, compression, and bonding. Like many other examples we have seen in this book they also illustrate the coexistence of different stages of grammaticalization (layering), and divergence in a highly local context. It should be noted further that although the particulars of the changes in Lhasa are very different from those of the development of auxiliaries in English (English does not have and never had clause chaining), and the full path from main verb to inflection has not yet occurred (and may perhaps never do so), nevertheless there are similarities: an erstwhile non-temporal main verb with a dependent verb has acquired temporal meaning, and the relationship between the erstwhile main and dependent verbs has changed such that the dependent verb has become the main verb or head of the construction.[8]

### 7.5.2 *Two conjoined clauses reanalyzed as a single clause*

The Lhasa changes reflect two widespread phenomena: an erstwhile non-temporal main verb with a dependent verb has acquired temporal meaning, and the original main verb typically is drawn from a set of "simple" verbs such as 'go, come, sit, lie, stand.' Furthermore, the relationship between the original main verb and the dependent verb has changed such that the dependent verb has become the main verb or head of the construction. There are parallels to both the situations in Lhasa described in Section 7.5.1. In some European languages these same verbs have assumed a quasi-auxiliary status. In the European case, however, the two verbs are arranged paratactically, linked by a coordinating conjunction. Detailed discussion is found in Kuteva (2000), from which the following data and analysis are taken. The typical pattern is '*SIT* (etc.) *and V*,' as in Danish:

(69) Han ligger og kører rundt hele natten
he lies and drives round whole night:DEF
'He has been driving all night long'
(Braunmüller 1991: 103; cited in Kuteva 2000: 46)

In this Danish construction and similar constructions in some other European languages, no semantic sense of 'lie' remains in the verb *ligger;* the meaning is simply 'has been driving.' While there appears to be no direct evidence of phonological bonding or of morphologization in combinations like *ligger og kører* 'is/has been driving' (given that the data do not include intonation), syntactic bonding is evidenced by new constraints on the positions of adverbs, which in the new construction may not intervene between the two verbs. Thus in Middle Dutch,

where the construction did not survive into the modern language, an adverb could still modify the first verb:

(70) De steden staen dagelicx ende vervallen.
The cities stand daily and go:to:ruin
'The cities are falling to ruin from day to day.' (Kuteva 2000: 69)

Here, *staen* 'stand' has developed a progressive aspect meaning. It has dropped the requirement that the subject be human, but has not become syntactically bonded to the second verb, as is shown by the presence of the adverb *dagelicx* 'daily' immediately after *staen*. Kuteva refers to this as Stage II of a grammaticalization chain (cline) of lexical verb > auxiliary, Stage I being the stage at which the subject must still be human. In Bulgarian, which represents Stage III of the same development, the adverbial expression must appear outside the two-verb conjunct:

(71) Trionăt leži i răždjasva v mazeto.
saw:DEF lie and get.rusty in cellar
'The saw is getting rusty in the cellar.' (Kuteva 2000: 70)

In (71), *v mazeto* 'in the cellar' which seems to belong logically with *leži* 'lies' appears instead as a modifier of the whole sequence *leži i răždjasva* 'is getting rusty.' At this point the reanalysis of a two-clause construction as a monoclausal one appears complete, despite the continued presence of the conjunction equivalent to *and*. It is perhaps no coincidence that these European languages use a general coordinating conjunction like English *and* that serves to join together main clauses. The global distribution of such all-purpose coordinators outside the European area is quite limited (Mithun 1988); most languages use in its place some kind of clause-chaining construction similar to that of Lhasa described above.

### 7.5.3 *From main clause construction to sentential adverb in contemporary English*

Our last example is from PDE, and illustrates both integration of structure via a shift from multiclause to single clause structure, and also how a discourse-oriented statistical analysis can suggest how to recognize possible ongoing grammaticalization.

As we have mentioned many times, grammaticalization can be thought of as a form of routinization of language (Haiman 1991). A form or a combination of forms occurs in discourse with increasing frequency, and from being an "unusual" way of making or reinforcing a discourse point comes to be the "usual" and unremarkable way to do so. The frequency with which such expressions occur

will be one factor that determines whether or not they come to be regarded by the speech community as "grammatical" (Bybee and Hopper 2002). (Other factors are, of course, more obviously social: acceptance by broadcast and print media, endorsement by educational and other institutions, and so on.)

Our example is that of the emergence in PDE of "evidential parentheticals." Thompson and Mulac (1991) suggest that verbs of propositional attitude such as *think* and *guess* with first- and second-person subjects are coming to be parentheticals. Such verbs typically serve to introduce propositions, as in (72), where *think* is the main verb and the sentence serves as an assertion that a certain belief is held by the speaker or a question concerning the belief state of the hearer:

(72) a. I think that the coup was planned by the CIA.
b. Do you think that the coup was planned by the CIA?

On the other hand, they may serve to qualify an assertion; they are then known as parentheticals:

(73) a. I think Commander Dalgleish writes poetry.
b. Commander Dalgleish writes poetry, I think.

Here the main verb is *writes*, and the sentence is a (qualified) assertion about an activity of Commander Dalgleish, not about the state of mind of the speaker. Alternatively, *think* and *guess* with second-person subjects may serve to indicate interactive communication:

(74) What's the point of that, do you think? (Thompson and Mulac 1991: 322)

In such circumstances, there is no complementizer *that* and the parenthetical receives less stress than the main verb. Moreover, parenthetical *I/you think, I/you guess* have the same syntax as an adverb, in that they are not restricted to one position in the clause. A change of meaning is also noticeable. When it is parenthetical, *I think* is less certain than when it is non-parenthetical; the speaker is not staking out an epistemological position, but indicating the degree of validation of the statement by suggesting that he or she has no direct evidence for it. In other words, Thompson and Mulac suggest, the parenthetical is beginning to serve the kind of function often served by specialized clitics and particles expressing such modal distinctions as "witnessed," "deduced," "speculative," "hearsay," functions largely expressed in PDE by epistemic modals (e.g., *They must be students* 'I conclude they are students') and by adverbs such as *evidently, apparently*, etc.

From the perspective of the continuum of clause integration, we can see such parentheticals as instances of a complex sentence consisting of the nucleus with a verb of propositional attitude and a margin (e.g., *that Commander Dalgleish writes*

Table 7.1 *Occurrence of* that *with* think *and* guess *versus all other verbs*

| | – that | + that | Total |
|---|---|---|---|
| *think* | 622 (91%) | 61 (9%) | 683 |
| *guess* | 148 (99%) | 2 (1%) | 150 |
| other | 342 (75%) | 112 (25%) | 456 |

*Source:* based on Thompson and Mulac (1991: 320)

*poetry*) that has been reanalyzed as a single nucleus. The former margin is now the nucleus, and the former nucleus has been demoted to something that looks like a sentence adverb (comparable with *evidently, apparently*, etc.).

From a quantitative viewpoint, *think* and *guess* seem to be becoming distinct from other verbs of propositional attitude such as *suggest* and *believe* in that the former occur more frequently without *that*. Thompson and Mulac's data show the statistics reproduced in Table 7.1. They are also becoming distinct in that they account for 88% of all verb tokens with first- or second-person subjects. In other words, they appear to be becoming specialized (as *pas* was specialized into the negative in French). At the same time, they are coming to function as elements in the subjective domain of speaker attitude (as *be going to* did when it became a tense marker and *while* when it became a concessive). Only time will tell whether *guess* and *think* will continue along this path of development, and whether they will serve as the model to other verbs of propositional attitude such as *believe* or *suppose* at some time in the future.

## 7.6 Some counterexamples to unidirectionality in clause combining

There is substantial evidence that in most languages and most instances there is a continuum of development from less to more unified clause combining, from parataxis > hypotaxis and sometimes > subordination. This occurs regardless of literacy, although literacy unquestionably favors hypotaxis and subordination (see Harris and Campbell 1995: 308–9). However, there are some counterexamples. A contemporary example is that *although* is frequently used, especially by college students, as if it were *however*, that is, as a constituent of the matrix clause. This could be a hypercorrection resulting from literacy and learned punctuation, and therefore a temporary innovation. But a similar development that has withstood the test of a couple of centuries has been noted in Japanese.

In Modern Japanese, discourses of the following kind are possible:

(75) Taro-wa wakai(-yo). Ga, yoku yar-u(-yo).
Taro-TOP young(-*yo*). but well do-PRES(-*yo*)
'Taro is young. But he does a good job.' (Matsumoto 1988: 340)

Here the two clauses may have the particle *-yo* on the predicate; the meaning of *-yo* is something like 'you know' in the colloquial sense of 'contrary to what you might be thinking.' *Ga* is a weakly adversative conjunction. An equivalent way of saying the same thing would be:

(76) Taro-wa wakai-ga, yoku yar-u(-yo).
Taro-TOP young-*ga*, well do-PRES(-yo)
'Although Taro is young, he does a good job.' (Matsumoto 1988: 340)

In (76) *ga* is not a conjunction at the beginning of the second clause, as it is in (75), but a suffix on the predicate of the first clause. Moreover, *yo*, a sentence-final particle, may only appear on the second predicate in (76). Clearly (76) is a single sentence, whereas (75) consists of two sentences, an analysis supported by the intonation.

The hypothesis of unidirectionality from parataxis > hypotaxis > subordination would predict that the type of sentence illustrated by (76) is derived from a construction similar to that of (75). Being more integrative, the single sentence would be thought to result from the collapsing of two separate sentences, and the reanalysis of *ga* from an independent conjunction in the second clause to a suffix in the first clause. However, the historical data in fact suggest that the reverse occurred. Earlier Japanese texts point to sentences of the type in (76) as antecedents of those like (75), and indeed suggest that the type in (75) is relatively recent. The latter start to be recorded in the seventeenth century, especially in popular play scripts and similar texts suggesting a colloquial style.

Another somewhat similar instance of great interest is what has been construed as the development in spoken German since about 1980 of main clause (non-verb-final) order for clauses marked with *weil* 'because' and *obwohl* 'although' (it is, however, possible that this order difference existed earlier but was simply not recorded in written language, or noted by prescriptivists). In standard German these clauses have verb-final word order, are non-assertive, and typically occur within the same intonation contour as the main clause, as in (77). They are therefore considered to be subordinate clauses. In spoken German, however, they now often also occur with non-final word order, and separate intonation contours; they are assertive and non-subordinate, as in (78) (Günther 1996). The difference is illustrated with *weil* 'because':

(77) auf der andern Seite wär der Kielmann vielleicht besser weil der
on the other hand might the Kielmann perhaps better because he
gleich ein Röntgengerät da hat.
right an X:ray-machine there has
'On the other hand Kielmann might be better because he has an X-ray machine right there. (Günther 1996: 325)

(78) Der hat sicher wieder gesoffen. Weil sie läuft total
he must surely again been:drinking. Because she goes totally
deprimiert durch die Gegend.
depressed through the neighborhood.'
'He must have been drinking again because she walks around looking totally depressed.' (Günther 1996: 328)

Günther points out that non-subordinate clause (paratactic) constructions like (78) involve either epistemic or "speech act" meanings in the sense of Sweetser (1990). As in the case identified by Matsumoto, the newer meanings and word orders conform to regularly occurring unidirectional semantic and pragmatic changes: (75) is more subjective than (76), (78) more subjective than (77), that is, they are more firmly based in the speaker's subjective assessment of the situation (Traugott 1989; Traugott and König 1991). These developments do, however, run counter to the expected increase in clausal integration.

The presence of counterexamples once more shows that the continua of grammaticalization are not exceptionless. Nevertheless, there is overwhelming evidence for the preponderance of changes from more to less paratactic modes of clause combining. Probably all languages have paratactic structures. At certain points, given certain traditions and discourse uses, dependent structures are innovated, and later renewed (M. Harris 1988).

## 7.7 Conclusion

In this chapter we have shown how complex clause structure can be modified over time. Typically the shift, as at the morphological level discussed in Chapter 6, is from less to more bonded. The final outcome of this increase in unification may be the development of simple clauses out of complex structures, with an original verbal construction coming to be downgraded into auxiliary-like status, or into adverbial status.

# 8

# Grammaticalization in situations of extreme language contact

## 8.1 Introduction

Most of the work on grammaticalization that we have discussed so far was conducted within the framework of a relatively monogenetic view of change. This approach arose out of a tradition that started with comparative linguistics and persisted in the very largely different context of generative grammar. However different they have been, nevertheless both of these traditions have idealized homogeneity of language and of transmission, whereas in fact most actual situations involve contact, at the minimum with speakers of other dialects, whether social, regional, or stylistic (see Weinreich, Labov, and Herzog 1968; Thomason and Kaufman 1988 for landmark studies of the consequences of heterogeneity for an understanding of how language changes).

We turn in this chapter to the question whether studies of contact situations raise special issues regarding grammaticalization (see also Heine and Kuteva 2002). We ignore situations of contact that entail only partial external influence on subparts of a linguistic system. One such situation is that of "borrowing," which often involves extensive incorporation of foreign elements in only one or two areas of the language, typically the lexicon, with minimal influence elsewhere. Ordinarily the kinds of items borrowed are independent words and morphemes (Weinreich 1953), although very occasionally morphological paradigms may be borrowed (Thomason and Kaufman 1988: 20 cite the unusual case of Mednyi Aleut, with Russian finite-verb morphology but with other largely Aleut grammar and vocabulary). English is an example of a language which has borrowed lexical items extensively, from Scandinavian (e.g., *give*), French (e.g., *table*), Latin (e.g., *tubular*), and many other languages. As a result of the influx of French vocabulary, it has developed a system of stress alternation such as is found in *real–reality–realistic*, but nevertheless it has undergone little radical syntactic or morphological change as a result of contact. Most of the seeds of radical restructuring in word order and morphology that occurred between Old and Middle English are to be found already in Old English (though the rapidity with which the changes occurred may well have been triggered by contact). In addition, there are relatively minor pockets of morphology that show

contact influence; see, e.g., Kroch and A. Taylor (1997) on the probable influence of Scandinavian on the spread of third-person-singular *-s* agreement (as opposed to the southern *-eth*). A second situation that we ignore is one of language admixture across a wide area, such as is evidenced by the Balkan and the Dravidian languages (see Sandberg 1968 [1930] and Masica 1976, respectively). Instead, we take a brief look at pidgins and creoles, languages that evidence extensive influence, indeed "intertwining" (Bakker and Muysken 1995), of two or more languages on each other.

Pidgins and creoles illustrate in rather extreme form a number of theoretical issues, and provide insights into how the progression of grammaticalization across languages as well as time can be conceptualized. The study of pidgin and creole languages is especially important for historical linguistics because contemporary varieties are relatively recent in origin (three or four centuries at the most in many cases), and exemplify rapid change in non-literate situations. This is in contrast to most of the more traditional subjects of historical and comparative linguistics, which may have millennia of history, much of it written and often highly literate. Furthermore, the study of pidgins and creoles has challenged many basic assumptions about homogeneity and the role of adults and children in language change (for overviews see Bickerton 1988, Muysken 1988, Romaine 1988; for fuller discussion see Hymes 1971, Valdman and Highfield 1980, Rickford 1987, DeGraff 1999a).

As mentioned in Section 3.2.2, distinctions are often made in historical work between "internal" and "external" factors in change. Roughly speaking, "internal" change is associated with child language acquisition in a relatively homogeneous speech community, and "external" change with contact, whether with communities speaking dialects of the "same language" or other languages. This distinction is essentially similar to the contrast regarding the locus of change between mind/brain and grammar (= "internal") and social interaction and use (= "external"). As has been indicated throughout the book, such a polarization obscures the realities of language change, in which structure and use, cognitive and social factors continually interact: "speakers' mutual accommodations can draw materials from either the same linguistic system or separate ones" (Mufwene 2001: 15). This is nowhere clearer than in pidgin and creole situations, where the notion of "homogeneous speech community" is typically not appropriate, and where, as we will see, second language acquisition plays a significant role in structural innovation.

## 8.2 Basic characteristics of pidgins and creoles

A pidgin is usually thought of as a non-native contact language which typically develops in social situations characterized by major class distinctions and

by numerical disparities between these classes (e.g., a slave economy in which the number of slaves is far greater than that of the landowners).[1] It is characterized by a relatively simple grammatical structure. By contrast, a creole is typically, though, as we will see, not necessarily, a native language. It is more complex than the pidgin to which it is related, but to what extent it is "simpler" than other types of language depends on its social function and longevity. Often several mutually unintelligible languages are involved in the emergence of pidgins and creoles, with one language being used as the socially and politically prestigious standard. The language of the socially dominant group, e.g., colonialists or slave traders, is often called the "superstrate language," that of the socially subordinate group is often called the "substrate language." Examples where the prestige language was English include West African Pidgin English, Hawaiian Pidgin English, Hawaiian Creole English, and Tok Pisin, spoken in Papua New Guinea. Examples where the prestige language was Spanish include Palenquero, spoken in Cartagena, Colombia. Those where the prestige language was Portuguese include Cape Verde Creole, spoken in the Cape Verde islands in the Atlantic off of West Africa. Both Spanish and Portuguese were the prestige languages for Papiamentu, spoken in the Leeward Islands off Venezuela, and French in the case of Haitian Creole (see Holm 1989 for coverage of creoles world-wide).

### 8.2.1 *Some characteristics of pidgins*

Although the lexicon of a pidgin is mixed, it is usually predominantly derived from the superstrate language, also known as the "lexifier language." Pidgin studies have shown that there are several kinds of pidgins, ranging from minimal communication devices which are highly unstable, e.g., jargons used in limited domains such as trade or labor recruitment, to more complex pidgins arising from relatively stable situations and used in a wide variety of linguistic contexts (e.g., West African Pidgin English), to extended pidgins used as general lingua francas (e.g., Melanesian Pidgin English) (Foley 1988).

Jargons and minimal pidgins are characterized by slow speech and exhibit only minimal morphology. Both may be associated with speakers' unfamiliarity with the language, especially in situations where discourse is limited to basic practical affairs. Many pidgins are, however, spoken more rapidly, and have more complex structure. All the same, the following characteristics of pidgins relevant to grammaticalization (or absence of it) are often cited (see, e.g., Romaine 1988):

(i) a lexicon comprised largely of the two major categories N and V (e.g., *sik* used for 'be sick,' and for 'disease')

(ii) lack of word-formation rules in the lexicon

(iii) periphrasis (e.g., *haus sik* 'hospital,' *gras bilong pisin* 'feather,' literally 'grass of bird')

(iv) temporal, aspectual, and modal expressions expressed by adverbs or particles (e.g., *baimbai* (< *by and by*) 'later, future,' *pinis* (< *finish*) 'finished, completed, past,' *atink* (< *I think*) 'maybe'; no consistent means of expressing tense, aspect, or modality

(v) absence of inflection and allomorphy

(vi) absence of clefting, topicalization, etc., largely resulting from absence of fixed word order

(vii) absence of embedding

(viii) absence of stylistic variants

Characteristic (i) demonstrates that "essential communication" does not follow a principle of "one meaning – one form" such as one might associate with attention to clarity for hearers. Rather, speakers economize by using the same lexical item for several syntactic functions and also by using periphrasis (Mühlhäusler 1997 [1986]).

Example (1) is from nineteenth-century Hawaiian Pidgin English, as spoken by a Portuguese immigrant who was a lighthouse keeper in Nawiliwili, Kaua'i:

(1) When time up I go to boss and say you take old woman back now. He get verra mad, and make me pay all up. Marie, he good woman, but talk, talk all time, make me mad then pilikia again.
'When the time was up I went to my boss and said "Take the old woman back now." He got very mad, and made me pay everything up. Mary, she was a good woman, but she talked and talked and talked all the time, and made me mad. Then there was trouble again.' (S. Roberts 1998: 16, citing Vergne 1898: 106)

Pidgin features observable here include (i) absence of tense marking (*When time up I go to boss*), (ii) aspect marking by repetition and adverbial (*talk, talk all time*), (iii) absence of articles and other determiners (*to boss*), (iv) absence of gender distinction, (v) absence of copula (absence of a *be*-verb) ((iii)–(v) are illustrated by *he good woman*); there is also language mix, as *pilikia* 'trouble' is Hawaiian.

However, most pidgins exhibit significantly more complex structure than is illustrated by (1). As pidgins stabilize and are extended to new uses, they acquire more extensive morphology, most especially predicate markers (PM) which link the predicate to the subject (e.g., *i* in (2)), aspectual particles (*don* in (2)), and some hypotactic structures. This suggests attention to expressivity and to hearers' need for clarity. An example from West African Pidgin English will illustrate some of the characteristics of a stable extended pidgin. The passage is excerpted from a narrative about the outwitting of a king by a clever boy called Sense-pass-king or 'Wiser-than-king':

(2) Sens-pas-king i bin gow, i mas-fut fo rowt, waka
Sense-pass-king PM PAST go, PM makes-foot for road, walks
trong fo hil, sowtey i rish fo king i tong.
vigorously up-and-down hills, so-that PM reaches at king his palace
King i tok sey, yu don kom. Meyk yu klin ma het.
king PM talk say, you COMPL come. make you clean my head.
Biabia i don plenti tumos fo ma het. Sens-pas-king
hair PM COMPL grow too-much for my head. Sense-pass-king
i bin don gri sey, i go bap king i het.
he PAST COMPL agree say/COMP, PM go barber king his head
'Wiser-than-king began his journey. Up and down hill he went, and so finally he arrived at the king's palace. The king said, "You have come. Shave my head (because) my hair has grown too long." Wiser-than-king agreed to cut the king's hair.' (Traugott 1976: 71, based on Schneider 1966: 177)

Note in particular the serial-verb constructions *tok sey* and *gri sey* which are the kinds of construction we noted in Section 1.3.2 in connection with the development in Ewe of the complementizer *bé*. There are no clear instances of embedding, but there is some hypotaxis, as exemplified by the purpose clause introduced by *sowtey* 'so that,' and the indirect, third-person quotation *don gri say, i go bap king i het* 'agreed that he would cut the king's hair' (as opposed to 'agreed "I will cut your hair" '). And, as would be expected from an oral narrative, there is parataxis, as in *king i tok sey, yu don kom* 'the king said: "You have come" '). The West African construction may have been translated literally (i.e., "calqued") from Akan *se/si* 'that complementizer, quotative say'; or possibly it is a direct borrowing of Akan *se*. Another notable feature is the periphrastic possessive, as in *king i tong*, which uses the PDE order of the inflectional possessive (*king's town*), not the periphrastic (*town of king*). The predicate-marker construction with *i* will be discussed further in Section 8.3.2 below.

### 8.2.2 *Some characteristics of creoles*

By contrast with limited pidgins, creoles are typically more complex, especially syntactically. However, they may be relatively similar to extended pidgins like West African Pidgin English. Among often-cited characteristics of creoles are:

(i) Articles: a distinction is made between definite referential (3a), indefinite referential (3b), and indefinite non-referential (3c) (for the differences, see Section 6.4.1):

(3) a. Mi bai di buk.
'I bought the book (that you already know about).'
b. Mi bai wan buk.
'I bought a (particular) book.'

c. Mi bai buk.
'I bought a book (or books).' (Even the speaker does not know/remember specifically which book[s]) (Guyanese Creole; Bickerton 1977: 58)

(ii) Tense–modality–aspect (TMA) systems: periphrastic expressions are widely found. Bickerton (especially 1984) argues that they are typically sequences of the following type: ± anterior[2] tense, ± irrealis modality and ± non-punctual aspect markers, in that order, e.g.: Guyanese Creole *bin* [+anterior] – *go* [+irrealis] – *stei* [+non-punctual] V 'would have been V-ing.' Examples from two creoles, Saramaccan (Surinam) and Fa d'Ambu (Equatorial Guinea), both with Portuguese lexifiers, and cited in (4a) and (4b) respectively:

(4) a. Mi bu-o-tá-nján dí fisi.
I ANTERIOR-IRREALIS-NONPUNCTUAL-eat the fish
'I would have been eating the fish.'
b. Ineni bi ske xa tabaya.
They ANTERIOR IRREALIS NONPUNCTUAL work
'They would have been working.' (Thomason 2001: 174)

While such examples can be multiplied, the view that this tense–aspect–mood sequence is typical of or unique to creoles has, however, been shown to be greatly oversimplified. Furthermore the terminology is somewhat idiosyncratic, and is itself alleged to have contributed to arguments that creoles are very different in kind from non-creole languages. Plag (1994) and Winford (2000), among many others, argue that TMA systems in creoles can only be fully understood if they are analyzed in terms of universal cross-linguistic categories such as have been identified by Dahl (1985) and Bybee, Perkins, and Pagliuca (1994), and in terms of their discourse functions in narrative and other discourse genres, rather than in terms of the features ± anterior, ± irrealis, ± non-punctual.

(iii) A distinction is made between realized (–irrealis) complementation as in (5a) and unrealized (+irrealis) complementation as in (5b):

(5) a. Il desid al met posohladah
She decided *al* put fish-in-it
'she decided go put fish in-it' [inference: she did what she decided to do]
b. Li ti pe ale aswar pu al bril lakaz sa
he TNS M go one-evening *pu al* burn house that
garsoh-la me lorsime ban dayin fin atke li.
Boy-the but on path PL witch COMPL attack him
'He would have gone that evening to burn the boy's house, but on the way he was attacked by witches.'
(Mauritian Creole; Bickerton 1981: 60–1, citing Baker 1972)

In (5a) *al* (< Fr. *aller* 'go') implicates a realized event in (5b), *pu al* (< Fr. *pou* 'for' *aller* 'go') implicates unrealized events.

(iv) Multiple negation: in negative sentences, typically non-definite subjects, non-definite verb phrase constituents and the verb must all be negated:

(6) mi neva sii notn in dat bilin.
I never see nothing in that building
'I never saw anything in that building.'
(Guyanese Creole; Rickford 1987: 148)

(v) Clause dependency, especially relativization:

(7) mi witnis da wid mi ai wo gaad gi mi. dii kozn
I witness that with my eyes that God give me... the cousin
wo swiit na waan fu gu.
that intoxicated not want to go
'I witnessed that with my own eyes which God gave me... the cousin who was intoxicated did not want to go.' (Guyanese Creole; Rickford 1987: 153)

Complementation also occurs. In Sranan (the Dutch- and English-based creole of Surinam), there are three possible complementizers with partially different distributions: *taki* (< Eng. *talk*), *dat* (< Dutch *dat* 'that' either in its complementizer function, or in its pronominal function), and *fu* (< Eng. *for*) (the latter is preferred for unrealized events):

(8) Pieter taigi en pikin taki/dati/fu a sa opo na doro.
Peter told his child that he IRREALIS open the door
'Peter told his child to open the door.' (Sranan Creole; Plag 1993: 101)

(vi) Focusing by leftward movement:

(9) Enikain laengwij ai no kaen spik gud.
any-kind language I not can speak well
'There's no kind of language that I can speak well.'
(Hawaiian Creole, 1896; Bickerton 1984: 176)

Like pidgins, creoles show a considerable range of elaboration, specifically from varieties furthest from the standard (known as "basilects") to varieties close to the standard (known as "acrolects"). This kind of range has been variously described. One model is that of a continuum, with individual speakers having mastery over part of this continuum (see Bickerton 1975, and, from a somewhat different viewpoint, Rickford 1987). The assumption in this model is that the basilect is closest to the original language. More recently, a consensus has been building that unidimensional continua are not supported by evidence from creole communities (see, e.g., Patrick 1999), and that the basilect may not represent the original state

of the language. Rather, it is the outcome of symbolic practices, specifically the sociopolitical construction of identities that are in opposition to linguistic assimilation, or "decreolization," toward the "standard." This "standard is often the lexifier, and therefore associated with foreign dominance and oppression. Speakers' attention to distinctively creole features of languages was first noted by Le Page and Tabouret-Keller (1985). Assuming that the basilect was the original form of the language, they thought of the phenomenon as refocusing on older forms and called it "recreolization." More recently, it has been concluded that ideologically motivated choice of divergent forms may occur independently of the speaker's linguistic repertoire, whether basilectal, mesolectal, or acrolectal, (see, e.g., Carrington 1993; S. Roberts Forthcoming).

## 8.3 Implications of pidgins and creoles for language change

In this section we discuss two issues in language change for which pidgin and creole studies have much-discussed implications: the role of child versus adult language acquisition (for recent discussion see DeGraff 1999c), and of simplification and elaboration (see Valdman 1977; Mühlhäusler 1997 [1986]; DeGraff 2001 on elaboration in creoles; McWhorter 2001 (and peer commentary thereon) on creoles' "simple grammars"). These issues are central for language change in general, and therefore are not surprisingly crucial for understanding assumptions behind claims about grammaticalization in pidgins and creoles. We discuss specific implications for grammaticalization in Section 8.4.

### *8.3.1 Child versus adult language acquisition*

As we mentioned in Section 3.2.2, one of the topics that has been of major interest to historical linguistics has been the role of children versus adults in language change. The generative position has been that language change is a change in mind/brain states. There is a biologically determined linguistic capacity with invariant principles (known as Universal Grammar or UG) and a number of "parameters" or structural options which children set, based on evidence from the input. Furthermore, on this analysis, children are the only possible initiators of reanalysis. Working on Guyanese Creole and Hawaiian Creole, both of which developed in plantation situations, Bickerton (e.g. 1975, 1984) put forward the hypothesis that speakers of the pidgin lost access to their native languages in circumstances of traumatic disconnection from their native countries and communities, such as occurred in the context of the slave trade, when they had only fleeting access to the linguistic repertoires of superstrate language speakers. The pidgin they used was

rudimentary, not a full language. Their children therefore grew up in the absence of viable native language models. They rapidly developed creoles, many of which show similar structural properties throughout the world. Since these children had no access to native languages and developed with exceptional rapidity, he argued, creoles provide privileged evidence for a "bioprogram" or innate human-specific neurological disposition that permits children who have no extensive consistent language input to create a new language out of the bits and pieces of degenerate input they encounter.

In an early characterization of the bioprogram, Bickerton (1981: 212) hypothesized that it had the following essentially semantic characteristics:

(i) specific/non-specific
(ii) state/process
(iii) punctual/nonpunctual
(iv) causative/non-causative

In a later version he hypothesized that the bioprogram had the syntactic characteristics of a limited simple clause, one which assigns only subject and object, but no other case markers, and therefore no prepositions (Bickerton 1984: 179). Other characteristics include zero copula. The bioprogram was, however, hypothesized to include serial verbs of the type illustrated in (10):

(10) a. Dei gon get naif pok you.
they go get knife poke you
'They will stab you with a knife.'
(1896 Hawaiian English Creole; Bickerton 1984: 175)

b. Dee o-tei faka tjoko unu
they MODAL-take knife stab you:PL
'They will stab you with a knife.'
(Saramaccan Creole; Bickerton 1984: 179)

Later Bickerton put forward the stronger hypothesis that "there is a single set of universal syntactic principles. These principles are absolute and do not undergo any form of variation, parametric or other" (Bickerton 1988: 272). All variation is, according to this theory, a function of acquisition of lexical items and of processes acting on them. In other words, the bioprogram is hypothesized to be neurologically far more restricted than UG; nevertheless, it has much in common with that hypothesis.

A particularly striking example of the operation of the bioprogram, it was claimed, is exemplified in Surinam in the eighteenth century, where after a revolution the slaves dispersed into the bush and developed Saramaccan Creole independent of any access to native languages or to a local creole (Byrne 1987). However, Singler (1992) and McWhorter (2000a) challenged the claim that Saramaccan

Creole must be assumed to exhibit bioprogram characteristics, on the grounds that deductions from a variety of textual and comparative evidence suggest that it had its origins in a Portuguese pidgin, mixed with Sranan Creole. The latter had itself emerged from a pidgin in Barbados, ultimately derived from contact languages that developed in Africa (with Akan and Igbo as major donor languages). If indeed a local creole did exist as a model, there is no reason to suppose that the children of pidgin speakers had to rely on a bioprogram for the features of this Saramaccan Creole (or any other creole).

Another putative situation providing evidence for the bioprogram was, according to Bickerton, to be found in Hawai'i in the late nineteenth century, where many mutually unintelligible languages were spoken, and where there was "no preexisting language in common" out of which the creole could arise (Bickerton 1984: 174). Evidence for the development of the bioprogram was alleged to be provided by Hawaiian Creole speakers who at the time of data collection were in their seventies, eighties, and nineties. However, the interpretation of their speech was made on the assumption "that the speech of individuals does not change appreciably after adulthood is reached" (1974: 174), an assumption that appears to have seriously skewed the interpretation of the data. Another assumption was that their parents had no access to their native languages (in this case, especially Japanese or Chinese).

Attractive though the concept is of a bioprogram revealed through creoles, there does not appear to be empirical evidence to support the hypothesis that the properties Bickerton identifies are unique in any extant creole to the extent that they must be assumed necessarily to have arisen out of a bioprogram (see discussion of Bickerton's 1984 target article and later work such as Rickford 1987; Sankoff 1990; Baker 1991; Plag 1993; Bruyn 1995; DeGraff 1999b,c, 2001; Mufwene 2001). There may nevertheless be unique characteristics of creoles that arise for other reasons, such as discontinuity of transmission across language-speaking communities.

Bickerton proposed that the bioprogram is evidenced most especially in plantation situations, where work conditions were especially stressful, and access to native language use (sub- as well as superstrate) was minimal. He argued that the sugar plantations of Hawai'i were one such site. Finding evidence about the languages that children did actually have access to is therefore especially important for understanding the conditions under which the creole arose. Basing her work on extensive textual evidence from a variety of Hawaiian sources including diaries, school records, and newspapers, S. Roberts (1998, 2000a,b) argues that the crucial variable in the development of Hawaiian English creole is whether speakers are locally born or foreign born. She shows that the locally born group actively contributed extensively to innovation, while the latter did not. Furthermore, contrary to

Bickerton's hypothesis, it was not first-generation children, but second-generation locally born child who contributed most (and most rapidly) to the development of the creole. In other words, there is no evidence even in Hawai'i for catastrophic, discontinuous change between pidgin and creole. S. Roberts (2000a) also shows that English creole innovations may have developed among older children, in school settings, rather than at a very early age, as well as among young adults.

Studies of Tok Pisin, an English-related creole in New Guinea that developed in a situation very different from that of postcolonial plantation slavery, were conducted in the 1970s (e.g. Sankoff and Brown 1976; Sankoff 1980). In this case, the locus of innovation was found to be adults, and therefore creolization was found to be a function not of first but of second language acquisition. Introduced by traders in the Pacific, Tok Pisin was used primarily as a lingua franca to improve communication, especially at a time of developing political independence, among tribes whose language varieties had become for the most part mutually incomprehensible because of the wild terrain in the island and the difficulty of travel from one community to another. The studies revealed that adults were developing a nativized, creole version of the language, and suggested that extensive grammaticalization accompanied this development, e.g. the emergence of relative clauses, cliticization, and phonological reduction (cf. *baimbai* 'by-and-by' > *bai* 'later, future'). Although the rate of development was considerably faster among children, the changes themselves were shown not to originate with them but with (mostly younger) adults. These studies called into question the hypothesis that change is attributable primarily to very small children. To the extent that creoles are the result of adults expanding the pidgin, they provide evidence that structural innovations can be made by adults, a position that is coming to be increasingly widely accepted.

### 8.3.2 Simplification and elaboration

Bickerton's hypothesis that children develop creoles out of rudimentary pidgins without access to native languages was seen to provide exciting support for the generative claim that small children are the only ones who can innovate, reanalyze, and restructure (e.g., Halle 1964). At the same time it called into question another generative claim: that structural simplification or "optimization" is the natural and indeed expected result of child language acquisition (e.g. Kiparsky 1968). The reason for calling the latter claim into question is that the creole is always more complex than the pidgin.

Theories of pidgin and creole development often refer to "pidgin simplification" and "creole elaboration." There is no question that the lexicon and coding of basic pidgins is relatively simple. However, to characterize the process of pidginization

as one of simplification can be misleading. Clearly an early stage pidgin is simpler than any native language. Even though pidgins are always regarded as mixed languages, nevertheless, they are typically described in terms of the lexifier language (e.g., English, French, Portuguese, German), and "pidgin simplification" usually means simplification of the lexifier language. This is in part a practical matter, owing to uncertainty about which languages were originally involved. It is, however, problematic because it obscures the extent to which the grammars are thought to be "mixed." There is still active debate on whether the languages were developed primarily by speakers of the subordinate languages to facilitate communication among themselves because their native languages were often mutually unintelligible (e.g., Whinnom 1971, and in a somewhat different vein, McWhorter 1998), or by speakers of the superstrate languages, whether native speakers, or non-native speakers who nevertheless were fluent in the superstrate, for example house slaves (e.g., Chaudenson 1995; 2001; Mufwene 2001). Another problem is that those who think in terms of "simplification" of the lexifier language often think of that language in terms of the standard, rather than the vernacular, i.e., the spoken language of everyday, which is inevitably the input to a pidgin. Wrong comparisons may therefore be made because vernacular language is usually less complex than the standard; the lexicon tends to be more restricted ("hypothesis" and "grammaticalization" are hardly vernacular words!), the morphology tends to be less complex (who pronounces all the consonants in *posts*, most particularly the plural marker *-s*?), and embedding is dispreferred. In some cases there may even be substantial differences in basic clausal structure.

As mentioned in Section 1.3.3, Lambrecht (1981) discusses features of non-standard French, including the facts that topic/anti-topic structures abound, and that clitic pronouns have become bound to verbs as agreement markers. In (11) we find topic *ma femme* and the bound agreement marker *il*, which shows only agreement, not gender (contrast the anaphoric feminine pronoun *elle*). In (12) we find the agreement-marking bound pronoun *il*, and anti-topic (i.e., postposed topic) *garçon*:

(11) Ma femme il est venu.
my wife AGR has come
'My wife has arrived.' (Lambrecht 1981: 40)

(12) Il-attend devant la porte, le garçon.
AGR-wait before the door, the boy
'The boy is waiting in front of the door.' (Lambrecht 1981: 74)

Because anti-topic rightward NP shift is frequent in non-standard French, verb–subject order abounds, in contrast to standard French which has subject–verb order, as in (13):

(13) Le garçon attend devant la porte.
the boy waits before the door

The so-called predicate markers of West African Pidgin (*i* in (2)) and many other pidgin and creole languages bear a resemblance to the bound pronouns in non-standard French illustrated in (11) (and also in vernacular English, cf. *Jane, she called me up this morning*). Where mismatches between pidgins or creoles and the lexifier language occur, they may originate in vernacular varieties of the lexifier language, or possibly in the subordinate language, or both, and considerable care needs to be taken in assessing possible origins of any construction.

What we can most plausibly say regarding the emergence of a pidgin is that a restricted system is innovated based on the lexicon of the lexifier language, and some principles, probably universal, of minimal grammatical organization. This is basically an abductive process. It suggests that adults can simplify their linguistic systems, and so calls into question the assumption that only small children can achieve this. The process of pidgin stabilization is a process of complexification of morphosyntactic organization as well as of the lexicon. The process of creolization is a significantly more extensive process of expansion and complexification. It appears often to be initiated by older children or adults, and therefore likewise challenges the assumption that only small children can do this. In both cases, we need to conceptualize second language acquisition and diffusion to other second language speakers as the prime context for the innovations that lead to the new languages; however, small children do undoubtedly contribute to the rapid extension of innovations in the creole.

## 8.4 Specific implications of pidgins and creoles for grammaticalization

Studies of the morphosyntactic developments in pidgins and especially creoles, in other words of grammaticalization, must be understood in terms of the assumptions that the researcher brings to bear on the data. As mentioned above, the main issues are who innovates, and how discontinuous the innovation is from structures available in the languages that contribute to the language mix. If one takes the position that creole genesis represents a radical discontinuity from the donor languages, then the assumption will be that grammaticalization takes place extensively (and uniquely) in the creoles, independently of developments in the donor languages. If one assumes that the lexifier is the major donor, then one will tend to assume that the grammaticalization is directly of the cognate form or construction in the lexifier, usually after creolization. However, if neither assumption is made, then the locus of grammaticalization can be pushed back to the

various donor languages, and a relatively continuous development can be posited from the donor to the creole. In this case, a kind of polygrammaticalization (see Section 5.3.3) may sometimes be noted, in which linguistic forms in the creole and in varieties of the donor language that are not in contact with the creole have diverged in different directions from a single earlier form.

The approach assuming that innovations start in the creole, or in the transition from the pidgin to the creole, can be illustrated by the pioneering work of Sankoff and Brown (1976) on the development of relative clauses in Tok Pisin. The authors highlighted the use of the marker *ia* as a "bracket" of syntactic slots where relative clauses, cleft-constructions, and other reference-tracking constructions can occur in hypotactic constructions. An example of the relative construction bracketed by *ia* is:

(14) Meri ia [em i yangpela meri, draipela meri ia], em harim istap.
Girl *ia* [she PM young girl, big girl ia] she listen-OM was
'This girl, who was a young girl, big girl, was listening.'
(Sankoff and Brown 1976: 632)

Here a nominal, *meri*, is presented as a referent whom the hearer is invited to recognize or uniquely identify in the context. Although it is separated by intonation breaks (represented by commas), it is not entirely paratactic, since it is intertwined within the matrix clause. The relative ends optionally with *ia*, which serves as bracket of the modifier. The bracketed modifier is followed by a resumptive pronoun which marks the return to the matrix clause. (15) provides an example of the cleft construction, in which *ia* is also used:

(15) Em liklik barata ia [mi tok ia]
He younger brother *ia* [I talk *ia*]
'It's the younger brother I'm talking about.' (Sankoff and Brown 1976: 638)

(15) was designed to correct the previous speaker's assumption that the older brother was being talked about. It is a typical contrastive focus construction, distinguishing *liklik barata* from the older brother.

Sankoff and Brown suggest that *ia*-bracketing was an innovation among adult speakers of Tok Pisin who were beginning to develop a creole. They also suggest that it was based on the English lexifier; specifically they regard it as a derivative from *here*, and note its relationship to, e.g., *this man here/this here man*, where *here* also serves an identifying (and sometimes characterizing) function. It also serves as a slot that permits another speaker to introduce relevant information as speakers and hearers coconstruct pertinent information and check reference-tracking in the course of conversation. The authors note that in the data available to them, prior to 1910 no markers occur of modifier, especially relative clause, slots, i.e., the

constructions were primarily paratactic. However, *ia* became more widely used in the 1940s and 1950s by adults acquiring a creole.

Another study of grammaticalization in Tok Pisin (Romaine 1999) on the development of *laik* 'want/like/desire' (< Eng. *like*) and *klostu* 'near' (< Eng. *close to*) into markers for near or "proximative"[3] time meaning 'almost, nearly, be about to', tracks evidence for their history in the last hundred years. Romaine gives a detailed account of the competition between two forms and argues that it supports Bybee, Perkins, and Pagliuca's (1994:12) hypothesis that source meanings determine the semantic path grams can travel. The older of the two forms, *klostu*, which originated in a spatial preposition or adverbial, came to be grammaticalized as part of the verb phrase, where it can be used with both later and earlier time expressions as in (16a) and (16b) respectively:

(16) a. Ol tok klostu bai wanem ren pundaun nau.
they talk close FUT which rain fall now
'They said it was about to rain now.'

b. Em tok ol masalai klostu kilim mi.
he say PL spirit nearly killed me
'He said that the spirits nearly killed him.' (Romaine 1999: 337)

It has largely been replaced by *laik* in immediate future contexts. Successive stages of *laik* reveal development of the meaning 'about to', auxiliation, and phonological reduction (> *lai* > *la*). An early example of enrichment to proximative 'about to' and loss of volitional meaning is:

(17) Machine he like die.
'The machine is about to die.' (Romaine 1999: 328, citing Downing 1919)

The specialization of *laik* correlates with its origin in a verb meaning 'want,' which is future oriented. *Laik* itself is in competition with *bai*, but while the latter expresses more general future, as might be expected from its original semantics ('by and by'), the former expresses exclusively immediate future.

These kinds of analyses envision grammaticalization as arising within a creole modeled on the lexifier. Although toward the end of their article Sankoff and Brown note that similar constructions occur in Melanesian languages, and similar *ia* markings arose in other Melanesian pidgins, nevertheless, they do not question the independent origin of the constructions in each pidgin/creole. Likewise, Romaine mentions that research needs to be done on the possibility of substrate influence on the meanings of *klostu* and *laik*, but the argument concerning why and how the competing meanings were kept apart assumes English semantics. Such approaches have been countered by various versions of a claim that stable pidgins and creoles have the grammar of the subordinate languages and the lexicon

of the lexifier language. This claim was studied in some detail in the context of Melanesia, where several pidgins, of which Tok Pisin is only one, have stabilized over the last hundred and fifty years. For example, Keesing (1988, 1991) argued that Vanuatu (Bislama) and Solomons Pijin provide exceptionally good insight into the relationship between a pidgin and the donor languages that contribute to it, because the pidgins are and have over a long time been in direct contact not only with English but with Melanesian languages. This, and the fact that they originated in languages used in nautical situations, is in contrast to the pidgins arising in the Caribbean during colonial times, which have had far less stable contact with the African languages, and were largely developed in situations of slavery. Keesing shows that many features of the pidgins can be attributed to the Eastern Oceanic Austronesian languages of the area calqued into a lexicon and morphology that looks like English: "from the 1840's onward, Islanders took the lexical resources of English and nautical jargon and progressively hammered them into grammatical designs common, at an abstract level, to their native languages" (Keesing 1991: 316). In other words, an Eastern Oceanic Austronesian form is translated into a semantically roughly equivalent form in English, but may serve the grammatical purposes of the Eastern Oceanic Austronesian form. He suggests that there are, therefore, "formulas of equivalence" that show that the pidgins are less innovative than is often thought, and more dependent on the extant structure of surrounding languages.

One example is the use of serial constructions, predicate markers, and object markers. Eastern Oceanic languages typically use deictics meaning 'hither' and 'thither' in serial constructions translatable into such English lexical items as 'bring,' 'take,' and 'ask.' They also use an object marker. Both of these are illustrated by the Kwaio sentence in (18):

(18) Ori-si-a mai.
ask-TRANS-it hither
'Ask about it.' (Keesing 1991: 323)

Kwaio speakers using Solomons Pijin express the same idea by (19):

(19) Ask-em kam.
ask-OBJ come
'Ask about it.' (Keesing 1991: 323)

Here *kam* < Eng. *come* is equivalent to deictic *mai* 'hither', and *em* < Eng. *him* is equivalent to the object marker *a*.

Another example is the use of *des/tes* < Eng. *just* in precisely the position in which the local languages use an aspect marker. Keesing cites (21) as the Bislama (pidgin) equivalent of the Vetmbao (South Malekula) expression in (20):

(20) Naji nga-mandrxa mun.
him he-ASP drink
'He has just drunk.' (Charpentier 1979: 353; cited in Keesing 1991: 326)

(21) Em i tes trink.
him he ASP drink
'He has just drunk.' (Keesing 1991: 326)

Especially interesting is the use in Kwaio of aspectual *bi'i* 'immediate past' with the irrealis/future particle *ta* to signal immediate future (a conventionalized meaning that cannot be computed directly from its parts), as in (22) (INCL is short for "inclusive," i.e. 'we including you'):

(22) ta-goru bi'i aga-si-a.
FUT-2PLINCL just see-TRANS-it
'We'll see it in a while.' (Keesing 1991: 327)

This is expressed in Solomons Pijin by *bae* (< *by and by*) and *das/tes*, as in (23):

(23) bae iumi das luk-im
FUT 2PLINCL just see-TRANS (Keesing 1991: 327)

Keesing's conclusion is that where both the native languages and the pidgins (or creoles) are in situations of long-term stability, there is evidence that formulae of equivalence from the subordinate language may be as important as, or more important than, formulae from lexifier languages in the process of grammaticalization. Indeed, "a Melanesian Pidgin grammatical element derived from an English lexical form may have acquired this grammatical force not through the usual chain of grammaticalization but through a direct calquing onto a substrate pattern" (Keesing 1991: 334). Rather than syntactic reanalysis within the relevant languages, there is "a semantic bridge across which a borrowed form can move through the calquing process" (1991: 335). In saying this, Keesing conceptualized a relatively seamless relationship between pidgins, creoles, and their lexifiers, and did not exclude the possibility of innovative grammaticalization.

In later studies of Sranan, Bruyn (1995, 1996) extended Keesing's conclusion to a situation where the kind of stability he found in Melanesia is not in evidence. She also reconceptualized his conclusion in the framework of assumptions that pidgins and creoles show unique structural characteristics and are abruptly discontinuous from their lexifiers. For example, Bruyn (1996) argued that in Sranan prepositional constructions like *na NP baka* 'in back of, behind' were probably calqued directly from Ewe and other Niger-Congo languages. She also argued that any grammaticalization from a relational noun to a secondary adposition to a complex preposition (see Section 5.3.1) originated in one of the donor languages, such as Ewe, not in the creole. Once calqued from the African language, and part of the

structure of Sranan, it did undergo a small "internal development" to a preposition *na baka* 'behind' (though primarily in temporal uses). Bruyn's main purpose is a methodological one. Most particularly, she argues that the relative difficulty of obtaining and interpreting historical data on creoles may make investigators especially prone to attempt to project prototypical trajectories of grammaticalization onto data that is only synchronically available. This is wrong, at least for Sranan, she shows, not only because, if one does the research, one can find historical data going back at least to the eighteenth century, but also because it underestimates the possible role of calquing. These points are very well taken. However, she also suggests that a special kind of instantaneous grammaticalization needs to be posited for creoles because such grammaticalization as may occur in the history of one of them occurs in a very short time period. This claim appears to be unwarranted because some types of grammaticalization in standard languages are also attested over a short period of time, such as the development of reduced auxiliaries (see McElhinney 1992 on the sudden attestation of clitic forms like *'ll, 'd*, for *will* and *would* in the mid sixteenth century). The extent to which slow emergence can be tracked appears to be in part a function of the availability of written materials, and the conservatism of those materials. Any reanalysis is instantaneous; gradualness is a function of spread across the linguistic system and across speech communities. The size and fluidity of the community, as well as the discourse types in which language is used will affect the rapidity of the spread.

At the time of writing, opinion appears to be shifting away from Bickerton's claim that pidgins and creoles have unique linguistic properties, or reveal unique properties of a bioprogram that is different from UG. Instead, evidence is growing that creolization "can be regarded as a special kind of contact-induced language change, occurring under very special social circumstances" (Plag 1993: 151). As a result, opinion is also shifting away from assumptions of discontinuity between "fully formed" lexifier languages and "simplified" languages like pidgin and creoles (see especially Mufwene Forthcoming). The result is that study of these languages (as well as of other contact languages) challenges the assumption that grammaticalization (or indeed language change in general) occurs in situations of relatively continuous transmission from one speaker to another, and one community to another. Just as auxiliary *do* underwent different developments in different dialects in English, so particular form–meaning pairs may develop in different ways and at different rates in different creole situations, given different donor languages.

The importance of recognizing multiple as well as single sources of input to grammaticalization can be seen from the development of creoles such as Sri Lanka Portuguese Creole. Portuguese, the lexifier language, is VO. Tamil, the substratum language, is OV. The Sri Lanka Portuguese Creole has taken the resources of the

Portuguese preposition *para* 'for' and used it as a postposition, with phonological reduction to *p'* in an OV structure. Compare:

(24) a. **Portuguese**
Eu tinha dado o dinheiro a/para João.
I have given the money to/for John

b. **Tamil**
Nān calli-yay jon-ukku kuṭu-tt iru-nt-an.
I money-ACC John-DAT give-PAST be-1–SG

c. **Sri Lankan Portuguese**
Ew diñeru jon-pə jaā-dā tiña.
I money John-DAT give-COMPL give-PAST
'I had given John the money.'

(I. Smith 1987: 83; cited in Romaine 1988: 40)

The study of the development of mixed languages demands that more attention be paid to multiple origins of grammatical structures. Contact has been an important factor for most languages, and a strictly monogenetic view of grammaticalization is ultimately inappropriate. At the same time, we agree with Thomason and Kaufman's caution, that borrowing or calquing should be postulated only

> when a source language and a source structure in that language can be identified. The identification of a source language requires the establishment of present or past contact of sufficient intensity between the proposed source language and the recipient language... The proposed source-language structures need not be, and frequently are not, identical to the innovated structures in the recipient language, but a successful claim of influence must of course provide a reasonable account of any reinterpretation or generalization that has occurred as a result of the interference. (Thomason and Kaufman 1988: 63–4)

Reasonable interpretations will be based in principled understandings of the mechanisms and motivations for change including grammaticalization.

# 9

# Summary and suggestions for further work

In this book we have introduced the major theoretical and methodological issues under discussion in work on grammaticalization. As indicated in Chapter 1, the approach we have taken is two-pronged. Specifically, we have considered grammaticalization as (i) a research framework for studying the relationships between lexical, constructional, and grammatical material in language, whether diachronically or synchronically, whether in particular languages or cross-linguistically, and (ii) a term referring to the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions and, once grammaticalized, continue to develop new grammatical functions. The term is, however, used in different ways by different linguists, and we have outlined some differences in approach, most especially in Chapters 2 and 5.

Chapters 3 and 4 discussed the major mechanisms of change that can lead to grammaticalization: reanalysis and analogy at the morphosyntactic level, conceptual metonymy and metaphor at the semantic, both driven initially by pragmatic inferencing. We have argued that grammaticalization can be thought of as the result of the continual negotiation of meaning that speakers and hearers engage in in the context of discourse production and perception. The potential for grammaticalization lies in speakers attempting to be maximally informative, and in hearers attempting to be maximally cooperative, depending on the needs of the particular situation. Negotiating meaning may involve innovation, specifically, pragmatic, semantic, and ultimately grammatical enrichment. This means that grammaticalization is conceptualized as a type of change not limited to early child language acquisition or to perception (as is assumed in some models of language change), but due also to adult acquisition and to production.

The question naturally arises how far grammaticalization diachronically conceived is coextensive with language change. As presented here, grammaticalization is a subset of possible changes. It excludes purely semantic change (e.g. the meaning change from OE *steorf-* 'die' to that of PDE *starve*, or from *girle* 'youth' to that of PDE *girl*), abrupt word formation (e.g., the nouns *window, partner* > the homonymous verbs), and purely phonological change (e.g., Grimm's Law or the Great Vowel Shift). However, these may be precursors or by-products of

grammaticalization. It also excludes word-order change, though it interacts extensively with it. Crucially, grammaticalization involves morphosyntactic change initiated by and correlated with pragmatic and semantic changes; the development of auxiliaries, case markers and clause connectives are classic instances. Grammaticalization may also be associated with morphophonological reduction and bonding (Chapter 6), although, as we have seen, this is not always the case (Chapter 7). Semantic–pragmatic, morphosyntactic, and morphophonological changes typically result from habituation through frequent use, which brings about routinization and bleaching (Chapter 5).

As indicated by the definition of grammaticalization as "the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions and, once grammaticalized, continue to develop new grammatical functions," grammaticalization is typically unidirectional. It is also gradual, in two senses: over time (i) a sequence of very tiny local structural changes can be seen to emerge, (ii) the frequency with which the new structure is used increases gradually across linguistic types, styles and genres, and speakers. While for the individual speaker innovation may be abrupt, change can be considered to occur only when innovations spread to other individuals, and this spread is necessarily gradual. Dramatic changes such as are illustrated by S-curve phenomena are not necessary outcomes of grammaticalization, which may in fact involve fairly stable minor restructuring over long periods of time (see Nichols and Timberlake 1991). The so-called "paths" of grammaticalization are schemas that can be seen from the distance of time and from the linguist's analytic perspective (Andersen 1997, 2001). Synchronically they are accessible only indirectly through patterns of frequency, and through generational differences. In many cases these patterns of frequency may remain below the consciousness of speakers, in others they may acquire social value, whether in identity formation, hypercorrection or some other social practice (cf. Labov 1972). At any moment synchronically the trajectory of change may therefore look random, but when studied from the perspective of continuous segments lasting over the course of a century or several centuries it may look highly patterned. Indeed, the study of grammaticalization can be understood as an attempt to disprove the assumption that changes resulting in grammatical forms are completely random and unpredictable.

Because linguistic change is a social phenomenon, change does not have to occur. Whether something is innovated, and who innovates it, is a matter of chance (a factor which may contribute to the impression of randomness synchronically). It follows that all change, including grammaticalization, must be thought of in terms of tendencies, not absolutes. Because speakers may preempt elements of language for social purposes, because most societies have complex mixtures of linguistic populations, and because patterns of grammaticalization may be renewed,

reconstructions based on an assumption of unidirectional match ("isomorphism") between cline and direction of change in a specific instance should be made with caution and should be framed as testable hypotheses.

While much has been learned through the study of grammaticalization in the last twenty years, much still remains to be understood. We have briefly mentioned some of the issues in quantitative studies that can shed further light on the question of exactly how gradualness is to be understood (Chapter 5). We have also looked briefly at some of the issues in creolization, most especially how the linguistic changes involved show many of the characteristics of grammaticalization, whether initiated before or after contact (Chapter 8). Several other areas of work have not been considered here. They include patterns of grammaticalization across styles and genres; the involvement of institutions such as education, language planning, and literacy in initiating, establishing, or deferring change; and the role of psychological factors such as short- and long-term retention and attention. A fuller understanding of all the issues suggests that it is necessary to coordinate historical work with sociolinguistics, psycholinguistics, and corpus studies; such coordination should lead to a better understanding of the extent to which the locus of change is to be found in changes in grammars of the speech community, to what extent in the mind/brain of speakers, and how changes in language use may lead to changes in the language system.

# Notes

## 1 Some preliminaries

1. We follow Quirk *et al.* (1985: 214) in analyzing *be going to* as a future rather than as a "prospective aspect" (Comrie 1976: 64–5). This is because it has distinct deictic properties based in the speaker's point of view (see Section 4.3.2).
2. Punctuation in examples from other authors and texts has been standardized. Dates of periods, authors and works are often not known with certainty; dates given in the book are approximate only.
3. We owe this example to Tony Hurren.
4. At least the first person is probably maintained inferentially in all examples of *lets*.
5. This and all other examples from Old English in this book are cited in the form given in Healey and Venezky (1980).

## 2 The history of grammaticalization

1. This and other translations in this chapter are by Paul Hopper.
2. A third kind of iconicity mentioned is metaphorical iconicity, in which a representative characteristic of a referent is represented by something else. We may think here of examples like *My love is a rose*, in which certain characteristics of love (beauty, difficulty, etc.) are represented by the parallel of a specific flower plant that has special beauty but also thorns.
3. The particulars of Li and Thompson's analysis of *ba* have subsequently been hotly debated. The relevant issue here is the importance the paper had in the history of work on grammaticalization.
4. For a related view of grams, see Dahl (1985, 2000).

## 3 Mechanisms: reanalysis and analogy

1. In recent linguistic theory "rules" have largely been reconceptualized as "constraints." "Rules" as specified here can also be rethought as constraints.
2. Heine, Claudi, and Hünnemeyer (1991a) and Heine (1992) regard the coexistence of older and newer meanings, and small differences between forms and stages as peculiar to grammaticalization. They are certainly particularly characteristic of grammaticalization, but not unique to it.
3. Lord (1976: 182) specifies only minimal reanalysis, consisting of relabeling the syntactic category; we assume a more significant reanalysis along the lines of Heine and Reh (1984: 38).
4. A. Harris and Campbell (1995: 71) suggest that while there can be no reanalysis unless two analyses are possible, opacity is not a prerequisite to reanalysis. They give two reasons: i) in some instances two meanings are not available; but the example they give is out of context and does not account for the kinds of inferences that arise in the flow of speech, ii) the old and the new form coexist; but this is true of all change, at least for a while, including changes they would agree are the result of

opacity. A better reason for questioning whether ambiguity is a prerequisite for reanalysis might be that in some sense every new analogy is a minor reanalysis (see Section 3.6) and therefore close similarity in structure might be sufficient for reanalysis to take place, not strict ambiguity.

5. Fleischman's translation is 'public matters.'
6. I. Roberts (1993a) claims that *habeo* had a "straightforward future meaning" even in the examples cited in (12). However, obligation meaning cannot be ruled out.

## 4 Pragmatic factors

1. Weinreich, Labov, and Herzog (1968) have called this the "actuation problem."
2. The process by which inferences become polysemies is often called "lexicalization." However, the term "lexicalization" also refers to a different process whereby meaning distinctions that were formerly expressed by independent morphemes come through phonological and other changes to be monomorphemic (e.g., the forms *lay* versus *lie*, or *set* versus *sit*, are said to be "lexicalized" as a result of the loss of the former causative morpheme *-i-* that followed the verb stem) (see Section 5.7). It has also been used for "the systematic relations between meaning and surface expression" in a language (Talmy 1985). To avoid confusion, we prefer to distinguish the processes by which pragmatic inferences become polysemies by a different term, "semanticization."
3. However, for some (Indo-)Guyanese speakers, *corner* has been grammaticalized as a preposition, e.g., *He live corner one rumshop* 'He lives diagonally across the street from a rumshop' (John Rickford, p.c.).
4. A related use is found in Halliday (1994 [1985]), who regards expansions of constituents, for example expansion of NP to S (e.g., complementation), as metaphors or abstractions.
5. The speaker's viewpoint is minimal, except when directional *go* is contrasted with *come* (*He w going to see his aunt and then coming to see his sister*).
6. The date of composition is a matter of continued debate, ranging from *c.* 750 to *c.* 1000 (see Bjork and Obermeier 1997). We accept an eighth-century date.

## 5 The hypothesis of unidirectionality

1. While the *who–whom* distinction has become almost entirely obsolete, the clitic *-s* genitive is remarkably stable, and indeed has been gaining ground (see Rosenbach 2001 for discussion of the extension from [+animate] possessors to the [−animate] domain in PDE).
2. We do not include the nominal genitive because this is more appropriately defined as a clitic, cf. *The man across the street's fence*.
3. Timberlake translates as 'Does one think this to be a sin?'
4. "The genitive subject of the participial clause in a system without subject-to-object raising" (Timberlake 1977: 147).
5. Because the proclitic numeral *sa-* otherwise appears only before classifiers, such examples may wrongly suggest that it is the head noun which has been elided rather than the classifier.
6. Capitals used for consonants and vowels indicate primary accent, capitals for vowels only indicate secondary accent. Other prosodic details have been omitted here.
7. Thanks to Arnold Zwicky (p.c.) for this observation.

## 6 Clause-internal morphological changes

1. The term "morphologization" is sometimes also used for the development of phonological alternations that occur as the result of phonological changes in specific morphological contexts, in other words, of morphophonemic alternations, as found in the English past-tense form *-ed* ([t ~ d ~ əd]).

2. The distinction between derivational and inflectional morphology is not clear-cut, however. For discussion, see Bybee (1985: Chapter 4).
3. The history of *kill* is interesting in this connection, since it originates in a causal form of the verb *cwel-* 'die,' *cwel-j-* 'die + causative.'
4. Different authors use different symbols to indicate the hierarchy, including the leftward arrow <. We have generalized the rightward arrow > to avoid confusion.

## 7 Grammaticalization across clauses

1. We use the same features as Foley and Van Valin (1984: 242), but for a different analysis. Foley and Van Valin consider some constructions to be "co-subordinate," that is, +dependent/−embedded. These clause combinations, which are typically instances of switch reference or verb serialization (clause combinations which are under the scope of one operator, e.g., declarative), are more rather than less syntactically bonded than those which are +dependent/+embedded. This is a theoretically problematic analysis, since it treats the two "plus" features as less dependent than one of the possible +/−combinations. We agree with C. Lehmann (1988) that dependency and bondedness are best treated as two separate criteria within the cluster of clause combining properties.
2. A slightly different "constellation" of four properties is suggested in Langacker (1991). Others have suggested a larger number of properties. For example, Haiman and Thompson (1984) suggest seven, C. Lehmann (1988) suggests six.
3. In the 1950s some education psychologists mistakenly thought that even with the intonation rise the construction was incoherent. Labov (1969) exploded then-current pedagogical assumptions that because certain African-American speakers used the intonation pattern and not the segmental *if*, they did not understand conditional constructions and were "verbally deprived." Clearly, rising intonation has a grammatical function.
4. As a collective, 'tribe,' though grammatically singular, can have plural agreement (cf. in PDE dialect variants between *the committee is* . . . and *the committee are* . . .).
5. In citing Hittite examples, we follow the transliteration given in the source from which the citation is taken.
6. Literary German, which has preposed, participial relatives, may be an exception to this.
7. Such constructions were used in writing in earlier English; they have largely disappeared in writing, but are still found in spoken English (Bailey 1973: 165).
8. Zwicky (1993) provides evidence that in English the auxiliary–main verb construction is actually not adequately described as dependent–head; rather, the auxiliary has properties intermediate between dependent and head; this is exactly what one would expect on the assumption that change occurs along a continuum in small rather than giant steps.

## 8 Grammaticalization in situations of extreme language contact

1. The social contexts for pidgins that arise in trade situations, are, however, more egalitarian, and commonly involve limited but sustained contact.
2. Anterior tense is also known as "relative past tense" – an event is marked as occurring prior to another, without respect to speaker time.
3. Romaine attributes the term "proximative" in this sense to Heine (1994).

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# Index of names

# Index of languages

# General index

This is a general introduction to grammaticalization, the change whereby lexical terms and constructions come in certain linguistic contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions. Thus nouns and verbs may change over time into grammatical elements such as case markers, sentence connectives, and auxiliaries. The authors synthesize work from several areas of linguistics, including historical linguistics, discourse analysis, and pragmatics. Data are drawn from many languages including Ewe, Finnish, French, Hindi, Hittite, Japanese, Malay, and especially English.

This second edition has been thoroughly revised with substantial updates on theoretical and methodological issues that have arisen in the decade since the first edition, and includes a significantly expanded bibliography. Particular attention is paid to recent debates over directionality in change and the role of grammaticalization in creolization.

*Grammaticalization* will be a valuable and stimulating textbook for all linguists interested in the development of grammatical forms. Readers in anthropology and psychology will also appreciate the insights it offers into the interaction of language and structure and use.

"This book provides a convenient introduction into the basic assumptions, terminology, and achievements of grammaticalization theory. More than other works dealing with the same subject matter, this work relates grammaticalization theory to alternative models of contemporary linguistics. It summarizes the present state of grammaticalization studies more exhaustively than do previous works, describes the dynamics of a new academic discourse, and provides the student with a much-needed reference work".

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