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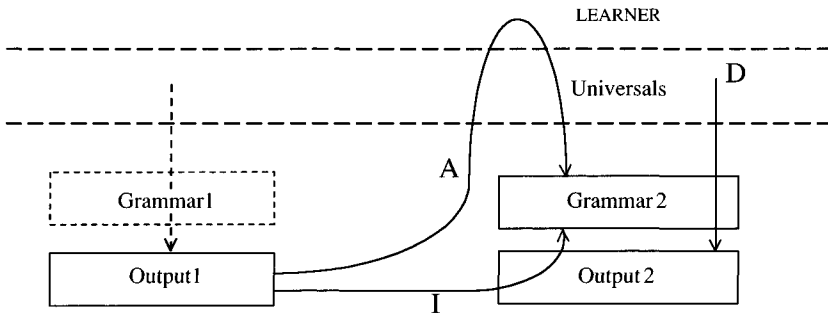
Figure 3.1 *Model of language change (Anttila 1989: 197)*

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)
$$A > \begin{Bmatrix} B \\ A \end{Bmatrix} > B$$

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-1SG 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** llb])

(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
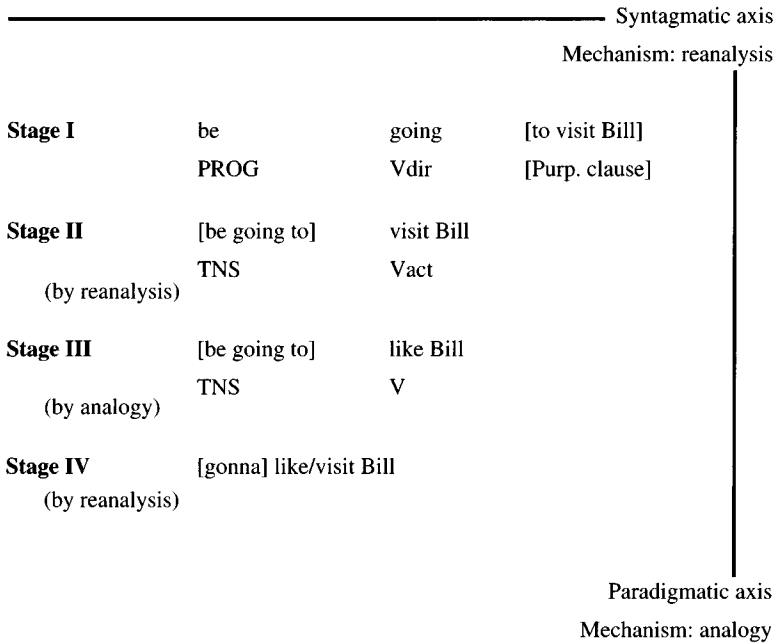
—————————————————————————————— Syntagmatic axis

Mechanism: reanalysis

Stage I   be   going   [to visit Bill]

                     PROG   Vdir   [Purp. clause]

Stage II   [be going to]   visit Bill

                     TNS   Vact
    (by reanalysis)

Stage III   [be going to]   like Bill

                     TNS   V
    (by analogy)

Stage IV   [gonna] like/visit Bill
    (by reanalysis)

Paradigmatic axis

Mechanism: analogy

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.