GRAMMATICALIZATION AND THE LIFE CYCLES OF CONSTRUCTIONS

by
Östen Dahl

Grammaticalization is commonly seen as 'a process which turns lexemes into grammatical formatives and makes grammatical formatives still more grammatical'. In this paper, it is argued that grammaticalization has to be treated in the wider perspective of the life cycles of grammatical constructions. The notion of an 'inflationary process' is invoked in order to explain what goes on in grammaticalization. It is argued that the degree of independence of an element of a linguistic expression reflects its informational value and that one of the main components of grammaticalization is rhetorical devaluation, by which a construction comes to be used with a lower informational impact.

1. Grammaticalization as an integrated part of the study of the life cycles of constructions

After having gone through a period of what Christian Lehmann (1982) has aptly called 'amnesia', the study of grammaticalization has recently witnessed an upsurge of interest among linguists. Although it was extensively studied as a phenomenon already in the 19th century (most often under the heading of 'agglutination theory'), grammaticalization as a term is usually ascribed to Meillet (1912), whose definition is often quoted in the modification given by Kuryłowicz (1965), who calls it 'a process which turns lexemes into grammatical formatives and makes grammatical formatives still more grammatical'. This approach focuses on the fate of individual items such as words and morphemes. In this paper, I shall by contrast try to take a wider view, in which grammaticalization in the traditional sense is seen as an integrated part of the study of the life cycles of grammatical constructions or patterns. More specifically: what is traditionally called grammaticalization are those diachronic processes that apply to linguistic elements that have been recruited as fixed parts ('grammatical markers') of a construction, – processes in which they gradually lose their integrity, becoming exponents of morphological categories rather than independent words. But before I say more about this, I have to say something about linguistic patterns and about the notion of a life cycle in general.[1]

2. Linguistic background: Patterns and constructions

I shall use the term **pattern** to refer to the basic units that languages are built up of, the ones that we learn when we learn a language, that may spread from one language to another (or from one variety of a language to another), and as we shall see later, each of which can be seen as having its own life cycle. Basically, this implies that patterns comprise both lexical and grammatical phenomena in language.

Consider a very simple description of a communicative act:

(1) I greeted Peter by uttering *Hi!*

(1) refers to two actions:

- greeting Peter
- saying *Hi!* to Peter

Part of what an English speaker knows can be represented as a rule that connects these actions, thus characterizing the pattern involved:

- greet X ⇒ say *Hi!* to X

What is to the left of the arrow is essentially a non-language-specific notion, that of greeting. We can assume here that it identifies the **function** of the pattern (we leave the discussion of what that means for another time). To the right of the arrow, we find a specification how that function is accomplished in English. The variable X indicates that the description is supposed to **apply** to something. We cannot really execute the pattern without choosing a value for X. We may say that X constitutes a **choice point** in the pattern.

Although there is no explicit indication in the rule of what X is supposed to be, we know that the nature of greetings is such that we normally greet persons, and not for instance chairs and tables. The set of all things that the rule may apply to is called its **domain.**

Sometimes, the domain may have to be given explicitly. For example:

- greet X, where X is a higher-ranking person ⇒ say How do you do? to X

An important point here is that the domain of a linguistic pattern may involve non-linguistic entities. In this case, X is the person I am addressing, and the rule specifies a restriction precisely on the persons that the pattern is appropriately applied to.

Most linguistic utterances are complex: to describe them, one needs to refer to more than one pattern. For instance, a Japanese phrase book may tell you that to ask for something in Japan, you utter the appropriate noun followed by *o kudasai.* (This is a rather inadequate parsing of the expressions in question but it does not matter for our purposes here.) Thus:

- ask for X ⇒ say *Y o kudasai* where Y is a noun denoting X

You cannot use this pattern on its own: you have to complement it with another to fill the gap represented by Y on the right-hand side of the rule. The pattern in question would specify a noun, e.g. *cha,* and its meaning, in this case 'tea'. The embedded pattern exemplifies the hierarchical structure of linguistic expressions. Here, the reference to another pattern is on the right-hand side of the rule; many rules, however, will refer to patterns on their left-hand side, which means that these patterns belong to the domain of the rule. Thus, consider the Russian counterpart of the Japanese rule just formulated:

- ask for X ⇒ say *Y, požalujsta* where Y is the accusative of a noun denoting X

That is, the right-hand side of the rule asks for a specific inflectional form of the noun. We must therefore have a rule that specifies what 'accusative' means. Since Russian morphology is complex, there will in fact be several such rules, but one of them might say:

- accusative of X, where X is a noun ending in *-a* ⇒ the result of replacing *-a* by *-u*

We may now distinguish between **closed** and **open** patterns depending on whether or not the description contains a choice point referring to another pattern. Open patterns are of special interest since they are the ones that determine the structure of complex expressions. Which patterns are open and which are closed? In

categorial grammar, the grammatical theory originally developed by the Polish logician Ajdukiewicz, categories (classes of words and phrases) are divided into basic and derived. In most versions of categorial grammar, there are just two basic categories, noun (sometimes noun phrase) and sentence. All other categories are defined in terms of how they combine with other expressions so as to yield expressions of the basic categories. Thus, a transitive verb is defined as an expression that combines with two nouns or noun phrases to form a sentence. We may see the derived categories of categorial grammar as the counterparts of our open patterns. This would mean that a large part of the lexical items of a language are (or rather, correspond to) open patterns.

In traditional dictionaries, verbs are often given in frames: you get 'give someone something' rather than just 'give'. This is in recognition of the open pattern nature of these lexemes. Most modern grammatical theories do the same, although in somewhat varying fashions and with somewhat diverse terms. In the grammatical framework called **construction grammar** developed by Fillmore, Kay, Goldberg and others (see e.g. Fillmore, Kay and O'Connor 1988; Goldberg 1995), the notion of 'construction' is basic, comprising not only grammatical constructions in the traditional sense but also what usually is thought of as belonging to phraseology. Following this terminological practice, I shall in this paper use the term 'construction' in a somewhat vague manner, primarily having in mind grammatical constructions proper, but also allowing for the inclusion of others. Consequently, I shall not try to make a strict delimitation of what is grammatical from what is lexical; note, however, that patterns are often hierarchically ordered. Thus, the open pattern (verb frame) 'give someone something' is an instantiation of a more general pattern 'V NP NP' – one that we may call the ditransitive verb construction in English. In general, grammatical constructions in a narrower sense will be hierarchically superordinate to lexical patterns.

3. Non-linguistic background: Life cycles

Many phenomena in the world have **life cycles** in the sense that they

- tend to exist for a restricted time

- pass through a number of developmental stages with distinguishable properties.

The most obvious examples of life-cycled phenomena are of course human beings, but life cycles in some form are found in virtually all biological life forms. Our own life cycle is the result of a complex interaction of internal pre-programming and external forces. Let's therefore start with some simpler examples.

Even an ordinary tool such as a hammer has a kind of life cycle in that it gets worn out after being used over a period of time. An object such as a wooden roof is worn out simply by being exposed to the 'forces of nature' and has eventually to be replaced. These are simple processes of **ageing**. Ageing in artefacts is nothing but a special case of the universal physical process of **dissipation** in which a local concentration of negative entropy is dispersed or, in simpler words, the general tendency for order to be replaced by lack of order over time.

The life cycles of hammers and roofs are relatively uninteresting since they lack one of the most fundamental property of biological life forms, viz. the capacity of growth. Processes of growth and maturation account for most of the changes that occur during the early stages of the development of an organism. But also in other phenomena than biological organisms we find life cycles conditioned by a diversity of processes. In medicine, both infections, such as the common cold, affecting individuals, and epidemics, which affect whole communities, tend to go through definite stages of development.

An epidemic may spread quickly through a population and then fade out because everyone has already contracted the infection, or (which is partly the same thing) the members of the population have developed a resistance towards it. However, as resistance disappears over some time, the epidemic may come back, creating a true cycle.

Many, or even most, of the phenomena used to exemplify the concept of *memes* in the popular discussion have life cycles in the sense that they are subject to the laws of fashion.

Consider a 'fad' such as the wearing of baseball caps in reverse. It starts as the idea of one or a few individuals, then spreads quickly, perhaps all over the world, then enters a more stable phase for a couple of years, to end up being regarded as a sign of not really keeping up with the latest developments.

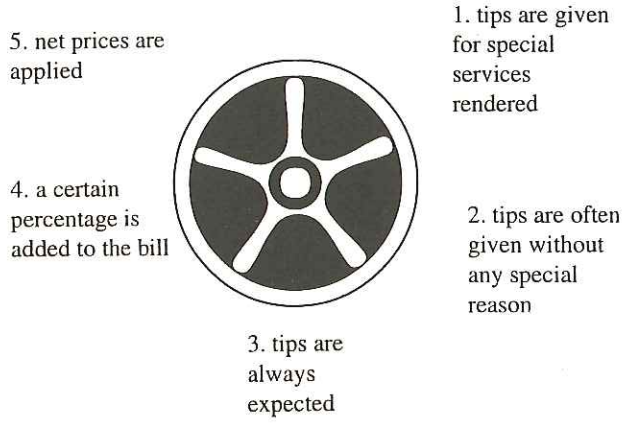
The development of fashion phenomena is obviously related to the need for novelty, but other factors are also important, such as the need to conform with the group you identify with and simultaneously distance yourself from other groups. Some fashions are cyclic in the proper sense in that they return with regular intervals, much like Halley's comet, or like outbreaks of the flu. Thus, first names have been observed to recur every three generations or so: in Sweden, the names that were popular at the beginning of the last century are coming back again.

But cultural phenomena may show even more complex life cycles. Consider the development of societal élites, such as nobility. In medieval Sweden, anyone could become a nobleman (which essentially meant being relieved of taxes) simply by putting a horse and an armed horseman at the king's disposal. As time went by, noblemen secured themselves privileges and a stable share of the power in society. Part of this was that nobility became hereditary and remained so, even after the privileges and the power got lost. In the end, then, nobility in Sweden became totally fossilized as an élite.

It appears that such a development from 'functional' to 'formal' criteria is an important component of the life cycles of many cultural phenomena, including linguistic ones. The development of tipping is an interesting illustration (see Figure 1).

Figure 1

'The tipping cycle'



The processes that underlie life cycles are in general unidirectional. We do not become young again after becoming old. However, confusion may arise if we look at the development of individual parameters, such as size and strength. Thus, after becoming big you may become smaller again. But make no mistake: this does not mean that the processes of ageing are maturation in reverse. This observation may seem trivial but is of importance for the linguistic applications of the concept of life cycles.

In biological organisms, ageing is not necessarily plain dissipation. Human cells are said to be pre-programmed to divide a limited number of times. The evolutionary motivation for this is probably that it is sometimes more rational to replace a worn-out item with a new one than trying to repair it. One might claim that society guarantees itself longevity by systematically replacing its members now and then. It is striking that life cycles are much less pronounced on higher levels of organization than on lower ones. Higher-level entities are often quasi-immortal. Thus, in spite of repeated claims to the contrary, human societies do not have anything corresponding to the well-defined life cycles of their members – a human society may, in principle, go on existing for ever. Younger and older individuals often compete for the same 'niche'. A leader wolf can only keep his place as long as he is stronger than his younger competitors. Thus, sooner or later, some younger individual will take over. It is important to see how this relates to Darwinian selection. When the old leader wolf is defeated by a younger one, he has normally already passed on his genes to his offspring. Also, the fact that he is defeated is due to his age rather than to his genes. Thus, it is misleading to think of the outcome of the fight between the old and the young wolf as 'the survival of the fittest'.

4. More non-linguistic background: Inflationary processes

Inflation is a well-known phenomenon to most of us. Together with unemployment, inflation is one of the typical diseases of modern economies. However, inflationary processes are not restricted to the economic sphere in the proper sense. Consider for instance the English words *gentleman* and *lady*, which in their original meaning denoted persons from the nobility, but today are often used as synonyms for *man* and *woman*. Similar stories can be told about titles

in many languages. In Swedish, a number of different words have been used for unmarried women, such as *jungfru, fröken, mamsell*; they all seem to have been initially used for high-status women, but have gradually become general titles for unmarried women; in some cases even, they have ended up having derogatory character. Intuitively, we may say that titles tend to lose their 'value' over time, but exactly what is the parallel with money here?

Many titles such as *lord* or *professor* are connected with a certain status in society; they guarantee the bearer certain rights and privileges and the respect of others. If, for instance, a king confers a title on one of his subjects, the effects are similar to the ones that would obtain if the king gave him or her a piece of land or a sum of money. But there is a crucial difference between the piece of land on one hand and the title or the money on the other: the value connected with the title and the money is purely conventional – that is, there must be something in the world that corresponds to the title or to the sum of money, but what that is depends on a convention. In some cases, the lack of a real-world counterpart to an object with a conventional value will lead to an immediate crisis. If I try to sell two hundred tickets to a performance in a theatre having one hundred seats, I will quite soon be in serious trouble. However, when the relationship between the object and what it 'buys' in the world is less direct, there is always a temptation to multiply the conventionally valued objects to obtain a short-term gain. A king may thus buy the loyalty of a number of people by making them into, say, 'Grand Dukes'. But if the number of Grand Dukes in the country doubles, the value of that title is bound to decrease.

Conferring a title, or giving medals and orders, is usually 'cheap' for the person who does it. Similarly, it is always tempting for those who control the issuing of banknotes in a country to get short-term advantages by printing more money. Such actions, however, are basically self-destructive in that the increase in the number of bearers of a title, or in the amount of money in circulation, influences the value of the 'symbolic commodity', and thus leads to inflation.

Similarly in everyday communication. Here, titles are not necessarily conferred by kings, but are used by people all the time in talking to and about each other. Normally, the use of titles is to a large extent governed by conventions; but often there is leeway for choosing between different ways of addressing or referring to people. Also, while there is usually a 'penalty' for using a title that is too low,

'penalties' for using a title which is too high are rare. On the contrary, you may sometimes 'buy' a positive reaction from someone by over-titling him or her. In fact, such over-titling is sometimes conventionalized. When academic titles were more commonly used in Sweden than they are today, it was customary to 'promote' academics when addressing them. Thus, a person with the lower 'licentiate' degree would quite regularly be called 'Doctor'. In the long run, however, such policies inevitably lead to the depreciation of titles and thus to the introduction of new ones.

As we have seen, inflationary phenomena depend on a conflict between the short-term interests of agents and the long-term functioning of the system. Inflation thus is a clear example of a counter-adaptive process: the elements of a system become less functional over time and eventually have to be replaced, as in the case of a currency reform or the introduction of new titles. At the same time, inflation governs the life cycles of symbolic entities such as currencies and titles.

5. Back to the main topic: Some reasons to treat constructions as primary in grammaticalization

The only grammatical framework so far that has used 'construction' as a basic notion, viz., construction grammar, has been more or less exclusively synchronically oriented. As to the linguists dealing with grammaticalization, on the other hand, they sometimes mention constructions, more or less in passing, but usually rather quickly refocus on the fate of individual words and morphemes in grammaticalization. In this section, I shall try to argue why construction and grammaticalization should be considered together. The first argument is very simple: even standard examples of grammaticalization involve more than just one morpheme. For instance, consider the common type of grammaticalization by which full verbs become auxiliaries. Since an auxiliary has to be combined with a verb phrase, a grammatical description will have to determine what form that verb phrase takes. For instance, the perfect auxiliary *have* in English combines with a perfect participle, whereas the future auxiliary *will* combines with an infinitive. In other words, what has been grammaticalized as the perfect is not just the auxiliary, but a combination of a superordinated verb and a specific

form of a governed verb phrase – i.e. a construction. Sometimes, one and the same verb may partake in more than one construction, as when Latin *habere* followed by a perfect participle yields the Romance perfects, and Latin infinitive followed by *habere* gave rise to the Romance futures. These examples also illustrate that word order has to be taken in as a property of a construction.

A possible defense of the morpheme-based approach to grammaticalization would be that even if what I just have said is true, the sources of grammaticalized constructions always start from a single lexical item as their source. Such a claim is false, however. In principle, a construction could undergo grammaticalization even if it contains more than one lexical item, although it is relatively difficult to find clear examples of such a development. A case in point might be the French construction *au fur et à mesure de* NP 'as one goes along', which contains the lexical morphemes *fur* and *mesure* 'measure', but this is at best incipient grammaticalization. It is more common for the source of a construction to contain one lexical item and one or more closed class items, such as in the English 'prospective' *be going to*. But many constructions come from sources that do not contain open class items at all. Thus, many tense-aspect periphrastic constructions derive from combinations of a copula and a participle or a gerund. The copula, arguably, ultimately derives from some lexical source, but since this source will necessarily be much older, it seems irrelevant to the description of the construction in question. In fact, the presence of the copula is a contingent property of these constructions – in languages which do not use copulas, a participle or a similar non-finite verb form may come to play the role of main term of a predicate with similar function. The resulting construction thus contains no free marker at all. An even more radical possibility is that of constructions without any overt markers, with the possible exception of a specific prosodic pattern. Compounds and coordinate constructions in various languages are good examples of these contructions.

In most of these cases, there is no real reason to assume that these constructions have ever been overtly marked. Still, as I shall try to show later, their development shares certain properties with grammaticalization processes.

Another type of construction that does not (necessarily) involve lexical items turned grammatical markers is reduplication. Reduplication, as is well known, comes in (at least) two varieties: total

reduplication, when a whole morpheme is repeated, as in Sirionó (Tupí-Guaraní) *quei quei* 'is working', or partial, as in Latin *cu-curri* 'I ran'. Bybee et al. (1994:166) note reduplication as a challenge to the claim that 'all grams [grammatical markers] develop from a fuller lexical source'; they argue that the dilemma is solved if we assume that all cases of reduplication in grammar derive from total reduplication. However, this step is possible only if one allows a rather liberal interpretation of 'lexical source'. If we want to maintain that the imperfective gram in reduplicated forms such as X-X and Y-Y has a lexical source, we are forced to say that the lexical item that undergoes grammaticalization is X in one case and Y in the other. In other words, one and the same gram has potentially an infinite number of sources. The obvious alternative is to assume, with Bybee et al. (ibid.:167) that 'the original source ... is in total repetition of the verb'. That is, the reduplicative pattern itself has been recruited into the grammatical construction.

In many cases, a lexical item that is involved in a construction ceases to exist as an identifiable entity. In these situations, it makes little sense to say that it 'becomes' a grammatical marker. There are at least two common types of such cases, **fusion** and **loss**. In *fusion*, the border between two morphemes is erased in such a way that they are no longer separately identifiable. An example is the reduction of *going to* to *gonna* in English, or the reduction of the preposition *à* 'to' and the definite article *le* to *au* [o] in French.

In *loss*, a morpheme is dropped entirely from a construction. In Swedish, the construction *kommer att*, used for future time reference with predictive force, has undergone the following three stages of development:

- *kommer till att* + infinitive
- *kommer att* + infinitive (current standard)
- *kommer* + infinitive (spreading at present)

What Matisoff (1991) has aptly termed 'Cheshirization' (after the Cheshire Cat's smile in *Alice in Wonderland)* is a special case of loss. A morpheme may disappear but leave a trace in the form of e.g. a shift in tone or stress or vowel alternation in a stem, for instance, when the past tense ending in English *met* is manifested only through a shortening and lowering of the stem vowel. Obviously, a construction may continue developing even if some morpheme

involved in it loses its identity. This further development is subject to the same general principles as is grammaticalization.

6. Competition between constructions

An extremely common phenomenon is for there to be several constructions in a language to share the same or similar functions. Most often, such constructions are at different stages in their life cycles. A **division of labor** may then arise among them. To take a simple example: in many European languages, adjectives can form comparatives and superlatives either with suffixes or with the equivalent of words like *more* and *most*. The synthetic (morphological) construction is oldest and most advanced, and generally tends to be used for the most frequent adjectives. How the actual labor is divided between the two constructions varies from language to language; for instance, consider the work area of the periphrastic *more/most* constructions in French, English, and Swedish:

- French: all adjectives except a few high-frequency ones *(bon: meilleur; mauvais: pire)*
- English: all monosyllabic adjectives and a few bisyllabic ones *(slow : slower; pretty: prettier)*
- Swedish: all adjectives except those that are formed with certain derivational suffixes *(-ande, -isk)*

What we see here is that the domain of the younger construction has expanded to include varying portions of the lexicon. In French, it covers almost all lexical items, while in Swedish, it is used only as a 'last resort' solution, namely when the adjective already has a 'heavy' suffix.[2] In English, the development seems to have stopped halfway. This illustrates a rather interesting phenomenon: between an older and a younger construction, often a relatively stable 'line of demarcation' is established, where the grammaticalization process may halt for a long time, maybe several centuries. In fact, many complexities of grammar are due to such halted processes of grammaticalization.

A 'line of demarcation' like the one described here commonly comprises a 'grey zone', where the choice between constructions is determined by more or less subtle semantic and stylistic factors. Thus,

Swedish – like many languages – has two passive constructions, one periphrastic and one inflectional:

(1) Böckerna blev lagda på bordet
(2) Böckerna lades på bordet 'The books were put on the table'

In this particular pair of sentences, the *bli* passive may be interpreted with the additional semantic component of 'inadvertent action'. Note that this is not a general feature of this construction, but one that seems to arise somewhat erratically in the appropriate context. The semantic distinction here remains secondary and volatile. However, in other cases of a halted spread of a construction, we find that a new grammatical 'opposition' arises through the necessity of choosing between the new and the old construction. For instance, if markers of indirect objects (datives) are extended to direct objects, but only to those with animate reference, as has happened for instance in Spanish, an 'opposition' between animate and inanimate is created.

Another, perhaps clearer example of the creation of a grammatical opposition is the rise of new gender distinctions as a result of the recruitment of demonstrative pronouns as third-person personal pronouns. Some such cases are discussed by Corbett (1991: 312). Here, we shall look at a rather neat development that he does not mention, one that happened in Scandinavian. Older stages of Scandinavian had the common three-gender system found in many Indo-European languages, both for nominal agreement and in the pronoun system. Modern Standard Swedish and Danish (like some Norwegian dialects) have simplified the agreement system by merging the masculine and feminine genders. At the same time, the third-person pronoun system has actually become more complex and now forces speakers to choose between four different pronouns. The story behind this involves an encroachment of a demonstrative pronoun on the territory of the third-person pronouns. There is cross-linguistically a general pressure from demonstrative pronouns on third-person pronouns, but it is strongest at the lower end of the animacy–referentiality cluster of scales. As a result, inanimate pronouns are often identical to demonstrative pronouns, particularly weaker forms of these. For Scandinavian, this seems to have been the case early on for the neuter pronouns, resulting in the following system, still found in many varieties of Scandinavian:

masculine	*han*
feminine	*hon*
neuter	*det* (also demonstrative)

The masculine and feminine genders in this system comprised both animate and inanimate nouns, whereas the neuter gender was almost exclusively inanimate. The crucial innovation, which took place in Stockholm Swedish in the 17th century (Wessén 1968), implied that the non-neuter demonstrative *den* came to be used of inanimate referents for which the masculine and feminine pronouns *han* and *hon* had been used earlier. In other words, there was an encroachment on the domains of these pronouns, which, however, made a halt at the animate cordon, where it has remained reasonably stable for several hundred years. In the old system, the distinction animate-inanimate existed only covertly, in that animate nouns were normally either masculine or feminine. In the new system, animate and inanimate referents are systematically distinguished in the pronominal system. What was previously a distinction between two types of pronoun has now acquired a new semantic content through the limitation on the encroachment process.

7. Incorporating constructions

Hopper & Traugott (1993:24) note the absence of the term 'grammaticalization' from some recent textbooks of linguistics, including introductions to historical linguistics. There are some other terms, however, whose absence from the index of Hopper & Traugott's book may be no less significant. One such term is 'incorporation', which denotes a phenomenon which is in many respects akin to grammaticalization (as traditionally understood) and which, in my view, is the key to understanding at least some very essential parts of the nature of the processes behind the latter. The paradigm case of what I will call **incorporating constructions** is usually taken to be noun incorporation, as exemplified in particular by the so-called polysynthetic languages such as those belonging to the Algonquian and many other families in North America. As an example, consider the following sentence pair from Mohawk (Baker 1996:12):

(4)
(a)
wa'-k-hnínu-' ne ka-**nákt**-a'
FACT-1sS-buy-PUNC NE NsS-bed-NSF
'I bought the/a bed'
(b)
wa'-ke-**nakt**-a-hnínu-'
FACT-1sS-bed-Ø-buy-PUNC[3]
'I bought the/a bed'

(a) represents the non-incorporated way of saying 'I bought a/the bed'; it consists of a verb complex – the verb stem with the usual inflectional affixes – and a separate noun phrase representing the direct object 'the bed'. In the incorporated variant, (b), there is no such direct object NP; instead, the noun stem *nakt-* 'bed' shows up as part of the verb complex – the object has been incorporated into the verb.

Incorporation is most naturally regarded as part of synchronic grammar, at least in languages such as Mohawk, where it is fully productive. With regard to grammaticalization, one immediately obvious parallel between this process and incorporation is the fact that they both create the possibility of expressing by one word what otherwise would be expressed by two or more – what is sometimes referred to as **univerbation**. While I will have more to say below about the relationship between incorporation and grammaticalization, let us first look in some detail at incorporation.

Traditionally, noun incorporation, understood as the incorporation of nouns into verbs, has been seen as a rather exotic phenomenon. One gets the impression that it has relatively little to do with the processes called **compounding**, well-known from the Germanic languages, which give rise e.g. to noun+noun and adjective+noun combinations such as *apple-pie* and *blackbird* in English. However, at a closer look, there is more that unites than distinguishes noun incorporation and 'ordinary' compounding. The feeling that the former has a more 'syntactic' character than the latter probably partly stems from the fact that traditional compounding takes place within the boundaries of noun phrases, which gives less room for syntax-like properties. Furthermore, it is also clear that NP-internal compounding processes may also vary widely in their potential, giving rise to a continuum, having

languages like Russian, with its very restricted compounding, at one end, and Sanskrit, where compounds correspond to rather varied syntactic constructions in other languages, at the other. As an example of the latter, consider the term *tatpuruṣa* '(lit.) his servant' from Sanskrit grammar, which simultaneously names and exemplifies one particular type of compound noun, with the 'incorporated' first part *tat-* (the stem of a demonstrative pronoun) replacing the genitive form *tasya* 'this one's, his' in the non-incorporated construction. Another interesting type is the *dvandva* compound construction in which the members are in a coordinated relation to each other, as in *putra-pautrāḥ* 'sons and grandsons' (the example is from Mayrhofer 1953:66). Similarly, adjective+noun combinations flourish in Sanskrit, while they are relatively restricted in English, as compared to many other languages. The Sanskrit word *mahārājaḥ* '(lit.) big-king' translates easily into German as *Grosskönig* and into Swedish as *storkonung*, but no natural English counterpart can be found. In many Scandinavian dialects, incorporated adjectives are highly productive, and sometimes the only way of modifying a morphologically definite noun, as in the Northern Swedish dialect of Piteå (Swed. *pitemål*) *högheuse* 'the high house'. Below, I will subsume all those processes by which lexical stems become part of a word under the heading 'incorporating constructions'.

The diachrony of incorporating constructions remains somewhat obscure, and the productivity of a certain type of compound may vary widely from language to language. Frequently, a type may only be represented by a few lexicalized items, or else have a restricted range of interpretations, compared to the corresponding non-incorporated construction. Thus, in Standard Swedish, the adjective in an adjective+noun compound normally denotes a property that picks out a stable category, not just a set of objects that happen to have that property. Thus, *storkonung* 'great king' is not simply a king that is great, but a king who is high in the hierarchy of kings. In the Northern Swedish dialects, however, where adjective incorporation is more common, there is no such restriction; the historical relationship between the two systems is not clear. In this particular case, it appears that the oldest attested forms of Scandinavian were more like Standard Swedish, that is, had a relatively restricted use of the incorporating construction, which suggests that the unrestricted system is an innovation. Whether the latter has developed by a lifting

of the restriction, or rather by univerbation of syntactic adjective-noun combinations, is less obvious.

It has been noted in the literature that many languages exhibit constructions of a more or less syntactic nature that share some, but not all the properties of incorporation proper. Miner (1986) uses the term 'noun stripping' for situations 'whereby nominals...are rendered indefinite – modifiers, determiners, number affixes, etc. are 'stripped away' – and enter into closely-knit units with their verbs, but stop short of actually being incorporated'. De Reuse (1994:2844) gives a rather impressive list of languages from all major parts of the world where such constructions have been encountered. Even without leaving the Standard Average European area, we may find fairly many such cases of 'noun stripping'[4]:

- In many languages, there are conjoined phrases which cannot be seen as compound words but which still show prosodic and morphological characteristics, marking them off against 'normal' coordinate constructions. Consider e.g. a phrase such as *He dropped fork and knife*, where the nouns *fork* and *knife* show up without a determiner, which is impossible if they are not conjoined (cf. **He dropped fork.*) (Lambrecht 1984; Wälchli, forthcoming)
- Likewise, a widespread phenomenon is the existence of prepositional phrases where the nouns lack determiners, as *in court, at sea, in town.*
- In the Scandinavian languages, determiner-less singular count nouns are not uncommon in constructions such as *Vi har hund* (lit.) 'We have dog', *Han kör bil* (lit.) 'He drives car' etc.
- Singular count nouns without determiners also show up in most Germanic languages and French when used predicatively, as in Swedish *Han är lärare* (lit.) 'He is teacher'.
- Instead of the compound nouns typical of Germanic languages, Romance languages often have phrasal constructions of the type *vêtements de femme* 'women's clothing', where the modifying noun is used without a determiner.

In spite of the fact that the 'stripped' nouns in these constructions retain independent word status, they all have the following

properties, which make them similar to incorporated elements proper: (i) 'unit accentuation', that is, they function prosodically as one unit; (ii) no or minimal morphological marking; (iii) restricted or lacking possibilities of further modification.

To elaborate on the last point, consider the case of predicate nominals. As pointed out in many grammars, the addition of a modifying adjective normally makes the determiner-less construction impossible. Thus, 'he is a teacher' will be rendered as *Han är lärare* but 'he is a good teacher' is *Han är en bra lärare*, with the indefinite article. Interestingly, however, there are also cases where an adjective+noun combination can be used without a determiner, and sometimes this gives rise to rather subtle semantic distinctions. Consider the following example. If I ask in Swedish 'Who is Lebed?' a possible answer would be *Han är en rysk general* 'He is a Russian general'. But if I want to comment on the fact that the most notorious Swedish spy of the sixties, Stig Wennerström, a Swedish Air Force colonel, was awarded the rank of general by his Soviet employers, I have to say *Wennerström var rysk general* 'W. was a Russian general', without the article. In the first case, being Russian and being a general are in principle independent properties – we have a logical conjunction. In the second case, the interpretation of *rysk* is directly dependent on the interpretation of *general*; what we are saying is that W. was a general in the Russian intelligence service.

Rather than representing arbitrary semantic quirks of the constructions in question, these differences in the interpretation of predicate nominals with and without indefinite articles seem to be directly relatable to the incorporating character of the determiner-less construction, in that the latter only operates on elements with a sufficient degree of inner cohesion. In the case of nouns modified by an adjective, the degree of inner cohesion depends on the way in which the semantics of the adjective interacts with that of the noun.

'Noun stripping' and incorporation proper differ in the 'tightness' of the bond between the elements in the construction. Miner (1986) suggests that there may also be differences of tightness within the incorporation constructions themselves. De Reuse (1994:2844) gives the following example from Lakota of a distinction between 'loose' and 'tight' incorporation:

loose incorporation, two separate word stresses, the second one reduced:	tight incorporation, one main stress, apocope of the final vowel:
ʃóta owàmna 'I smell smoke'	ʃolʔówamna 'I smell smoke'
smoke I.smell	smoke. I.smell

Miner suggests that stripping may be 'an incipient form' of incorporation, with a possible developmental sequence as follows:

loose stripping → stripping → loose incorporation → incorporation

While there seems to be rather little concrete evidence for such a developmental path, it is of course strikingly parallel to what has been suggested happens in grammaticalization, in that in both cases, we are dealing with a gradual univerbation of a previous syntactic construction. It leaves unanswered the question of where stripping itself comes from.

Stripping, as we have seen, means that a noun appears naked, without any grammatical markers such as articles or case and number affixes. Obviously, naked nouns are used in various contexts where it seems inappropriate to talk of stripping, e.g. in generic sentences like *Gold is expensive.* The term 'stripping' presupposes that the nakedness is somehow unexpected, as in the Swedish sentence *Vi har hund* 'We have a dog', where a singular count noun in direct object position would normally have an indefinite article; the same happens in other cases, as in the sentence *Han skriver romaner* 'He writes novels', where *roman-er* 'novels' is not naked but has a plural ending. As was noted above, noun stripping constructions are also characterized by their prosodic pattern: at least in Swedish, they have 'unit accentuation' (*sammanfattningsaccent*). Using prosody as the main criterion, Nedergaard Thomsen (1992) has argued for subsuming all similar cases under 'incorporation'. However, rather than seeing de-accentuation as a criterion for incorporation, we should treat it as the initial pre-condition for the development of an incorporating construction. Consider again the determiner-less singular count nouns in object position in Swedish, where the addition of an indefinite article does not make the sentence ungrammatical, yet subtly changes its meaning, e.g.

(5)
(a) Vi har hund 'We are dog-owners'
(b) Vi har en hund 'We own a (specific) dog'

Note here that the indefinite article is a relatively late innovation in the Scandinavian languages and is still lacking in Modern Icelandic. At an earlier stage of the language, then, the article-less alternative was normal also in contexts where (b) would be used in present-day Swedish. Thus, one relatively plausible hypothesis is that the grammaticalization process which has given rise to the indefinite article left certain types of NPs untouched, and that this set of types wholly or partially overlapped with the domain of 'unit accentuation'. If this hypothesis is correct, the differentiation between a non-incorporated construction and the incipient stages of an incorporated one is created by the fact that a grammaticalization process is implemented only partially.

Notice now that there is no such differentiation in cases like *Han skriver romaner* 'He writes novels' – here, only the prosody could warrant a treatment as incorporation. A further reason to regard this type as a much weaker case of incipient incorporation is the difference from examples such as (5) in terms of modifiability: we may relatively easily add an adjective as in *Han skriver spännande romaner* 'He writes exciting novels' whereas **Vi har arg hund* (lit.) 'We have vicious dog' is wholly unacceptable.

How does all this relate to grammaticalization? As it turns out, in various ways. If it is true that incorporating constructions proper derive historically from noun stripping and similar constructions, such a historical process could be said to be similar to grammaticalization in the traditional sense inasmuch as it represents another case of univerbation of a phrasal construction. Incorporation has moreover been claimed to have other features in common with grammaticalization, such as semantic bleaching (de Reuse 1994: 2847). In actual fact, the borderline between incorporation and grammaticalization is far from clear, as shown by the controversy (Mithun 1984, 1986; Sadock 1986) on whether incorporation should be understood as including also cases where one of the elements is derivational rather than lexical. Conversely, many cases of derivation are arguably originally compounds, such as the suffix *-wise* in English and its cognates in other Germanic languages, deriving transparently from a noun meaning 'manner'.

8. The factors behind grammaticalization and the evolution of grammatical constructions

I have now introduced a fair number of rather loose threads. It is now time to start trying to tie them together by looking at the forces behind grammaticalization, understood in the wide sense as the evolution of grammatical constructions.

The first key notion I want to discuss is **routinization**, which closely related to **ritualization** (cf. Haiman 1994) and **conventionalization**. In a wider perspective, including also non-linguistic phenomena, **routinization** means that some complex tasks are stored as 'routines' in an agent's mind. These routines imply that the elements of the task available in 'pre-packaged' form do not have to be combined anew every time the task is done. A routine has a cost in that it has to be 'compiled', i.e. learnt and trained, before it runs smoothly. But once learnt, it yields benefits in speed and ease of execution. This means that routines are particularly useful for high frequency tasks.

The notion of ritualization has been used both about human and non-human behavior. Primarily, it applies to communicative activities. The goal of such activities is to convey some piece of information to another individual. A typical case is of an agent A wanting to chase away some intruder B from A's territory. The point for A is to make B understand that he will apply violence if B does not leave. The most straightforward way of doing so is of course to attack the intruder. But this is unnecessarily costly. It may well be enough for A to display his intention to apply violence, for instance by showing his teeth (the initial stage of biting). By ritualization, the original action is reduced and only part of it is performed. Ritualization normally presupposes routinization, that is, there must be some complex action whose parts can be reduced.

Conventionalization means that a certain action or a sequence of actions obtains a non-predictable interpretation or significance in a certain community. In particular, a complex action may acquire a 'non-compositional' interpretation, that is, an interpretation that is not derivable from that of its parts. Conventionalization, too, obviously presupposes routinization, that is, there has to be a complex action stored in the agents' minds that the new interpretation can be assigned to.

In language, routinization, ritualization, and conventionalization are all part of both the creation of new patterns or constructions and their subsequent development. Essentially, the creation of new patterns **is** routinization and conventionalization. As for ritualization, it most clearly applies to the reduction processes that over time tend to decrease the expressional 'substance' of a pattern. An obvious example is the reduction of the expression such as *if you please* to *please*. On the individual level, we can find at least two fairly simple motivations for such a reduction. One is simply the increase in speed and precision that comes from the frequent execution of a task. Another is what we can think of as 'laziness': the agent does not want to spend more resources (in terms of time and energy) than necessary. These factors are not the whole story, however. As for the first factor, its effects are obviously limited: after a while, it will not be possible to further increase efficiency. The second factor is limited by the simple fact that it is necessary to spend a certain amount of time and energy on a message for it to go through.

We may therefore say that reductions are only possible as long as the speaker can 'get away' with them, that is, as long as they are no obstacle to comprehension. Consider a simple example. I am writing this in 1999; the phrase *in 1999* is probably something that I use very often, and no doubt is highly routinized for me and for other speakers. The phrase also tends to have a reduced pronunciation; people may even prefer to say just *ninety-nine,* pronounced something like [nɑ̃ti'nəin]. But suppose now that the number of my office telephone extension is 1999. It may well be that I have to say this several times every day; still, the chances are that I will go on pronouncing this very distinctly, preserving all the syllables and stresses: ['nainti:n nainti'nain]. The obvious reason is that in contrast to the number of the year, the extension number is wholly unpredictable for my listeners, and any reduction might put comprehension in danger.

This takes us to another key notion, namely that of so-called **redundancy management** (a translation of the German *Redundanzsteuerung*, a term borrowed from Lüdtke 1980). The idea of redundancy management is simple – to keep a balance between two separate tendencies: to minimize the cost of a message and to maximize its chances of being properly delivered (i.e. understood), always keeping in mind that secure delivery demands a certain degree

of redundancy. Redundancy management is what makes us pronounce telephone numbers distinctly and the number of the current year sloppily; in general, it ensures that every expression gets the resources it deserves. In the development of lexical and grammatical patterns, it restrains the tendency to reduce the resources spent on the expression of a pattern.

The goal of a normal communicative act is to transfer a certain amount of information. This is achieved by triggering certain cognitive processes in the listener's mind. The resources for doing so include (among other things) the patterns or constructions that make up the language in which the participants are conversing. These patterns and constructions can be combined in various ways to yield complex utterances. However, in case we want to convey two units of information, there is often a choice between presenting them independently, one by one, or in one piece. For instance, we may say *This is a man and he is unmarried* or *This is a bachelor*; or, to take another example, *This is a woman and she is Scottish*, or *This is a Scotswoman*. In the first case, one lexical item, *bachelor*, expresses the same information as the logical conjunction of two others, *man* and *unmarried*. The second case is similar but more interesting for our purposes since the word *Scotswoman* transparently contains the independent elements *Scots* and *woman*.

The question of independence is, however, a matter of degree. Let us look at another, similar example. There are several ways in English to combine the words *sun* and *day* to yield an expression that denotes a day that has something to do with the sun. Here are some examples of such constructions:

(6)
day of the sun
sunny day
sun day[5]
Sunday

We can see that the phrases in (6) vary with respect to the independence of the word *sun*. In *day of the sun, sun* is the lexical head of a full noun phrase preceded by a preposition. In *Sunday*, it is just the first part of a wholly lexicalized compound, whose prosodic pattern does not really differ from that of a simplex noun. The other cases are in between these two extremes. We may thus say that the

examples in (6) are ordered with respect to their **tightness**. Tightness is manifested, among other things, as prosodic integration (no independent stressability of the components, a single intonational contour, phonetic reduction of non-stressed parts), lack of independent morphological marking of components, and lack of syntactic expandability.

Many scholars have used terms like 'tight' or 'dense' to describe the character of the structures that arise diachronically through processes like grammaticalization. For instance, Givón (1979) describes 'a number of recurring themes in diachronic syntax' which 'represent processes by which loose, paratactic, PRAGMATIC discourse structures develop – over time – into tight, GRAMMATICALIZED syntactic structures'. But already in 1929, Henri Frei saw 'condensation' as a general principle underlying syntax:[6]

> Dans tout le domaine du langage, le besoin d'économie remplace la série monotone de phrases simples alignées bout à bout, par des ensembles complexes dans lesquels les propositions sont subordonnées les unes aux autres pour former des phrases uniques. La condensation a pour fonction de transposer une phrase en un membre de phrase, qui peut fonctionner dès lors à son tour comme terme dans une phrase complexe.

Moreover, as we saw in section 7, tightness shows up as a parameter in proposals for classifying incorporating structures. While the idea of such a parameter underlying grammaticalization in general certainly appeals to our intuition, it is not always clear what tightness is supposed to mean, and by which criteria the degree of tightness of a construction should be determined. Thus, although the development described in the quotation above constitutes a major theme of Givón's 1979 paper, the author gives no real definition of 'tight', except that he relatively consistently uses it in connection with other adjectives such as 'grammaticalized' and contrasts it with 'loose parataxis'.

With respect to the definition I shall suggest here, tightness is manifested when we compare two constructions with the same function, more specifically when such constructions are compared on the same level of analysis. For instance, suppose some content is originally expressed by two independent clauses; if the same function can be fulfilled by a construction that consists of a single clause, the

latter construction is obviously the tighter one. Similarly, a periphrastic construction with future meaning is less tight than an inflectional future tense, in that the same function is fulfilled by two words in the first case and by one in the second. In general:

> A construction A is tighter than a construction B if B is expressed by n entities of category C and A is expressed by m entities of category C, where $m<n$

This definition has to be refined to allow for partially independent items. For instance, the English expressions *sun day* and *Sunday* are arguably both one phonological word, but in the first, the components clearly preserve more word properties than in the second. Thus, since *sun day* can be said to be more like two words than *Sunday*, it should be considered less tight.

The identification of tightness with degree of grammaticalization along the lines of Givón (1979) would indeed seem to be a direct consequence of the claim that grammaticalization involves the development of tighter structures. But looking more closely, we see that we get caught in paradoxes. One of the most important things that happens in grammaticalization is the reduction of expressional substance, in particular of grammatical markings. But in the end, this leads to the disappearance of grammatical markings altogether, as in the following example of a wholly unmarked possessive construction in Old French, where the Latin genitive marking has been reduced to zero:

(7)
la bouche sa mere
the:F:SG mouth his:F:SG mother
'his mother's mouth'
(Herslund 1980:126)

Should we conclude that the highest degree of grammaticalization is zero marking, or in other words, that the most grammaticalized constructions are juxtapositional ones? This seems somehow counterintuitive. Furthermore, we are faced with the following problem: if juxtapositional constructions are the final output of grammaticalization, do all juxtapositional constructions have to be derived from constructions with overt marking? In view of the high

frequency of such constructions in pidgin and creole languages, not to talk of child language, this appears rather improbable. But if juxtaposition constructions can arise from scratch, we are left with two kinds of juxtaposition: one that is the final output of grammaticalization and thus presumably maximally grammaticalized, and one that has not undergone any grammaticalization at all.

There must be a thinking error here. In my opinion, we are really operating with different concepts of grammaticalization. Consider the English compound *daylight* and the corresponding Swedish word *dagsljus*. The only major difference between them is that in Swedish, the compounding construction is marked by a morpheme *-s-* after the first component; this is clearly an old genitive ending. The Swedish pattern is more 'grammaticalized' in the intuitive sense of 'containing more grammar'. In the light of normal assumptions about grammaticalization, the reason that the *-s-* is there in the first place is that the whole construction was earlier a possessive one. (Cf. English expression *wolf in sheep's clothing*, which in Swedish becomes *ulv i fårakläder*; that is, the English genitive construction corresponds to a Swedish compound where *fåra-* is derived from an obsolete genitive of *får* 'sheep'). Thus, the marking of the tight construction is something that has survived from an earlier, less tight stage. The conclusion may seem paradoxical but is, in my view, unavoidable:

> If we understand grammaticalization as the development of tighter constructions, grammatical markings arise as the result of incomplete grammaticalization, that is, a tighter construction has developed but has not been duly reduced.

In other words, constructions that are 'highly grammaticalized' in the sense of 'containing a lot of grammar' are those that contain markings that have survived from an earlier, less tight stage.

But what are the forces behind the development of tighter structures? To answer that question, we must consider the rationale for there being differences in tightness in the first place. Why are some linguistic items given more independence than others? In my view, the perhaps most essential property that influences the expressional independence of a component C of a complex linguistic expression is **the degree to which C conveys non-expected and independent information**, for short: **its informational value.**

What does this mean? Consider a simple and indeed, trivial example.

- Suppose that I am standing in front of a fruit-stand where there are apples, pears, and oranges and I say *five apples, please.* Obviously, the two words *five* and *apples* each convey independent information: there is no way of figuring out from the fact that I want apples that I want five of them, or vice versa.
- If, on the other hand, there are only apples in the stand, the information conveyed by *apples* is inferrable from the situation: consequently, the word *apples* is redundant. Another way of putting it is to say that the fruit-seller expects me to ask for apples: I do not have to tell him this as a separate piece of information.
- A modification of the first situation is when the fruit-seller has misunderstood me and tries to give me pears instead of apples. I will probably then repeat my request but with extra stress or emphasis on apples: *No, five APPLES, please.* Here, the information conveyed by the word *apples* contradicts the expectations of the listener.

The second and third situations can be seen as extensions in different directions from the first, neutral one, in the following way:

high informational value: information counter to expectation

medium informational value: information neutral to expectation

low informational value: information predicted by expectation

One may of course introduce a more fine-grained scale, but these three values are the fundamental ones, and they should be kept in mind in the following.

One thing that should be noted is that the informational value of an item may depend both on information that is external to the message ('world knowledge') and information that is conveyed by other parts of the message. This is why I qualify information both by 'non-expected' and 'independent'. The two kinds of information work together, however, to determine the informational value of the item.[7]

The informational value of an item interacts with certain other factors, which are more or less analytically and empirically separable from it. One very important such factor is the **referentiality** or perhaps better, **referential integrity** of an item: the extent to which an item is associated with a unique individual in the world.

The claim I want to make here is, then, that the parameters of informational value and referential integrity will determine **the probability for an item to be given independent articulation and prominent expression.**[8]

Independent articulation means that the item is given syntactic and prosodic integrity, that is, it is treated as a phrase in its own right, or at least as a separate word, with some degree of prosodic independence, morphological marking of its own, and the possibility of being modified and expanded in various ways.

Prominent expression means that the item is given 'special treatment' with respect to position, prosody, and morphological marking.

Independent and prominent articulation are actually not quite separate from each other: on the whole, one may say that prominence presupposes independence, or the more independence, the more prominence.

Above, I suggested that due to redundancy management, every linguistic item tends to get the expressional resources it deserves. From the speaker's point of view, it makes sense to reduce resources spent on an utterance. The need to get the message through, however, puts a limit on reduction. Moreover, the extent to which a speaker gives the components of the utterance separate and prominent expression is an important means for guiding the listener in the understanding process, most notably by drawing attention to those elements in the situation that are not in accordance with

expectation (as exemplified in the utterance *No, five APPLES, please.*), but also for signaling which elements are to be retrieved from the permanent storage of routinized items and which have to constructed afresh.

We may thus see high informational value and referential integrity as properties that save elements from being integrated and finally merged with the other components of an utterance. What we are then explaining is not why grammaticalization and other tightening processes take place but rather, why they sometimes do not take place.

But what we also obtain is what may be called a structuring of grammatical space, in terms of a presumably universal ordering of different uses of constructions in accordance with their tendency to consist of neatly delimited and separate components. Perhaps the most obvious candidate for such an ordering is the transitivity scale proposed by Hopper & Thompson (1980). As traditionally understood, transitivity is a property of a verb (or a clause), implying the presence of a subject and a direct object. Since the publication of Hopper & Thompson's article, transitivity has been seen as a clustering of different properties more or less directly connected with the traditional definition. If this definition is reformulated in terms of the degree to which a clause contains a direct object with separate and prominent articulation, I think that a considerable part of the properties in Hopper & Thompson's list can be accommodated. The primary factor will be the referential integrity of the direct object. A highly referential object will be more prone to having an independent expression than one with low referentiality. This means in practice at least the following:

1) a direct object with high referential integrity will be incorporated into the verb more frequently;
2) a direct object with high referential integrity will be accompanied by explicit marking less frequently, either by case marking on the object NP or by object agreement on the verb.

These tendencies seem on the whole to be borne out. We find noun incorporation at the lower end of the transitivity scale and grammatical marking at the high end.

What about the other main parameter governing independent and prominent articulation, informational value? Most languages

seem to be able to highlight or single out noun phrases, including direct objects, by means of processes such as topicalization. Arguably, topicalization of a direct object is one means of signaling to the listener that it is worthy of special attention, for one or the other reason. While Hopper & Thompson (1980) did not include any factors directly related to topicalization in their list of transitivity properties, Givón, in a paper published four years earlier (1976), had demonstrated that both direct object case marking (sometimes) and object agreement on the verb (probably always) have their diachronic origins in topicalizing constructions. That is, the grammatical marking of objects obeys the following, general developmental trend:

> topicalized direct objects → objects with high referentiality → objects with low referentiality

In a construction-centered approach to grammaticalization, the grammatical marking of direct objects is just part of the transitive clause construction. What the above schema represents is the order in which such constructions enter the language and gradually spread to new contexts. Reversing the sequence, we obtain an ordering of direct objects with respect to their tendency towards incorporation into the verb. In other words, the degree of independence and prominence of a particular type of construction element – the direct object of a verb – predicts its behavior, both in grammaticalization in the traditional sense and in incorporation.

Furthermore, we have seen how constructions originally used only with items scoring high on the scales of informational value and referential integrity gradually come to be used with items having less high values for these parameters. I want to argue that this pattern is extremely common in grammaticalization, so common in fact that it may turn out to be a universal feature of these processes, when properly understood. One notion that has been applied to an expression undergoing grammaticalization is **semantic bleaching**; analogically, one might say that we are dealing here with 'pragmatic bleaching'[9] or 'pragmatic weakening'. Still, in order to make the association to economy and inflationary processes, I prefer the term **rhetorical devaluation**. Rhetorical devaluation may take a number of forms. The basic scenario is that a construction originally used only for expressing content with high informational value ('counter to expectation') is extended to cases with medium ('neutral to

expectation') or low ('in accordance with expectation') informational value. Variations include 'asserted' elements becoming 'implicated' or 'presupposed', or intensifying modifiers of various kinds losing their force. Let us look at some examples.

1) A certain phase of the diachronic process has come to be called 'Jespersen's cycle'. This phase explains the development of negation in French and is commonly thought of in terms of the addition of some element to the negation morpheme, as when the original negator *ne* was replaced by *ne... pas*. However, a more accurate way of describing what happens in this case is the following. Negative constructions may be more or less 'emphatic' or 'polemic'. For instance, in English, one may add expressions like *at all, absolutely, definitely* etc. to any ordinary negation construction in order to obtain an additional[10] emphatic or polemic effect. By 'polemic', I mean that the speaker intends to convey an effect such as 'whatever you may think on this question...' or 'counter to your expectations...' Notice that expressions used in this way often originally denote quantity, e.g. *at all* in English. This also seems to have been the case with *pas, point, brin* etc. in French. However, in French and in many other languages the polemic element was lost, as *ne...pas* took over the role of 'ordinary' negation. In our terms, this basically means going from 'high' to 'medium' informativity.

2) Haspelmath (1997) has shown that the grammaticalization processes that lead to indefinite pronouns have as their most common starting point a construction conveying meaning of a 'free choice'. Typically, such constructions are originally frozen phrases with meanings such as 'whatever it may be', 'it does not matter which' or 'it is the same which'. As an example, consider the Russian indefinite pronouns ending in *-nibud'*, such as *čto-nibud'* 'something, anything', which derives from *čĭto ni budi* 'what ever may be', thus a typical expression of 'free choice'. In Modern Russian, however, *čto-nibud'* has a number of uses in which the free-choice meaning is weakened or inappropriate. For instance, (8) is rather different from (9).

(8) Daj mne čto-nibud'! 'Give me something'
(9) Daj mne čto ugodno! 'Give me anything'

Admittedly, the addressee in (8) has a 'free choice' in choosing the object of the giving, but this is understood as following conversationally from the lack of specification, rather than from an explicit indication of free choice, as is the case in (9). As to the backgrounding of the original content of the source construction, there is a clear parallel between the development of 'free choice' constructions and the cross-linguistically somewhat less frequent path from 'dunno' constructions like the one exemplified by Old Norse *ne wait ek hwariR* 'I do not know who' → Swedish *någon* 'some, someone'.
The rise of the indefinite pronouns, then, illustrates how a meaning component shifts its backgrounding from 'asserted' to 'conversationally implicated'.

3) In Dahl (1985), I argued that the choice between the perfect and the simple past in languages such as English and Swedish is bound up with the structure of information, in that the use of the simple past grows more likely as the 'event time' (in the sense of Reichenbach 1947) becomes more definite, or presupposed. Thus, the perfect in Swedish (like in English) is usually compatible only with indefinite time adverbials, but is allowed with definite time adverbials if these express 'new information'. As is well known, there is a common grammaticalization path from perfects to pasts. What we have, then, is a grammaticalization process whereby the most important semantic element (the time reference) becomes backgrounded.

4) In Mandarin Chinese, scalar predicates such as *kuai* 'fast' are quasi-obligatorily modified by the intensifier *hen* 'very', which has thus lost its content almost entirely (Ansaldo 1999:93):

(10) Tā hěn kuài
he very fast
(cf. ?? Tā kuài 'He is fast')

In fact, when asked to translate English sentences with the adverb *very*, speakers tend to resort not to *hěn*, but to other intensifiers such as *fēicháng* 'extremely'. To see that this is also a case of rhetorical devaluation, one has to realize that in a sentence such as (10) an intensifying adverb under normal assumptions will add to the information value of the sentence in that the referent is claimed to be further away from the normal value than would be the case if the intensifier were not there. Thus, when the content of the intensifier is lost, the information value of the sentence is decreased.

In fact, it may be claimed that rhetorical devaluation is much more general than these examples suggest, in that it is inherently linked to what is sometimes referred to by the ugly name of **obligatorification**. That is, whenever the use of an element becomes obligatory in a certain context or certain given conditions, this element is automatically rhetorically devalued, since its use does not depend on considerations of relevance. However, it is not totally obvious which process is primary, which secondary here. One common device for highlighting, or giving emphasis to, an utterance's elements is to place them prominently, for instance first or last in a sentence. A grammatical construction might accordingly exist in two varieties, differing on the expression side only in word order and with respect to content only in the prominence of a certain element. If grammaticalization indeed often involves the rhetoric devaluation of a construction (as I have argued), we may expect the emphatic word-order variant of a construction to be rhetorically devaluated, such that it now encroaches on the territory of its non-emphatic relative. A real-life example of such a situation is the following. In earlier forms of Scandinavian, possessive pronouns were generally postposed to nouns. In modern Swedish, preposing is the rule, although postposing is marginally possible with some kinship terms, as in *far min* 'my father'. Many northern Swedish dialects, however, still have the postposed construction as the normal choice, and use preposing only when the possessive pronoun bears emphatic stress. (A complication here is the use of the definite article: the definite article is normally suffixed to a noun with a postposed possessive, except in the case of certain kinship terms). Plausibly, the preposed construction started as a way of highlighting the possessor; the southern varieties of Swedish then have undergone a development in which this construction was rhetorically devalued, to end up as the only alternative. That kin-referring NPs seem to be the

last to succumb to the new construction is also significant. Dahl & Koptjevskaja-Tamm (1998) argue that possessive constructions of the so-called 'inalienable' type (where kinship terms and terms for bodyparts are the major semantic groups) often represent residual categories, in the sense that they are the last strongholds of older constructions that have been all but superseded by new ones. Furthermore, the order in which a new possessive construction expands has to do with the informational value of the possessive pronoun: a kinship term such as *father* is predominantly anchored to the speaker or some other salient referent, meaning that the use of a possessive marker with such a noun tends to have low informational value.

In the garden-variety alienability 'opposition', there are thus two different possessive constructions, each with its own set of possessive markers. In case of Modern Swedish, on the other hand, the constructions, or construction varieties, do not vary with respect to the possessive markers, but only in word order and the presence of a definite article. In particular, when Swedes begin to say *min far* 'my father' instead of *far min* (lit.) 'father my', this looks prima facie like a straightforward word order change that has nothing to do with grammaticalization. However, if we assume that what is happening is that an emphatic word-order wins over a non-emphatic one, and that contexts with low informational value are the last to be conquered, we see that this development in fact follows the same principles as do other cases of grammaticalization, even though it does not involve the development of grammatical morphemes out of lexical ones. The existence of such cases, in my opinion, is a strong argument for the widened, construction-based approach to grammaticalization. I suspect many more similar examples will be found, once we know where to look for them.

9. Abstract grammatical properties

The popular view of grammaticalization is that of a process by which lexical morphemes turn into grammatical ones. This implies that even if the entities that undergo the process change, they are still of the same basic nature – they are morphemes. Thus, a grammaticalized morpheme is very much like a pair of blue jeans that has been used for a couple of years and has passed through the washing-

machine about a hundred times. It has shrunk and lost most of its color but it is still a pair of jeans.

I shall argue that in the advanced stages of grammaticalization, entities emerge which differ in their ontological character from morphemes in that they are rather **properties** of morphemes or words. A number of phenomena that show up in grammaticalization find their proper place as soon as this is understood.

We teach our beginning linguistics students that linguistic utterances are built up from building blocks called morphemes – a view, of course, that runs counter to the common-sense idea that sentences consist of words.

In traditional grammar, the word has always been the basic building block. The notion of morpheme was introduced by the structuralists only about a century ago and was hailed as a great insight, according to which a word form such as English *apples* consists of two smaller parts: *apple,* the stem, and *-s,* the plural ending and would thus be analyzed into morphemes as follows:

apple + Plural

However, we may also think of 'plural' as a **property** of the word form *apples.* In fact, since the early days of generative grammar it has been fashionable to describe morphological phenomena in terms of grammatical **features** such as [+Plural]. Since the term 'feature' has become so closely associated with the notation exemplified here that its original meaning has been lost, I shall therefore use the synonymous term 'property' instead.

In works by Charles Hockett (1958) and Peter Matthews (1991), different models of morphological structure have been defined and contrasted, including

- 'Item-and-Arrangement' (IA)
- 'Item-and-Process' (IP)
- 'Word-and-Paradigm' (WP)

Among these, IA is most consonant with the structuralist, morpheme-based thinking, whereas WP, as the name indicates, is more in accordance with a traditional, word-based description. Over the last decades, however, most linguists – in particular those that

have worked on grammaticalization – seem to have paid relatively little attention to these issues (see however Anderson 1992).

The point I want to make here is the following. Common to a number of morphological phenomena is the fact that they deviate from what we can call the 'beads-on-a-string' ideal of word structure, and thus create problems for a straightforward Item-and-Arrangement model. In addition, these phenomena typically arise at advanced stages of grammaticalization. Examples are:

Fused expression. As mentioned above (section 5), grammaticalization frequently leads to morpheme boundaries becoming less well defined, or even disappearing totally, as when the ablative of Latin *mensa* is *mensā*. (Note that in the literature on grammaticalization, the term 'fusion' is sometimes used more loosely about some of the other phenomena listed below).

Distributed realization. It is characteristic of more complex morphological systems that an inflectional category is realized in more than one part of the word. Thus, typically, inflectional categories influence not only the choice of affixes but also of stem alternants. The Latin 1st singular present tense form *veniō* 'I come' thus differs from the corresponding perfect form *vēnī* 'I have come' both in the form of the stem (*ven-* vs. *vēn-*) and in the suffix. In extreme cases, an inflectional category may exert its influence at four or five different places in one and the same word.

Portmanteau expression. This term was introduced by some structuralists to indicate that one and the same morpheme at the same time may mark several inflectional categories, as when Russian *-am* as in *dom-am* 'houses' marks both plural and dative case. This is not necessarily a result of fusion in the narrow sense – in many cases there is no reason to assume that there ever were separate morphemes for the different categories.

'Internal inflection'. In its purest form, 'internal inflection' involves the simple marking of inflectional categories by processes like ablaut, as in English *drink:drank:drunk*. In other cases, it overlaps with the processes mentioned in the preceding.

Suppletion. Most commonly, suppletion involves the alternation of stems that have separate historical sources, like English *go:went* or French *aller:va:ira*.

Prosodic expression. Different forms in a paradigm may differ in stress or other prosodic features, as in Russian *o k n á* 'window:GEN:SG' – *ókna* 'window:NOM:PL'.

Zero marking. There are actually two types of zero marking. One is the occasional lack of marking in an otherwise overtly marked category, as when the plural of *sheep* in English is *sheep*. The other is when one or several values of a category is systematically left without marking, as is the case for the singular of English nouns.

Symmetric marking. I use this term for cases where both members of a binary opposition may be overtly marked, for instance, when a language has not only plural but also singular markers, or when, as in Russian, in some perfective:imperfective pairs, the perfective is basic, in others, the imperfective.

All these phenomena weaken the one-to-one relationship between morphemes and grammatical categories. But, one may argue, the cause-effect relation does not always go in the same direction. That is, some of the phenomena involve a reanalysis of word-forms in the language rather than a change in the words' appearance. Thus, suppletion presumably happens when forms that belong to different lexemes come to be seen as belonging to the same morphological paradigm. Similarly, in symmetric marking, the alternation between an unmarked form A and a marked form A' may be seen as equivalent to the alternation between a marked form B' and an unmarked form B. Also here, the end result is the lack of a one-to-one relationship between morphemes and inflectional categories.

In the same vein, when we start saying that 'singular is unmarked', we presuppose an analysis on which singular is 'something', not just the absence of a plural marker. Along with the above phenomena, this leads to a fundamental re-interpretation of an Item-and-Arrangement structure as a Word-and-Paradigm one. It is probably incorrect to say that morphemes – linearly ordered parts of a word – 'become' features – i.e. properties of the word as a whole. Rather, what happens is that we obtain a new level of analysis – that of WP, whereas the level of IA gradually fades away. But for a long time, both levels can be seen as valid.

This view finds further support when we consider the role of syntax. Why do we say that *sheep* has a plural form which is identical to the singular, rather than that number is not applicable to this lexeme, or alternatively, that sheep has no plural? Just looking at the

form *sheep* won't do: we have to look at its syntactic behavior, more specifically, at syntactic agreement. Even if there is no difference between *sheep* in the singular and *sheep* in the plural, the environment will display a difference as in *This sheep is white* vs. *These sheep are white.* Thus, we see that the assumption of two homonymous forms of *sheep* is motivated by the existence of agreement in English. Conversely, as this example shows, number agreement does not depend on the presence or absence of a segmental morpheme, but rather on an entirely abstract property of the noun phrase agreed with. The parallels with gender agreement are illuminating. Gender systems are often to a large extent motivated by semantic or formal features of nouns, but the existence of a single case of idiosyncratically determined gender is enough to show that gender in a particular language is not reducible to any of these features; rather, it is an abstract property, in this case of the noun lexeme. For instance, even if the gender of Russian nouns is almost always predictable from their form, the abstractness and irreducibility of the gender property is shown by the existence of a word such as *kofe,* which is masculine, in contradistinction to practically all other nouns in *-e,* which are neuter. Syntactic agreement thus presupposes the existence of abstract grammatical properties that are often the result of grammaticalization processes. One may see this as another aspect of the loss of integrity that characterizes grammaticalization in general: instead of neat strings of morphemes, we have bundles of abstract, unordered features.

Matthews (1991) notes that morphological categories tend to be non-recursive: one cannot, he says, form a future stem of a Latin verb, then derive an imperfect from that, and apply the future once more to the result. Actually, the impossibility of applying a morphological category twice to the same word is one of several similar properties that all follow from the assumption that morphological categories are an unordered set of features associated with a word. Thus, one might form a morphological future 'imperfect' in some language, but it would usually be non-distinct from an imperfect future. (See Dahl (1985) for an analysis of what I there call 'Boolean categories').

10. Conclusion

In recent years, it has become popular to apply concepts from the biological theory of evolution to human sciences. While this can be a fruitful approach, one has to be extremely careful in establishing analogies between different scientific domains. Especially for those who like functional explanations, it is tempting to explain language change in general in quasi-Darwinian terms, as 'adaptation' to the environment. The notion of a 'life cycle' that I have tried to develop in this paper may help us understand why such a view is largely misguided. The competition between an older and a younger construction is not a case of 'survival of the fittest'; rather, it is comparable to the competition between an old leader wolf and a younger pretender, or to the way one fashion in clothing replaces another.

The study of grammaticalization processes suggests that many synchronic patterns in language find their explanations in diachrony – by the ways they evolve. I am convinced that in the years to come, we shall see much more of this integration of synchrony and diachrony, and that our current understanding of these matters is still very fragmentary.

Institutionen för lingvistik
Stockholms universitet
S-106 91 Stockholm

Notes

1. Sometimes it is hard to do justice to sources that have influenced one's thinking in a rather global way. I want to note some cases in point here. There are at least two scholars who wrote about the phenomena discussed in this paper early on; one is Helmut Lüdtke, who has only recently been seriously quoted in works on grammaticalization and who is notable for seeing clearly the connection between language change and information theory; the other is Tom Givón, who seems to have said most things already twenty-five years ago and who always saw grammaticalization phenomena in a wide context. In addition, I want to thank Bernhard Wälchli for helping me to see the usefulness of the notions of 'tightening' or 'condensation'.

2. In fact, this seems to be a somewhat typical case: a younger, periphrastic construction is introduced instead of an older, morphological one in order to cover cases where the morphological construction for one reason or the other does not work. For instance, a periphrastic construction may be used with foreign nouns. At a later stage, however, the periphrastic construction may expand to take care also of the 'normal' cases.
3. Explanation of morpheme labels: FACT - factual; PUNC - punctual; NE - article-like morpheme with unclear function; NSF - noun suffix.
4. See Anward & Linell (1977) for an excellent treatment of this type of construction in Swedish under the label 'lexicalized phrases' (*lexfraser*); the authors make no connection to incorporation phenomena in other languages, however.
5. For an adequate context for *sun day*, imagine an astronomer who each day studies either the sun and the moon. He could then say 'Tomorrow is a sun day'.
6. I am indebted to Bernhard Wälchli for drawing my attention to this fact.
7. It may be that the parameter of 'informational value' really conflates several things. To start with, we have the information-theoretical consideration that a high degree of unpredictability demands a more elaborate message expression, since the receiver needs more help in choosing between the alternative interpretations. On the other hand, there is the seemingly universal idea that a message becomes more convincing the more energy (in the physical sense) you put into it. (Cf. 'if the argument is weak, raise your voice'). In between these two, we have the principle behind fat headlines: messages with high surprise value need strong means of expression. I suspect all these are somehow related, but will refrain from a further analysis.
   In recent years, principles like the ones just mentioned have been discussed in terms of iconicity. Personally, I think iconicity should be something more than just isomorphism. For instance, the idea that the strength of a measure depends on the strength of the intended effect embodies of course an extremely general principle; but we may not always want to call it iconicity (e.g. does a devaluation of the currency iconically represent its effects on the trade balance?).
8. The following principle, formulated in Givón (1984:416), says essentially the same, albeit restricted to referentiality:
   'The less referential and/or individuated an entity, the less it is likely to be given an *independent coding expression* in the grammar.'
9. What I am saying here may seem to contradict Traugott & König (1991), who argue for the importance of what they call 'pragmatic strengthening' in grammaticalization (in particular by their use of the phrase 'strengthening of

informativeness'). On a closer look, however, we rather seem to be telling different pieces of the same story – I hope to be able to say more about this elsewhere.

10. I say 'extra' because it could be argued that negation always contains a polemic element. The point is that there must be a difference, otherwise constructions like *not at all* would not have a *raison d'être.*

References

Anderson, Stephen R. 1992. A Morphous Morphology. Cambridge: Cambridge University Press.

Ansaldo, Umberto. 1999. Comparative constructions in Chinese. Areal Typology and Patterns of Grammaticalization. Ph.D. thesis, Department of Linguistics, Stockholm University.

Anward, Jan & Per Linell. 1976. Om lexikaliserade fraser i svenskan. Nusvenska studier, 55-56 .

Baker, Mark C. 1996. The Polysynthesis Parameter. New York & Oxford: Oxford University Press.

Bybee, Joan L., Revere Perkins & William Pagliuca. 1994. The Evolution of Grammar. Tense, Aspect, and Modality in the Languages of the World. Chicago/London: University of Chicago Press.

Corbett, Greville. 1991. Gender. Cambridge: Cambridge University Press.

Dahl, Östen. 1985. Tense and Aspect Systems. Oxford: Blackwell.

Dahl, Östen & Maria Koptjevskaja-Tamm. 1998. Alienability splits and the grammaticalization of possessive constructions. In: Timo Haukioja (ed.), Papers from the 16th Scandinavian Conference of Linguistics. Publications of the Department of Finnish and General Linguistics of the University of Turku 60. Turku: University of Turku.

de Reuse, W.J. 1994. Noun Incorporation. In: R.A. Asher (ed.), The Encyclopedia of Language and Linguistics, Vol. 5.2842-2847.

Fillmore, Charles J.; Kay, Paul; O'Connor, Mary Catherine. 1988. Regularity and Idiomaticity in Grammatical Constructions: The Case of Let Alone. Language 64.501-538.

Frei, Henri. 1929. La grammaire des fautes. Paris: Geuthner.

Givón, Talmy. 1976. Topic, pronoun and grammatical agreement. In: Charles N. Li (ed.), Subject and Topic. New York: Academic Press, 149-188.

Givón, Talmy. 1979. From discourse to syntax: Grammar as a processing strategy. In: Talmy Givón (ed.), Discourse and syntax. Syntax and semantics, pp. 81-109. New York: Academic Press.

Givón, Talmy. (1984). Syntax: A Functional-Typological Introduction, vol. 1. Amsterdam: Benjamins.
Goldberg, Adele E. 1995. Constructions: a construction grammar approach to argument structure. Chicago: University of Chicago Press.
Haiman, John. 1994. Ritualization and the Development of Language. In: William Pagliuca (ed), Perspectives on grammaticalization, 3-28. Amsterdam: Benjamins.
Haspelmath, Martin. 1987. Indefinite Pronouns. Oxford Studies in Typology and Linguistic Theory. Oxford: Clarendon Press.
Herslund, Michael. 1980. Problèmes de syntaxe de l'ancien français. Compléments datifs et génitifs. Études Romanes de l'Université de Copenhague. Revue Romane numéro spécial 21.
Hockett, Charles F. 1958. Two models of grammatical description. Word 10.210-31.
Hopper, Paul J. & Sandra A. Thompson. Transitivity in Grammar and Discourse. Language 56.251-299
Hopper, Paul J. & Elizabeth Traugott. (1993). Grammaticalization. Cambridge: Cambridge University Press.
Kuryłowicz, Jerzy. 1965. The evolution of grammatical categories. Diogenes 51.51-71.
Lambrecht, Knud. 1984. Formulaicity, frame semantics and pragmatics in German binomial expressions. Language 60.753-796.
Lehmann, Christian. 1982. Thoughts on Grammaticalization: A Programmatic Sketch. Vol. I. (Arbeiten des Kölner Universalien-Projekts 48). Köln: Universität zu Köln, Institut für Sprachwissenschaft. [Revised version published 1995 by LINCOM Europa, München.]
Lehmann, Christian. 1985. Grammaticalization: synchronic variation and diachronic change. Lingua e Stile 20.203-218.
Lüdtke, Helmut. 1980. Auf dem Wege zu einer Theorie des Sprachwandels. In: Helmut Lüdtke (ed.), Kommunikationstheoretische Grundlagen des Sprachwandels, 182-252. Berlin: de Gruyter.
Matisoff, James A. 1991. Areal and universal dimensions of grammatization in Lahu. In: Elizabeth Traugott & Bernd Heine (eds.), Approaches to grammaticalization, Vol. 2, 383-453. Amsterdam: Benjamins.
Matthews, Peter H. 1991. Morphology. 2nd edition. Cambridge: Cambridge University Press.
Mayrhofer, Manfred. 1953. Sanskrit-Grammatik. Berlin: Walter de Gruyter.
Meillet, Antoine. 1912. L'évolution des formes grammaticales. Scientia (Rivista di Scienza) 12, No. 26, 6.

Miner, K.L. 1986. Noun stripping and loose incorporation in Zuni. International Journal of American Linguistics 52.242-54.
Mithun, Marianne. 1984. The evolution of noun incorporation. Language 60.847-94.
Mithun, Marianne. 1986. On the nature of noun incorporation. Language 62.32-37.
Reichenbach, Hans. 1947. Elements of Symbolic Logic. (repr. 1980, New York: Dover).
Sadock, Jerrold M. 1986. Some notes on noun incorporation. Language 62.19-31.
Thomsen, Ole Nedergaard. 1992. Unit Accentuation as an Expression Device for Predicate Formation. The Case of Syntactic Noun Incorporation in Danish. In: Michael Fortescue, Peter Harder & Lars Kristoffersen (eds.), Layered structure and reference in a functional perspective: Papers from the Functional Grammar Conference in Copenhagen 1990, 173-229. Amsterdam: Benjamins.
Traugott, Elizabeth Closs & Ekkehard König. 1991. The semantics-pragmatics of grammaticalization revisited. In: Elizabeth Traugott & Bernd Heine (eds.), Approaches to Grammaticalization. Amsterdam/Philadelphia: John Benjamins. 189-218.
Wessén, Elias. 1968. Svensk språkhistoria. I. Ljudlära och ordböjningslära. 8th edition. Stockholm: Almqvist & Wiksell.
Wessén, Elias. 1956. Svensk språkhistoria. III. Grundlinjer till en historisk syntax och ordböjningslära. Stockholm: Almqvist & Wiksell.
Wälchli, Bernhard. Forthcoming. Co-Compounds and Natural Coordination.