

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 proieií, 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 kai 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 *ogła ɟała* is the "verb," historically a past participle:

- (7) a. To-m jest ogła ɟała.
 that-1SG EMPH saw
 'That I did see.'
 b. Bo-cie-m sie, cała darowała.
 for-three-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		Modern Polish
	Tonic	Clitic	
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)ście	-(e)ście
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'item	mów'item
2 singular	m'ówił-eś	mów'iteś	mów'iteś
3 singular	m'ówił	m'ówił	m'ówił
1 plural	mów'ili-śmy	mów'ili-śmy	mówil'ismy
2 plural	mów'ili-ście	mów'ili-ście	mówil'isście
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 non-existent 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-t.
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 bursa-w-n la-Mulu satta-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. *hurtaŋnaŋ* ([hurta-aŋ-na-ŋ]) ‘I have seen’
 b. *hurtaŋaŋ* ([hurta-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., *redde* '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)
 ɲə-ru-untɪŋ-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 unverbated 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--?
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 [wʌn] 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'	tohujia	-jia
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 [finir⁵]), 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 transitivity suffix on the verb that then treats the goal as an object as in (18b):

- (18) a. ʔáyato-na páa-ʔnaxpayk-a níit-pe.
 woman-OBJ 3SUBJ:3OBJ-bring-PAST lodge-LOC
 'He brought the woman to [his] lodge.'
- b. ʔáayat pá-ʔnaxpayk-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 (transitivity) 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 *-úu-* 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* [ʃo], 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* [d̥y] ‘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. dó ‘drink’: tɔ ‘give to drink’
 b. dé ‘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. mò 'see': mò 'show'
 b. cã 'eat': cã '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 (**b^hwam* 'I was'). The combination **amants b^hwam* presumably gave rise to *amabam*

through a rule whereby the combination **nts + b^hw* 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* < *baup sik* 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. Érf hefneð yðuar á honom.
you revenge yourselves:GEN:PL on him
‘You revenge yourselves on him.’
b. Érf hefnezk á honom.
You revenge-yourselfes 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 paradigmaticization 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)â], 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 *râdiy* ‘goal, purpose’ used as a postposition. By the Middle Persian period this form had become reduced to *-rað* 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'-a? 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–absolute 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-theig ‘about-go’
	friotaigh ‘resist’	frith-to-theig ‘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 *freund* ‘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 (*nh-*); 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.