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GRAMMATICALIZATION AND GRAMMAR

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Abstract

This paper is concerned with developing Joan Bybee's proposals regarding the nature of grammatical meaning and synthesizing them with Paul Hopper's concept of grammar as emergent. The basic question is this: How much of grammar may be modeled in terms of grammaticalization?

In contradistinction to Heine, Claudi & Hünnemeyer (1991), who propose a fairly broad and unconstrained framework for grammaticalization, we try to present a fairly specific and constrained theory of grammaticalization in order to get a more precise idea of the potential and the problems of this approach. Thus, while Heine et al. (1991:25) expand - without discussion - the traditional notion of grammaticalization to the clause level, and even include non-segmental structure (such as word order), we will here adhere to a strictly 'element-bound' view of grammaticalization: where no grammaticalized element exists, there is no grammaticalization. Despite this fairly restricted concept of grammaticalization, we will attempt to corroborate the claim that essential aspects of grammar may be understood and modeled in terms of grammaticalization.

The approach is essentially theoretical (practical applications will, hopefully, follow soon) and many issues are just mentioned and not discussed in detail. The paper presupposes a familiarity with the basic facts of grammaticalization and it does not present any new facts.

Contents:

> " ... the central project of linguistics would be the study not of 'grammar', but of 'grammaticalization'" (Hopper in Bright 1992 I:366)[1]

1. Introduction

Although research in grammaticalization has made considerable progress in the last decade and a wide range of theoretical and empirical issues have been dealt with,[2] one major issue has hardly been touched upon: the interrelation of grammaticalization and grammar (in the traditional sense, comprising morphology and syntax). There are three alternatives as to their interrelation:

a)   Both areas are only loosely related, i.e. grammaticalization is essentially a kind of historical morphology while grammar is concerned with the synchronic functioning of the language system.

b)   Both areas are related in that grammaticalization theory (GT) presupposes some concept of grammar. In order to investigate grammaticalizational phenomena we have to know what grammar is.

c)   Both areas are related, but their interrelation is reversed. GT itself may be conceived as a theory of grammar (or, somewhat less ambitiously, as contributing substantially to a theory of grammar).

Most studies on grammaticalization avoid stating a clear preference for one of these three alternatives. We readily admit that it may well be somewhat premature to raise this issue. Since the issue, however, has lots of repercussions for GT itself, we believe that it should be fruitful to start tackling it now, even though fully convincing answers will not be achieved and much will remain speculative.

That there are repercussions for GT itself is obvious, since the explanatory goals implied by the three above-mentioned alternatives differ substantially. If we take the goals of GT as our point of view, the three alternatives may be stated as follows:

a)   GT is part of an overall theory of language change concerned with modeling and explaining the development of grammatical elements.[3] It is thus basically a subdiscipline of historical linguistics.

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1 The complete quote is this: "Grammaticalization as such is not necessarily incompatible with the idea of an a-priori grammar, since lexical elements might be seen as entering the core grammar from the periphery. However, the concept of grammar as emergent suspends provision for fixed structure, and sees all structure as in a continual process of becoming, as epiphenomenal, and as secondary to the central fact of discourse. Grammar is then to be seen as the codification of a socially and historically situated set of such regularities, endorsed and hence fixed through institutions like education and writing. Viewed from this perspective, the central project of linguistics would be the study not of 'grammar', but of 'grammaticalization' - the ways in which some of the collectively possessed inventory of forms available for the construction of discourse become 'sedimented' through repeated use, and eventually are recognized as being to a greater or lesser degree 'grammatical'." (Hopper in Bright 1992 I:366f)

2 See, for example, the contributions in Traugott & Heine (1991) and various surveys of the literature found in Heine et al. (1991).

3 It is not clear at the present time, whether it is possible and desirable to consider syntactic change in general (including reanalysis and word order change) a case of grammaticalization (Lehmann (1982:112ff, 172ff; 1985) and Shibatani (1991) argue for such a view).

b)   GT is relevant both synchronically and diachronically, that is, it provides a model of processes that happen time and again and are thus potentially part of all linguistic activity.[4] Furthermore, inasmuch as grammaticalization phenomena are conceived of as direct reflections of the cognitive structures and processes involved in linguistic activities, GT has substantial contributions to offer to a cognitive theory of language.

c)   GT is part of a radically different approach to language in which grammar - rather than being conceived of as a pre-requisite for linguistic activity - is seen as an epiphenomenon, as emergent (cf. Hopper 1987, 1988).

The difference between (b) and (c) is rather a matter of degree than a difference in principle. At the present time, most researchers in GT probably would conceive of the tasks of GT in terms similar to those stated in (b) - though this is hardly ever done explicitly. Note, incidentally, that work in grammaticalization also hardly ever makes explicit the concept of grammar underlying a given investigation.

Hopper (1987, 1988) has given a programmatic sketch of the approach hinted at in (c). The purpose of the present paper is to discuss this approach in more detail with particular regard to two interrelated problems:

a)   Is it possible to conceive of grammaticalization without presupposing/invoking the notion of grammar (and derivatives thereof such as grammatical category, etc.)? If it is possible, what are the consequences for research in grammaticalization?

b)   Is it possible to conceive of grammar in terms of grammaticalization (either exclusively or with grammaticalization contributing substantially to such a conception)? How would a grammar conceived in these terms differ from other models of grammar?

The last question needs some comment which also further elaborates on the goals of this paper. Our approach is not aimed exclusively at the theoretical level, but also at the practical level of how to organize/write a grammar. Here, we are particularly interested in the differences between the present approach and the historical grammars as they have been produced in the 19th century, descriptive grammars as produced by American structuralists, and grammars currently produced by functionalists. We thus hold that if GT leads us to a radically different view of language and grammar, this difference should be visible *vis à vis* the models of grammar just mentioned. That GT-based grammar would differ from formal, and in particular, generative grammars is evident without much discussion. This, however, is not of much interest given the fact that the weaknesses and failures of formal grammars have been pointed out repeatedly in the past decades (cf.,

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4 Heine et al. (1991 chapt.9) use the term *panchrony* to refer to this approach. But, as Stolz (1991a:11) remarks, it is not really clear what *panchronic* is supposed to mean (see also Stolz 1991b). As Coseriu (1974) has shown, *synchrony* and *diachrony* are heuristic reductions imposed by linguistics on language, which essentially is a historical phenomenon. If we hold that it is time to overcome these heuristic reductions and that we should try to approach language from a more adequate point of view, then the major goal of GT should be to provide for a model of language as a historical phenomenon rather than adding another level of reduction by abstracting panchrony from synchrony and diachrony.

among many others, Itkonen 1978, Givón 1979, Hopper 1988). Two questions arise: 1) Does a GT-based approach differ significantly from other approaches currently entertained within the rather heterogeneous functionalist camp[5], and 2) does it have the potential to become the central project within functional linguistics and to provide for a comprehensive and convincing alternative to formal approaches?

Why should grammaticalization qualify at all for this purpose? In various quarters (sociolinguistic, 'functionalist', philosophical), it has been realized for some time now that the structuralist concept of a stable, abstract and static grammar is not adequate for describing, let alone explaining, linguistic behaviour. The task is to accomplish "a movement away from language as something accomplished, as something apart from time and history, to language as something that is being done and reshaped constantly" (Becker 1988:25). The problem is how to model such a dynamic notion of language (or in Becker's terms, *languaging* (loc. cit.)). In our opinion, the grammaticalizational approach seems to be especially promising in this project since it explicitly refers to time and history.

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5 For a brief overview, see Thompson's article on *functional grammar* in Bright ed. 1992/II:37ff. In our view there are three major camps in current functional work, i.e. discourse analysis, grammaticalization and cognitive grammar. Though the basic assumptions and goals of these three camps are fairly similar, they differ in methodology and the kind of phenomena they are concerned with. Cognitive grammar - as exemplified in the work of Lakoff (1987) and Langacker (1987) - is primarily concerned with isolated example clauses and heavily relies on introspection. Discourse analysis puts the emphasis on language *use* (language in context) and makes use of statistical evidence. Grammaticalization focuses on grammatical elements (primarily function words and affixes) and relies on historical evidence. This paper is, among other things, concerned with the interrelation of grammaticalization and discourse analysis and attempts to bring together insights from both camps in order to arrive at a better understanding of grammar.

2. Basic terms and observations

2.1. Element-bound vs. category-bound views of grammaticalization

The term 'grammaticalization' is currently used in at least two senses. On the one hand, it refers to the study of the sources and development of grammatical elements (grams[6]). This usage includes statements of the following kind:

1) French *le* derives from Latin *ille*.
2) The English future gram *will* is more grammaticalized than German *werden*.

On the other hand, it is used in a somewhat broader fashion to refer to the fact that a given semantic or pragmatic concept is coded grammatically in a given language (rather than lexically or by a phrase or a clause). This is called *grammatical coding perspective on grammaticalization* by Traugott & Heine (1991:3) and includes statements such as:

3) Number is not grammaticalized in language X.
4) The distinction between nouns and verbs is but weakly grammaticalized in language X.

These two usages are, of course, interrelated, and very often a statement may be easily phrased either way (thus, (3) may be stated as 'there is no number gram in X'). But they differ in one respect that will be crucial throughout this paper: The former focuses on the elements, while the latter focuses on categories/concepts and thereby invites the problematic inference that there are linguistic categories and concepts that exist independently of their expression. In this paper we will make an attempt to strictly adhere to the first use only. We thus want to claim that GT is basically concerned with linguistic elements. Categories and conceptual domains are relevant only inasmuch as they can be linked to concrete elements.

Although one goal of this paper is to develop a theory of grammaticalization without presupposing the notion of grammar, we have, of course, to appeal to some pre-theoretical notion of *grammar* in order to delimit the empirical domain the theory is supposed to cover (the theory would otherwise be empirically unfalsifiable and thus void). As any theory of grammar already imposes structure on the empirical domain it propounds to cover, this is also the case with GT, which - in our view - focuses on grammatical elements.[7] Although it will be part of the theory to further define the term *grammatical element*, the central empirical domain of the theory is constituted by those elements whose identity as grammatical elements presents no controversy among linguists of any persuasion. These core grammatical elements are formally characterized by the fact that they are clitic or agglutinated, belong to closed classes, and/or are obligatory (cf. Givón 1984:49f). The task of the theory then is to model the use and function of these elements, to explain in what sense they are grammatical and to delineate the formal properties they exhibit. Part of this project is the further task of characterizing those linguistic elements which are uncontroversially non-grammatical, i.e. lexemes, and those whose status is controversial (which, to use the common metaphor, are on the borderline bet-

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6 This term is introduced by Bybee & Dahl (1989:51) in order to provide a cover term for phenomena like "prefixes, suffixes, infixes, prepositions, postpositions, clitics, auxiliaries, reduplication, stem change, ablaut and so on".

7 The argument in this paragraph is similar to Hopper's (1991) working assumptions. Note, however, that Hopper starts on a different level in that he already refers to categories: "Categories which are *morphologized* might safely be said to be part of grammar" (1991:19).

ween lexicon and grammar). The existence of elements of the latter type suggests the hypothesis that the boundary between lexicon and grammar is not clear-cut.

2.2. Basic empirical observations

This hypothesis is also connected with the major empirical observation on which GT is based (as any theory of grammar singles out a few empirical observations (often just one) it considers particularly characteristic of the phenomenon under investigation, cf. the supposed infiniteness of sentences). This is the fact that in those cases where the historical sources of grams are known, they are always lexemes.[8] This observation leads to the major working hypothesis of GT according to which an understanding of grams (and grammar) requires a prior understanding and modeling of the development of grams from lexemes.

There are three properties to the observed developments which suggest that the development of grams from lexemes is not random, thus facilitating a reasonably constrained theory for this development:[9]

a)   Not every lexeme may be the source for a gram; rather, grams seem to develop from a restricted set of lexemes, such as body part terms, certain verbs of motion (in particular *go* and *come*), verbs expressing volition, obligation, etc.

b)   Viewed cross-linguistically, the development seems to be non-random; it leads from similar lexemes along similar paths to similar grams.

c)   The development seems to be unidirectional; re-development does not occur from a more grammaticalized stage to a less grammaticalized stage.

All of these observations are to be given an adequate description and explanation within GT. So far, research in grammaticalization has been concerned primarily with (b). Empirical evidence has been adduced for many paths[10], and various ways of modeling these paths have been discussed (conveniently summarized in Heine et al. 1991 chapt. 4). (a) is briefly discussed in Traugott & Heine (1991:7-9), but there is no extensive catalogue that lists 'grammaticalizable' items[11], nor is there any theory which provides a model for 'grammaticalizability'.

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8 The major exception is demonstratives for which no lexical sources have been established so far. Since demonstratives tend to become further grammaticalized as personal pronouns or articles, the renovation of demonstratives is a common process. In this process, however, there is always a demonstrative element present, cf. for example, Spanish *acquel* 'that (far)' < *ecce* 'behold' + *ille* 'that' or French *voici* < *voir* 'see' + *(i)ci* 'here'. Thus, the history as well as the place of demonstratives within a theory of grammaticalization remains to be investigated.

9 Note that the basic observation has been around for a long time and that 19th century historical grammars essentially consist of observations on the development of grams (and thus are a rich source for research in grammaticalization which still waits to be salvaged). What distinguishes the present interest in grammaticalization from that in the 19th century is the present contention that the observed facts are amenable to a uniform theory, while most 19th century grammarians never got beyond classifying and cataloguing the observed changes (the few people who ventured to make more general remarks are nowadays considered early precursors of GT (cf. Heine et al. 1991:5ff)).

10 See, among others, Lehmann 1982, Heine & Reh 1984, Willett 1988, Bybee & Dahl 1989, Haspelmath 1989 and 1990, Croft 1991, and the empirical contributions in Traugott & Heine 1991.

11 Such a list is presently being prepared by Bernd Heine and associates.

2.3. Unidirectionality

Observation (c) is probably the most important for GT, since it makes a strong and thus testable prediction on grammaticalizational changes. Traugott & Heine (1991:4-6) point out that there may be various kinds of unidirectionality relevant to grammaticalization and that not every kind of undirectional change constitutes a case of grammaticalization. Since the presumed unidirectionality of grammaticalizational changes is one of the major constraining factors of the theory, it is important to give a precise statement as to which developments may be claimed to be unidirectional. Obviously, this point is of paramount importance for discussing the supposed counterexamples to grammaticalization, i.e. cases of so-called degrammaticalization (cf. Lehmann 1982:16-20, Traugott & Heine 1991:6f, Greenberg 1991). In our view,[12] there are three major areas with regard to which the issue of unidirectionality may profitably be raised:

1)   The change from lexemes to grams is unidirectional. In its most restrictive interpretation, there are no known exceptions to this claim: no cases exist where a case gram (say, an ALLATIVE suffix) develops into a body part term (say, *face* or *forehead*) or a FUTURE gram develops into a verb meaning 'to go'. It becomes more problematic if applied to the various parameters that have been proposed for grammaticalization.[13] Thus, although there are no known cases where a fusional affix becomes a free form, cases might be argued to exist where a fused affix becomes agglutinated or even clitic (a possible example is the English genitive *-s*, briefly disccused by Lehmann (1982:19f)). Problems with Lehmann's scope parameter are hinted at in Traugott & Heine (1991:6). Since it is still not clear what the relevant parameters of grammaticalization are, further discussion of this issue is pointless here.

2)   Another extension of the basic claim given in (1) is the inclusion of developments from less grammatical (e.g., a PROGRESSIVE auxiliary) to more grammatical elements (an IMPERFECTIVE affix). As with parameters, the present state of the proposed developments does not allow for a concise evaluation of this claim. With respect to case marking the issue is discussed in detail by Himmelmann & Sasse (in prep.).

3)   The claim is being made that grammaticalization always involves an increase of abstractness, i.e. there is a unidirectional development from concrete to abstract. There are two problems with this claim. First, it is not diagnostic for grammaticalization, but rather a general characteristic of meaning change (cf. Traugott & Heine (1991:4f) and Traugott & König 1991). This problem is harmless if grammaticalization is viewed as a multi-factorial concept, the defining characteristics of which need not be limited to grammaticalization as long as their combined appearance allows for a clearcut identification of grammaticalizational changes. The second problem is somewhat more difficult to take care of: *Increase of abstractness* is basically an intuitive notion, a commonsense diagnosis of which may be possible in early stages of grammaticalization (e.g., *intention* is more abstract than *physical motion*). As for later stages, however, it does not seem to be very meaningful. In

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12 This is a summary of a class discussion stimulated by Hans-Jürgen Sasse. Thanks to all participants.
13 Cf. Lehmann 1982, 1985, 1986, Heine & Reh 1984, Bybee & Dahl 1989, Croft 1990 (chapter 8.5.1), and Hopper 1991.

what sense is a DATIVE less abstract than an ACCUSATIVE, a PERFECT more concrete than a PAST, etc.? Thus, with respect to these stages, the claim seems to be void.

Summing up this brief discussion of unidirectionality, we hold that the core area to which it applies is the strict interpretation of (1) and that it should be expanded to (2) after the paths proposed so far have been scrutinized with rigour. As will briefly be discussed below (sect. 8.3), modeling the interaction between grammaticalizing elements is of particular importance in giving a precise statement of the unidirectionality claim. Particular attention has to be given to the phenomena called *renovation* and *reinforcement* by Lehmann (1982:20-25).

2.4. Is grammaticalization a homogeneous process?

The preceding discussion also pertains to an issue that, to our knowledge, has not been raised so far in the literature. Most current work on grammaticalization is based on the assumption (hardly ever made explicit) that grammaticalization is basically a homogeneous process, i.e. that there are at least some factors at work which are relevant to all stages of grammaticalization. The fact that a distinction is often being made between early and later stages, however, suggests that grammaticalization may actually be more heterogeneous than commonly assumed. At this point we will not deal with this issue in detail (for more discussion see Himmelmann & Sasse in prep.). We consider it an open issue: Either it can be shown that grammaticalization is a homogeneous process at least in some respects, or, if that is impossible, we have to present arguments for subsuming various heterogeneous processes under one label. In the latter case, at least a fairly superficial characterization of grammaticalization readily comes to mind: grammaticalization models and explains all those processes that happen in the development of grams from lexemes right through to the point where a gram ceases to exist.

2.5. Where is syntax?

In sect. 2.1. we have contrasted the element-bound view of grammaticalization with the category-bound view of grammaticalization and decided that GT, as to be developed here, puts the focus on grammatical elements. This decision also has repercussions for our central question: Is it possible to conceive of grammar in terms of grammaticalization? It implies the hypothesis that in a theory of grammar which is based on grammaticalization grammatical elements will be considered as the core of grammar. This immediately raises the question: What about morphosyntactic structure (word order, phrase structure), the domain that is considered by many linguists as the core of grammar? Is it possible to handle purely structural phenomena in terms of GT? In sect. 7.2 we will propose how GT deals with morphosyntactic structure. At this point it will be sufficient to remark that the identification of structure is much less clear and much more controversial than the identification of grams. As for the core grams, there is no dispute as to their status as grams (to our knowledge, nobody ever doubted that /ed/ and /ly/ are grams of English). Delimiting the structure of *John is easy to please*, however, has generated considerable discussion, and several alternative proposals exist as to what its structure is. As one browses through the current literature on syntax, it immediately becomes obvious that there is no common understanding of the definition of *(morpho-)syntactic structure*. Is it

constituency or dependency? Does it pertain to hierarchy or to relationality? Is it s-structure or d-structure or the combination of the two? In short, so-called structural facts are much more the product of a given theory than the fact that grams exist. Thus, rather than being an obvious weakness of GT when it dodges a clear-cut statement on structural 'facts' at the beginning, it might turn out to be a great advantage not to have to base the theory on some pre-conceived notion of structure. Note that this does not mean that morphosyntactic structure does not exist at all (or is irrelevant), as suggested by Garcia (1979). The hypothesis is that morphosyntactic structure is something derived, emerges and is not something to be presupposed by the theory of grammar.

3. Grammaticalization and grammatical meaning

Joan Bybee and associates (cf., for example, Bybee & Pagliuca 1985, Bybee 1988, and Bybee & Dahl 1989) have examined the implications of the facts of grammaticalization for our understanding of grammatical meaning. Let us briefly review their major claims:

1) Grams do have a meaning of their own; they are not mere structural markers which are assigned values by entering into oppositions. The idea that grammatical meaning should be defined solely - or even primarily - in terms of opposition must be revised. The semantic substance of each individual gram is itself of equal or even greater importance for explaining its use (Bybee 1988). One piece of evidence for this claim is the fact that grams are capable of further semantically-based development. If grams did not have a meaning of their own, it would be difficult to explain why DATIVE marking adpositions often develop into subordinators expressing purpose rather than, e.g. cause or temporal sequence (cf. Sweetser (1988)).

2) The scope of the meaning of grams and their development is limited by the original meaning of the source items. Similar sources, for example, lexemes denoting 'throw away', lead to the development of grams which are cross-linguistically similar and may thus be subsumed under universally valid 'gram-types' (Bybee & Dahl 1989) such as PERFECT (which later on develops into PERFECTIVE or PAST). But these grams often also exhibit idiosyncracies related to the original meaning of their sources, their degree of grammaticalization, and, to a certain extent at least, the interaction with other grams (cf., for example, Bybee's discussion of *will* and *shall* (1988:252f)). This observation leads to the apparently contradictory conclusion that grammatical meaning is both universal and idiosyncratic:
"The literature on grammatical meaning conveys the impression that if contrast sets are small (...), then the contrasts must be large, boldly written, basic, and representative of a world view of the speakers. At one level this is true, but ironically this is the same level at which we find universals, common gram-types that occur cross-linguistically, such as progressive, perfective, or dative (...). This is the level at which fine distinctions among grams within a language can be ignored and broad patterns across languages observed. But grammatical meaning also involves a certain richness of detail, especially as it combines with lexical meaning and world knowledge, and this can only be understood by considering that grams encode a meaning that is at once abstract and general, but in addition contains traces of its former lexical meaning and thus can convey a richness of nuance and implication that leads to much variety in interpretation." (Bybee 1988:261f)

3) The idiosyncratic aspect of grams challenges the validity of traditional grammatical 'supercategories' such as, for example, tense and aspect:
"It is not the case that tense and aspect each present a domain that languages divide into distinctive members in idiosyncratic ways, it is rather the case that there are a few major gram-types, each representing a section or range of one of a smaller number of frequently occurring paths of development. A better understanding of a gram 'perfective' is not as a member of a supercategory of aspect, but as an instantiation of a range on a path of development, comparable to other perfectives from similar sources and at similar stages of development. This means further that we do not have to concern ourselves with defining 'tense' or 'aspect' or the more recalcitrant 'mood' as overarching categories, nor with deciding whether perfect is a tense or an aspect, or whether future is a tense or a mood. Rather the relevant entity for the study of grammatical meaning is the individual gram, which must be viewed as having inherent semantic substance reflecting the history of its development as much as the place it occupies in a synchronic system." (Bybee & Dahl 1989:97)

Applied to grammatical practice this suggests the following: If grams have a meaning of their own, it seems reasonable to attempt to describe their use on the basis of that meaning. Consequently, there is no need for rules referring to purely structural entities in analyzing grams. In fact, insofar as the use of meaningful units is not amenable to rules at all, there are no grammatical rules (at least with respect to grams). Furthermore, this approach amounts to replacing the organization of a grammar by grammatical supercategories with an organization by gram-types which are linked together through paths of development (that is, grammaticalization channels or chains). Does this replacement make a big difference? Not really, as long as we treat gram-types analogous to the traditional supercategories, that is, as some kind of pre-conceived notional domains from which languages (speakers) may/must choose certain concepts and code them grammatically. Here, we are back to our central problem: Is it possible to model grammaticalization without invoking the notions of grammar and grammatical category?

4. Grammaticalization without grammar?

At first sight, this might seem to be a primarily methodological problem. It is, however, also a conceptual one, with practical implications for research in grammaticalization. The conceptual problem is this: Do grammatical categories arise in the process of grammaticalization or do they already exist in some sense beforehand? *Grammatical category* here includes both 'supercategories' such as TENSE, ASPECT, CASE, etc. and 'gram-types' such as FUTURE, PERFECTIVE, DATIVE etc. Traditionally, grammaticalization has been conceived of as a cyclic process where new grams 'replace' old ones. Thus it was and still is common to say that the old IE inflectional case system has been gradually replaced by prepositional expressions in the development from Latin to the Romance languages (the same holds for the Germanic languages). That is, because of, or at least during, the decline of the old inflectional DATIVE-ending, the preposition *to* is said to be grammaticalized as a DATIVE marker. Note that in this conception, the DATIVE as a grammatical category is present all the time. Of course, current approaches to grammaticalization also make the claim that a language X develops a DATIVE case without having had one before.[14] As an example, see the coverb/preposition *gěi* 'give; for, to' in Chinese (Li & Thompson 1981 Chapter 10). But this is not really an answer to the question. In modeling the development of an expression such as *to be going to* into a FUTURE marker, it is common to say that at some point the originally spatial expression has been mapped/transferred/metaphorically extended into the temporal domain, and even more specifically:

> " ... that a topologically structured image schema (...) is abstractable from *go*, and coherently mappable onto the domain of futurity with preservation of the topology.
> ... we have ... exchanged the embedding of this image-schema in a concrete, spatial domain of meaning for its embedding in a more abstract and possibly more subjective domain." (Sweetser 1988:392)

This is just one example of modeling the process. We are not aware of any other wordings which do not presuppose a notion of futurity in some sense. Today, of course, hardly anyone uses a model in which the grammatical category FUTURE is presupposed. Instead, something like a cognitive entity 'futurity' is invoked, and with respect to 'futurity' it might be plausible to presuppose the concept. How do we deal, however, with 'dativity' or 'accusativity'?

The problem is not only limited to grammatical categories. Irrespective of any particular category, it is usually the case that 'grammatical functions' and, of course, 'grammar' itself are presupposed in a similar way. Witness common wordings such as 'lexeme X is used to express function X', 'lexeme Y is on its way into grammar', or 'grammaticalization is motivated by unfulfilled communicative needs', etc. Thus, in more general terms the conceptual problem is this: Is there in some sense an entity 'grammar' which is the target of grammaticalization processes? Do we have to presuppose functional or cognitive domains for which expressions are developed in the process of grammaticalization?

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14 And furthermore, that a prepositionally expressed DATIVE is different from one that is inflectionally expressed in that it is less grammaticalized (cf. for example, Bybee & Dahl 1989:65ff).

Apart from the various methodological problems involved in a definition of these domains, the major argument against them is that as soon as we postulate such presumably universal domains we run into the problem of explaining why some speech communities develop expressions for them whereas others do not.[15] The idea of 'communicative neccessity' as a motivation for grammaticalization has already been refuted with the same argument by Bybee & Pagliuca (1985:76):

"First we must dispose of the notion that communicative necessity motivates the development of grammatical categories. This cannot be so, because not all languages grammaticize the same categories."

Furthermore, positing underlying functional or cognitive domains re-introduces the idea of a stable and fixed entity grammar - which is refuted by most 'functionalists' for the morphosyntactic level - at a higher level of abstraction. This, however, is a complex issue, since the human capacity of speaking clearly is constrained and shaped at some level by the make-up of the human brain. Thus, there seems to be no way to avoid reference to some highly general cognitive principles in explaining linguistic behaviour (and we ourselves will do so (see sect. 6)). What we are concerned with here are the kind of medium-level abstractions such as the domain of aspectuality or the domain of participant (or case) marking. Are these abstractions warranted? Do we need them? We are not yet in a position to present a well-founded answer to these questions. In this section, we simply wish to indicate our doubts and give some hints as to why we consider this an important and open issue.

Arguments pertaining to somewhat wider issues may be added. Any theory of grammaticalization that does not presuppose a notion of grammar is a stronger theory in that it will also be able to handle the problem of how grammar arose in the first place. No doubt, every example of grammaticalization that we are able to witness takes place in the realm of an 'existing' grammar. But a radical GT would have to be able to explain how a 'first' grammar has come about. In the same vein, many of the pseudo-problems of language acquisition disappear, if there is no need to assume that children have to acquire knowledge of some overarching and fairly abstract domains or functions for which there is no coherent evidence in the linguistic behaviour they have access to.

The possibility of conceiving of the rise of structure without presupposing it is shown by connectionist models of self-organizing systems. Among the many points of similarity between connectionist models and GT are the emphasis on elements and associations and the claim that rules are not explanatory devices. In the present context, the fact that no cognitive entities are presupposed could be added. A similar position has been developed within the framework of cognitive grammar. Langacker gives the following characteristic of the cognitive grammar project:

"First, cognitive grammar makes no qualitative distinction between rules and their instantiations - rules are simply schematized expressions; moreover, the 'schemas' in question are thought of as being 'immanent' to their instantiations, not as separate or discrete structures. Second, only elements with semantic and/or phonologi-

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15 An attempt to solve some of the issues involved here is the concept of *competing motivations* (cf. DuBois 1985, Haiman 1985 chapt. 6). Though this idea seems to be relevant at the level of general principles (see below, sect. 9.1), we doubt that it takes care of all the problems involved in postulating cognitive domains/needs lurking in the background, waiting impatiently for an expression.

cal content are permitted, and they are characterized directly in terms of such content, not in a propositional format. Third, analyses are based on the overt form of expressions; derivation from abstract, 'underlying' representations is precluded, as is any sort of algorithmic computation. Finally, a linguistic system is viewed as simply an inventory of 'cognitive routines', which are interpretable as recurrent patterns of activation that are easily elicited by virtue of connection weights; ..." (quoted from Bechtel & Abrahamsen 1991:296)

Given all these considerations, we hold that it would be preferable to be able to conceive of grammaticalization without invoking the notion of grammar or a grammatical domain or grammatical categories as something given, but rather as something that emerges in the process of grammaticalization.

How is it possible to conceive of grammaticalization without making such presuppositions? There is a general tendency in grammaticalization studies to focus on single isolated elements, such as lexemes, and characterize grammaticalization with regard to these elements (as we did in sect. 2.1). Thus, most definitions of grammaticalization are phrased in a similar way as the following 'classical' quote from Kuryłowicz:

"Grammaticalization consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one." (Kuryłowicz 1965/75:52)

In these definitions the notion of grammar is always presupposed and this is inevitably so, because they focus on the isolated element which undergoes a change. But it is obvious that the change does not happen in isolation, rather lexemes are grammaticalized *in their syntagmatic context. Syntagmatic context* here is not to be understood as an already grammatically analysed syntagm, but rather, as a piece of discourse (cf. Traugott & Heine 1991:5).

5. Discourse

If *discourse* is to be used as an explanatory concept on which grammaticalization is to be based, we shall need a concept of *discourse* which itself is not circularly linked to the notion of grammar or grammaticalization. Paul Hopper (1987) has approached this issue from a slightly different perspective. In radicalizing the discourse-based approach to grammar, he reaches the conclusion that no stable, abstract object 'grammar' exists, but that grammar is emergent:

"The notion of Emergent Grammar is meant to suggest that structure, or regularity, comes out of discourse and is shaped by discourse as much as it shapes discourse in an on-going process. Grammar is hence not to be understood as a pre-requisite for discourse, a prior possession attributable in identical form to both speaker and hearer. Its forms are not fixed templates, but are negotiable in face-to-face inter-action in ways that reflect the individual speakers' past experience of these forms, and their assessment of the present context, including especially their interlocutors, whose experiences and assessments may be quite different. Moreover, the term Emergent Grammar points to a grammar which is not abstractly formulated and

abstractly represented, but always anchored in the specific concrete form of an utterance." (1987:142)

Structure (grammar) is not pre-existent, but arises from repetition in discourse:

"Structure, then, in this view is not an overarching set of abstract principles, but more a question of a spreading of systematicity from individual words, phrases, and small sets." (1987:142)

Of course, there are many kinds of repetition in discourse. Hopper (1987:144) lists "idioms, proverbs, clichés, formulas, specialist phrases, transitions, openings, closures, favored clause types".[16] But in his view no principled line can be drawn between such repetitions and those which are usually called 'grammar' (1987:147f).

6. 'Radicalradical' discourse

Although this is a fairly radical reversal of the traditional view where discourse is seen as a combination of sentences which in turn are viewed as being generated (produced) according to the rules of syntax, it still presupposes some concepts, in particular words and formulas, the nature of which remain unclear. How do formulas arise? Does discourse presuppose words (the lexicon)? Is such a presupposition compatible with the claim that discourse is the central fact of language (languaging)? We believe that the answer is *no*. A radically new concept of discourse which puts it right at the heart of linguistic activity has to do away with the assumption that discourse presupposes the lexicon. Instead, both lexicon and grammar have to be viewed as emergent from discourse (this is already logically implied by the claim - repeatedly made in Hopper 1987 and 1991 - that there is no clearcut boundary between lexicon and grammar - therefore, if grammar is emergent then the lexicon has to be emergent too).

At first sight, this seems to be a rather absurd idea. What else is left, if there are no words (lexicon) and no patterns (grammar)? - *gestures* (the capability of pointing). On the most basic and seemingly trivial observational level, languaging is pointing (Bühler 1934:33ff,79ff). It is our contention that a radical rethinking of our concepts of language and linguistics has to start here.[17] Three provisions have to be added to get from pointing to language as it is commonly understood.

First, and most importantly, the gestures have to be addressed to somebody and to involve a purpose or goal. This goal may be characterized in the most general terms as the attempt to make oneself understood, possibly (usually?) in pursuit of more concrete

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16 *favoured clause type* here is not to be understood as a syntactic unit: "A useful concept here is that of the 'figure', suggested by Pete Becker. A figure is a phrase or clause which is highly standardized in its format and which permits substitution in a few restricted places. It has a rudimentary internal structure, but is much closer to a formula than to freely generated 'sentences'. To the extent that discourse is not prefabricated, it consists for the most part of assemblages of a small number of such figures." (Hopper 1988:148)

17 The following remarks have been inspired by the radical critique of linguistics by Roy Harris (1980, 1981, 1987; the essentials are conveniently summarized in Harris 1990), which we will not repeat here. This critique, however, remains academic, since no convincing new practice is offered. One purpose of this paper is to contribute to a practice which takes Harris' critique seriously.

Another major source of inspiration is Serzisko's (1992) account of Fritz Mauthner's *Automatizationäge zu einer Kritik der Sprache*. Particularly noteworthy is Mauthner's rigour in basing his view of language on the observable activity of speaking and in refuting any unwarranted conceptual realism.

purposes such as obtaining food, making a warning etc. There is no need to assume that the goals/intentions of someone pointing to some food exist in propositional format (*I want that food*) - he or she simply wants it. Nor is the pointing gesture to be supposed to convey the meaning *gimme that food*. The addressee must discover the intentions of her or his 'interpointer' by performing some action with the food (give it to him/her, remove it (perhaps it's smelling), eat it her/himself, etc.). The pointer, of course, reacts to or interferes with these actions. In repeating this interaction in similar situations, a meaning for the gesture may be negotiated. This, then, is a possible scenario for how one creates/negotiates meanings in face-to-face interaction without having to presuppose them in advance.[18]

Second, the gestures may be accompanied by sound(s) which may first become an integral part of a gesture and later on become emancipated from the gesture.[19]

Third, signs (negotiated gestures) may be combined according to some very general cognitive principles. What we have in mind here is the fact that in putting together signs (gestures as well as verbal signs) - and the medium, be it a gesture, be it sound, be it a picture, at some point requires linear order - people tend to follow some general principles (given that no other factors intervene) such as Behaghel's famous 'laws' that the more important information comes after the less important (old precedes new) and that what conceptually belongs together tends to be placed together. These principles have been extensively discussed under the labels of *iconicity* and *economy* in the functional literature; there is no need to repeat this here (see Haiman 1985 for a thorough discussion). Note that we hold that these principles are valid on all sign levels, including the level of gestured signs, and that they are not specifically linguistic principles, but more generally cognitive principles. Nevertheless, these principles are of great importance for our argument in that we claim that they take care of an essential part of what is generally considered to be the job of syntactic rules.

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18 Anyone who has had the experience of interacting with babies has probably experienced such a negotiation of 'meaning'. See Bates et al. (1979) for a discussion of this scenario from an ontogenetical point of view.

Phylogenetically, this scenario is, of course, similar to the *gestural theory of language origin* (cf. Hewes 1976, Rolfe 1989, Yau 1989). It does not, however, purport to be a realistic scenario of language origin. Instead, it is a speculative scenario invented to show that it is - at least in principle - possible to view languaging as emergent from gesturing. Note that it presupposes several facts the presupposition of which is not without problems. In particular, it is presupposed that the 'interpointers' are able to interact, that they have intentions and perceive pointing gestures as a request to react. That is, we presuppose that pointing already is a sign and not simply an instinctive behaviour (see Keller (1990:33-47) for a modern speculation on the development of signs from instinctive behaviour). Our procedure thus implies the hypothesis that intentions and interaction are more basic than verbal signs and meaning.

19 This view reverses the traditional idea (which is based on the humanistic belief that humans are essentially different from animals) that sign language, if it is a language at all, derives from spoken language. Fortunately, more and more people have abandoned this belief and have come to recognize that sign languages are not derivative of spoken languages, but languages in their own right.

To sum up, this is then the central fact of discourse: The attempt to make oneself understood[20] which - among other things -involves signing. Signs may be combined according to general cognitive principles. From this view, words and formulas, lexicon and grammar may be conceived of as emergent from discourse. The major factor here is repetition. John Haiman, in a thought-provoking article (Haiman 1991), gives many examples for the fact that repetition leads to ritualization (automatization, emancipation, and habituation) - both from non-linguistic and linguistic behaviour. This includes the claim that what we are used to thinking of as the design features of language, such as *double articulation*, may be conceived of as arising through repetition:

> "The standard model of erosion whereby morphemes are reduced, first to bound affixes, then to phonemes and finally silence, may provide the observable mechanism whereby languages evolved double articulation (...). Sound now meaningless may have evolved originally from meaningful morphemes." (Haiman 1991:51)

Applied to our present discussion this means that words arise through the emancipation of sounds from gestures and the automatization of sound combinations (sounds formerly perceived as single signs now being perceived as 'meaningless' parts of an automatised unit (or rather, not being perceived at all)). Later on, words, of course, may arise by the same process from complex signs, i.e. words arise from frequently recurring combinations of words in discourse (the standard example is *lord* from *$hglib$ 'bread' + *$ward$ 'keeper', cf. also Hopper 1990). Thus, the ever recurring development in its most schematic terms is this:

repetition in discourse --> formula --> sign

repetition in discourse --> formula --> sign

repetition in discourse --> formula --> sign

20 This phrasing is due to George Grace who, in his 6ICAL lecture (Hawaii 1991), observed that in several Melanesian speech communities the absence of a notion of *language* (as opposed to or different from *speaking*) correlates with a different view of what is involved in linguistic activity: speaking is *not making a statement, but making oneself understood*. Such a phrasing dodges the question as to what the 'final' purpose of this activity is. Apart from the truly instrumental role languaging plays in the survival and social structuring of the human race, there is also a certain 'purposeless', playful aspect to languaging which has been repeatedly pointed out since Novalis' times (cf. Humboldt 1836/1963:434f, Gabelentz 1901:362ff, Halle 1975:527f), but which tends to be overlooked (or under-estimated) in the currently prominent functionalist view of languaging as shaped by communicative needs.

Note, incidentally, that *making oneself understood* is, of course, reminiscent of Humboldt's famous definition of the function of language as "den articulirten Laut zum Ausdruck des Gedanken fähig zu machen" (1836/1963:418; 'to make articulated sound capable of expressing thought'). This definition, however, makes explicit reference to spoken language and suggests a coding relation between thought and language which is not without problems (note that this, in fact, is not Humboldt's conception of the interrelation between thought and language).

7. The specifics of grammaticalization

7.1. Grammaticalization vs. lexicalization

In the formula just given, no provision is made for different types of signs such as simple lexemes, compounds, phraseologisms, unbound and bound grams. This entails the correct prediction that the boundaries between these types of signs are not clear-cut. Furthermore, it implies that given a formula is identified in discourse it is difficult, if not impossible, to predict whether it is going to be lexicalized or grammaticalized (cf. Hopper 1991). For a corroboration of this view, see Lehmann (1991), who attempts to identify incipient stages of grammaticalization in contemporary German, and declares several times that he is unable to decide whether a given formula is on its way into the lexicon or into the grammar. In discussing the rise of new complex prepositions such as *im Zuge* 'in the course/procession of = by, during' or *im Wege* 'in the way of = by (means of)' he makes the following observation:

> "When a newly coined periphrastic expression is received by other members of the speech community, it will not be in isolation, but in the context in which it was originally coined. It will not then spread at once to all kinds of contexts which ... would admit it, but will initially be restricted to certain collocations which come close to being phraseologisms." (1991:503)

Thus, it seems justified to propose - at one level - a common development leading from repetition in discourse to signs. Nevertheless, there is a clear intuition that lexemes and grams are different in some respects. What are the differences and how can they be modeled? One difference pertains to the fact already pointed out above (2.2) that grams typically evolve from a subclass of signs (lexemes), and not just from any sign. Thus, when we identify a formula containing a sign which belongs to the class of typically grammaticalizing signs, the chances are good that we are viewing a case of grammaticalization in its incipient stages. Establishing this class of signs is an empirical task on which we have nothing to say at this point. But there also seem to be differences regarding the process of development itself. We will now try to model these differences in general terms. For the sake of clarity, we will focus on the difference between lexemes and inflectional grams, neglecting compounds and derivational grams for the time being. Note that the basic hypothesis is that there is no difference in principle between these sign types.

Suppose we have a combination of two signs (AB)[21] which frequently recurs in discourse. Frequent repetition imparts the character of a formula to this combination. *Formula* means that the combination is processed more or less automatically, that is, the processing of the two signs approaches the processing of a unit. One important correlate of becoming part of a formula is the fact that the use of each of the two signs in different contexts may become increasingly independent of how they are used in this specific combination. Consequently, their development as independent signs may be completely unrelated to what happens to them in combination (cf. Hopper's principle of divergence (1991:24f)); this will not concern us here any further. The focus here is on the combination of the two signs approaching unity in processing.

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21 The formalism used here is the one introduced by Sapir (1921 Chapt. 2).

Unity may be approached in two ways: The specific formula AB might in fact be considered a unit at some point (which usually involves phonological and semantic adjustments/specializations). It thus becomes a complex sign (S) consisting of two parts which, however, are no longer recognized as such. The new sign basically behaves the same way as the 'old' signs, i.e. it may be combined with other signs according to the general principles mentioned above (SA, BS, etc.). This process we call lexicalization.

The other possible development, grammaticalization, is more complex. What we attempt here is to delimit those aspects which make grammaticalization different from lexicalization. Although we will not discuss the proposals in detail, the following paragraphs represent our view of the parameters or principles of grammaticalization that have been proposed in the literature (see Heine & Reh 1984 Chapter 1.1; Lehmann 1982 chapt. IV, 1985:305ff; Bybee & Dahl 1989:59ff; Hopper 1991:22ff). Inasmuch as our view differs from previous proposals, this is not due to a critical reassessment of the proposed parameters, but to our basic hypothesis that grams arise from repetition in discourse.[22]

In grammaticalization the two signs are not 'melted' into a new sign in such a way that they become unrecognizable parts of a new unit. Instead, the result of grammaticalization with respect to the combination AB may be symbolized as A(b) where one sign (A) basically remains the same, while the other sign (B) develops into a sign of a new type, a gram (b). The brackets surrounding the gram indicate that it is dependent in some sense on the other sign. Instead of saying *is dependent in some sense*, we could also say that the gram is no longer a full sign whose use is governed only by general principles (full words become small ('function') words). Nevertheless, the grammaticalized sign is still perceived as a sign, not as a 'meaningless' part of some larger sign. This aspect of grammaticalization may be called *decategorialization*[23] (cf. Hopper's 5th principle (1991:30f). Decategorialization may[24] be accompanied by or lead to a formal dependency of the gram; it becomes a clitic, later on a bound, potentially even a fused morpheme. This is well-known as the parameter of *coalescence* (Lehmann 1982:164) which we will briefly comment on below (sect. 8.4). Note that we conceive of coalescence as a subparameter of decategorialization rather than as a parameter of equal standing.

In the preceding paragraph we focused on the gram. The development, however, cannot be adequately described with reference only to sign B or to the combination AB, since (b) typically occurs not just in combination with A, but also in combinations with C, D, E, etc. The full signs are classified with respect to the grammaticalized sign into

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22 All the parameters or principles (including our own) reflect a linguist's point of view. The goal is to allow the linguist to identify and arrange phenomena of grammaticalization. But - and this we consider a major future task for GT - what we actually want to understand and model is what speakers do when grammaticalization takes place. To avoid any misunderstanding: we do not want to claim, of course, that speakers consciously grammaticalize - that would be nonsense. If grammaticalization, however, is not just a practical way of arranging data for linguists' purposes, but rather is supposed to explain how language works, it must be possible to model what speakers do and what results their actions have.

23 This term, however, is not completely felicitous, since it may imply that the signs were categorized before (for example, as nouns and verbs - this, in fact, is the use intended by Hopper). Here, such an implication is not intended. *Decategorialization* in our usage includes the loss of the 'full-sign status' of otherwise non-categorized signs.

24 This is optional, since there are kinds of grams such as particles and conjunctions which usually are neither clitic nor bound morphemes in the standard sense.

those who co-occur with it and those who don't. It is then not correct to say that (b) is dependent in some sense on one specific other sign (A), but rather on a *class* of signs (say, A,C,D,E). We therefore hold that *grammaticalization necessarily requires class-formation*, not with respect to the grammaticalized sign, but with respect to those signs it co-occurs with. This is not to be confused with the well-known grammaticalizational parameter *paradigmatization* (Lehmann 1982:164) or *closed-class formation* (Bybee & Dahl 1989:59ff). This parameter pertains to the fact that the grammaticalized elements potentially form classes and interact with each other (see below, sect. 8.3). Here, we are concerned with the fact that the (supposedly) open class of elements with which a grammaticalized element is in construction forms a class with respect to that element. If we term the full signs on which the developing gram depends *carrier elements* we may call this aspect *carrier class-formation* (as opposed to *gram class-formation*).

This is still somewhat simplified in that the 'original' formulas, of course, do not usually consist of just two signs, but may be fairly complex, e.g. ABKP, CBQ, DBMR, etc. Strictly speaking, what is being grammaticalized is not a sign, but a pattern involving a certain sign and at least one class of other signs (symbolized as XBY -> XbY, where X and Y are variables for classes of full signs at least one of which has to be present).[25] Thus, a third major aspect of grammaticalization is the fact that gram and carrier(s) make up a pattern. In this sense grammaticalization involves *pattern-formation*, the creation of structure. Patterns differ from formulas in that variables occur in the former, while the latter consist of specific signs. Of all the specific signs that make up a formula, it is only the gram that 'survives' the grammaticalization of formulas to patterns. The other signs are 'reduced' to certain properties that characterize class-membership.

Pattern-formation, then, is inherently linked to decategorialization and carrier-class formation. We hold that these three (sub-)processes are specific to grammaticalization and thus make grammaticalization different from lexicalization. At present, it is not yet clear whether or not these (sub-)processes are relevant to all stages of the overall process (grammaticalization would then in fact be a homogeneous process, cf. sect. 2.4.). Furthermore, pattern-formation, decategorialization and carrier-class formation may be just aspects of one process, and it remains to be investigated whether it is possible and useful to separate them. Note that this view has an important implication for modeling grammaticalization: Paths of grammaticalization can no longer simply consist of connections/developments between signs (lexeme -> gram) but must involve developments between patterns (formula -> pattern_i -> pattern_j).

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25 This is still somewhat oversimplified, since it is not clear in what sense certain grams such as *discourse particles* and *conjunctions* 'depend' on other *elements* and not on more abstract, structural entities, such as phrases or clauses. However, too little is known about the grammaticalization of discourse particles and conjunctions as to make any proposal as to their treatment with respect to carrier-class formation.

7.2. A GT-based view of morphosyntactic structure

For our major topic (rethinking grammar in terms of grammaticalization), we have now reached a crucial point. The notion of pattern-formation rests on the hypothesis that grammaticalization involves the development of structure (rather than presupposing it). The concept of structure as it is presented here differs in one crucial aspect from that currently espoused by most linguists: structure is not to be viewed as independent of or separate from the elements that make up the structure. There is structure only insofar as there are grammaticalized elements, structure is element-bound. Since *structure* is presently used to denote exactly those aspects of language which supposedly are not bound to concrete elements, we prefer to use the term *pattern* instead of the cumbersome phrase *'element-bound' structure* in order to underscore this difference.
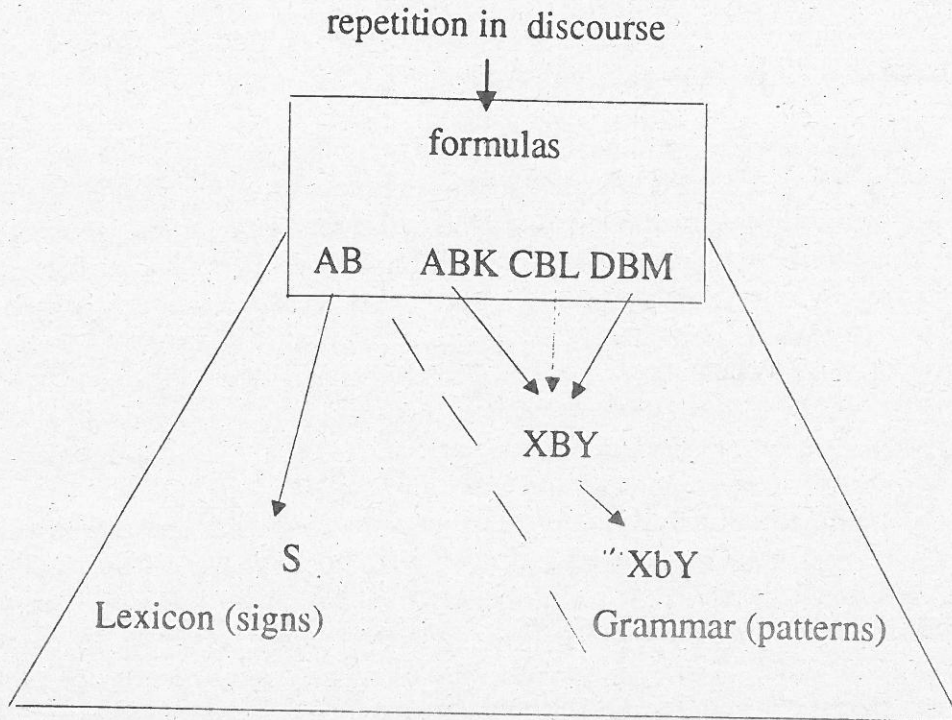
What we propose then is to split up the facts currently subsumed under the label *morphosyntactic structure*. On the one hand, there are patterns which are the result of grammaticalization processes and bound to grams (e.g., argument 'structure', passive, complementation, etc.). On the other hand, signs are arranged according to general principles (most importantly, basic aspects of word order and 'constituency'[26]); element-bound structures (patterns) are the result of the automatization of such arrangements. All of this happens in discourse. That is, discourse involves the reproduction of patterns, the (occasional) production of 'new' arrangements and the constant re-arrangement[27] of formulas and patterns (= grammaticalization).[28]

Grammaticalization and lexicalization then are similar, but distinct, processes: Grammaticalization involves the complete automatization of 'element-bound' structure, while lexicalization involves the complete automatization of a specific formula. Schematically:

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26 Much of what is held to be constitutent *structure* is simply a result of the principle that 'what conceptually belongs together tends to be placed together'.

27 The 'free' arrangement of signs and the rearrangement of formulas (grammaticalization) involve the same general principles. Thus it seems adequate to use the same term (*arrangement*).

28 Cf Hopper (1987:144): "... grammar is what results when formulas are re-arranged, or dismantled and re-assembled, in different ways."

repetition in discourse

formulas

AB   ABK CBL DBM

XBY

S   ¨XbY

Lexicon (signs)   Grammar (patterns)

As for languaging (discourse), the following overall model may be considered:

Negotiating Meaning

(Discourse)

Pointing

formulas   General Cognitive Principles

signs | patterns

(Lexicon | Grammar)
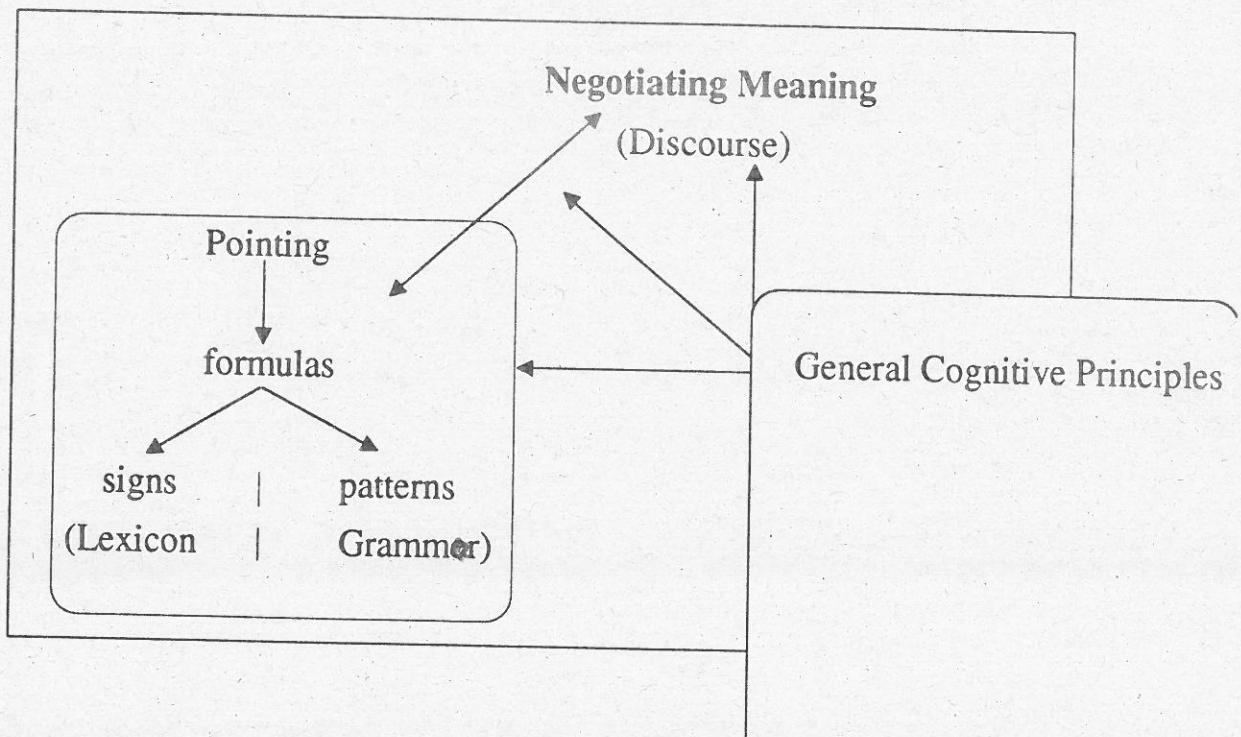
The central purpose of any discursive activity is to negotiate meaning. This is done, on the most basic level, by pointing. More elaborate forms of communicative interaction may involve (verbal) signs, formulas (the conventionalized combination of specific signs) and patterns (the conventionalized combination of grams with signs of a specified class). On all levels of communicative interaction, the same set of basic cognitive principles is effective. These principles are also relevant in the development of formulas, signs and patterns from repetition in discourse.

8. Topics in GT

In the preceding sections an attempt was made to develop a concept of grammaticalization which does not presuppose the notion of grammar or grammatical category. As already hinted at in section 1, conceiving of grammaticalization along these lines also has some consequences for modeling grammaticalization. In this section we will briefly discuss some of these consequences and point out those areas which in our view need intensive research in order to fully develop the theory of grammaticalization espoused here.

8.1. Carrier class-formation

The process of grammaticalization as sketched in section 7 involves not just one formula (AB), but a whole set of formulas (CB, DB, etc.). In order for grammaticalization to occur, some kind of similarity has to be perceived between these formulas in order to arrive at an abstract pattern X(b). What are the factors contributing to this similarity apart from the fact that all the formulas contain B? The latter fact itself also requires an explanation: Why should there be lots of formulas containing B? This seems to be connected with the meaning of B. It has to be a meaning that easily lends itself to frequent combinations with other signs (such as, for example, 'go' as opposed to, e.g., 'graze') and/or it must be prone to metonymic or metaphorical extensions (such as, for example, body part terms). The relevance of the latter processes to grammaticalization has been extensively discussed in the literature (conveniently summarized in Heine et al. 1991:45ff, 70ff; see also Traugott & König 1991:207ff). Metaphor and metonymy, however, are not defining features of grammaticalization (see, for example, Sweetser 1990, Traugott & König 1991). In our view, they belong to the general processes characteristic of human cognition and thus are part of the set of general principles mentioned above. The important point for our present discussion is that if B has spread to many formulas by way of metaphorical or metonymic processes, these processes have established the 'required' similarity of the elements co-occurring with B. The relevance of other factors for similarity remains to be investigated (in particular, the question whether purely discourse-related factors such as the tendency of certain signs to occur at the beginning of utterances are sufficient for grammaticalization to occur).

In the cases of grammaticalization which are historically documented, carrier classes have always already existed owing to the existence of grams. In fact, studies in grammaticalization have tended to adopt traditional grammatical (e.g., parts of speech) and semantic classifications (e.g., animates) in describing the development of grams. Since these classifications were presupposed, the formation of carrier classes has not so far been considered a part of grammaticalization. In our view, investigation should proceed from the hypothesis that there is a specific carrier class for each and every gram of a given language and that every process of grammaticalization also involves the rise of a new or, in case of the further grammaticalization of already grammaticalized patterns, the change of an existing carrier class. That the carrier classes of two (or more) grams are identical or overlap substantially has to be empirically shown. Carrier classes are the near-equivalents in GT of what is commonly referred to as *parts of speech* or *syntactic categories*. Parts of speech, in our perspective then, are convenient abstractions from a

large number of sufficiently similar carrier classes. For example, in a language with GENITIVE, DATIVE, and ACCUSATIVE grams, the sets of elements co-occurring with each of these grams are perhaps not identical, but they usually overlap to such a degree that NOUN is a convenient cover label for all of them. 'Convenient' first and foremost for the analysing linguist or language teacher - whether there is anything like a clearly delimited class NOUN for the speakers is a different issue (this, however, is not the place for discussing the kind of evidence we would like to see before we would attribute the status of psychological reality to NOUNS).

This brief discussion of carrier classes and parts of speech may already suffice to indicate the basic implication of our approach to grammaticalization and grammar: It involves a kind of deconstruction of what we are used to viewing as the grammatical *system*. Instead of being allowed to presuppose a fairly elaborate set of concepts, we are forced to rethink and, more importantly, empirically substantiate such fundamental concepts as *parts of speech*. In this enterprise, it may turn out that some of the generalizations and abstractions which are part of the grammatical tradition are precipitate and unwarranted. For example, instead of operating with a fairly small and supposedly homogeneous set of parts of speech we may be forced to recognize quite a large set of rather heterogeneous carrier classes.

Note that the fact that grams contract relations to other elements does not distinguish them from full signs (lexemes). Lexemes as well contract relations to other elements (known as *collocations*). As already hinted at in sect. 7.2. above, with respect to the distinction between grammaticalization and lexicalization, the difference pertains to the specificness (or abstractness) of the contracted relation. Grams basically contract relations to (large) classes of other elements, while lexemes basically contract relations to a single, specific element or small classes of other elements. This distinction, however, is obviously a matter of degree, which is just another aspect of the observation repeatedly made in this paper - that the distinction between grammar and lexicon is a gradual one.

8.2. The make-up of paths of grammaticalization

In section 7.1 we already hinted at the implications of the present approach for modeling paths of grammaticalization. What is the nature of these paths? The practice in the literature is far from uniform. Some paths consist of labels for *grammatical categories* (ALL -> DAT -> ACC, cf. for example Lehmann 1982). Others refer to *domains of meaning* which are linked by metaphorical extension (PERSON -> OBJECT -> ACTIVITY -> SPACE -> TIME -> QUALITY (Heine et al. (1991:48ff)). A third possibility is to refer to *types of meaning* (propositional -> textual -> expressive (Traugott 1989)). Still others refer to *contexts of use* (obligation -> intention -> purpose, Bybee et al. in prep.). Often paths consist of contexts of use at the beginning and grammatical categories at the end (intention -> FUTURE). Despite this heterogeneity, there is agreement with regard to the assumption that it is one element (a *gram*) that 'travels' along such a path. As we argued above, it is not an isolated element that is being grammaticalized since the element is part of a pattern. Thus, paths of grammaticalization in our view should consist of a succession of stages in the development of *patterns*.

Our proposal, in fact, is quite similar to the work of Joan Bybee and associates. The stages in their paths can be called *contexts of use*.[29] Such contexts are often defined by grammatical features (e.g., use in an indicative present tense clause, in a causative construction) but also by certain lexemes/phrases (e.g., use after *want*, etc.). Thus, their approach consists basically in dissecting what is usually lumped together in one grammatical category into several lower-level contexts of use and then showing how in different languages grams from similar sources 'travel' through these contexts.[30] In our view, these contexts are identical with our carrier classes. Carrier classes and grams are parts of a pattern and there is no need to conceive of 'contexts' existing independently of grams. Thus, the metaphor of 'a gram travelling through semantic space' amounts to, in our view, a change in carrier classes (usually they are extended, for other possibilities see the next section). The question as to the best way of describing changes in carrier classes (or, in Haspelmath's terminology, of defining contexts of use) remains to be investigated. The same holds for the question whether changes in carrier class in fact cover all occurring grammaticalizational changes.

Note that from this point of view the traditional labels for grammatical categories do not refer to categories of a dubious conceptual status, but to grammaticalized patterns which consist of a grammaticalized, but still meaningful sign (its meaning is basically still the meaning of its source) and to a characterization of the context in which it appears. Thus, DATIVE refers to a sign meaning either 'movement to' or 'give' (depending on the source) which appears in the pattern XYd, i.e. it co-occurs with two classes of signs, but it is (positionally and semantically) closer to Y than to X. Class X contains signs denoting transfer, all kinds of actions that can be done for somebody and, possibly, motion towards; class Y signs prototypically denote animates, but signs for objects and places are also possible. Similarly, labels such as *obligation*, *intention*, etc. may be used as convenient labels for new sets of elements with which a gram co-occurs. They should not be conceived of as referring to abstract domains in semantic space (as is sometimes done in the studies mentioned in the preceding paragraph).

29 cf. Haspelmath (1991:6) who refers to this approach as the semantic map methodology (1991:7f). As for its motivation, he notes:
"The basic principle of this approach is that cross-linguistic comparison of grammatical categories should be done at a rather low level, i.e. before any larger semantic generalizations have been made. This means that what is compared are not meanings of tense-aspect markers, ...; rather, what is compared are uses in particular environments ..." (1991:6)
"The highly specific uses or functions ... are thought of as existing in a semantic space. The relations among these uses can be studied by determining cross-linguistically which uses can be covered by the same grammatical marker." (1991:8)
The approach is also reminiscent of Haiman's "method of universal morphology" (1976:51, 1978:596f).
30 For particularly successful and convincing examples of this methodology see Haspelmath 1989 and 1990.

8.3. The interaction of patterns: paradigmatization

So far, our model of grammaticalization pertains to patterns in isolation. The grammaticalization of one pattern is viewed as independent of all other changes occurring in the language. We avoided referring to other grams or classes of grams in modeling the development of one pattern. This procedure accords with our overall procedure of avoiding the incorporation of traditional, but potentially unwarranted, assumptions into our model. Traditionally, it has been assumed that grams form classes and that their behaviour is to be described and explained with reference to these classes. A correlate of this view is the idea of dealing with grammatical meaning in terms of oppositions (already critized in section 3). We do not wish to deny an interaction between grams (or, in our terms, patterns). But the extent of this interaction is to be established empirically and not to be assumed in advance. Since the interaction involves the establishment of paradimatic relations between patterns, we shall call this process *paradigmatization* (rather than gram class-formation).

As Bybee & Dahl (1989:60f) point out, there is no necessary relationship between structural and 'semantic' classes of grams. It is neither necessary that all 'tense' grams in a given language belong to one class (e.g., they are all auxiliaries), nor that elements of one structural class express meanings from just one semantic domain.

> "This lack of correlation between structural and semantic classes is predicted by grammaticization theory as we are developing it here: if each gram follows a path of development according to its original meaning, then it develops independently of other grams. It belongs to a structural class if other grams from structurally similar sources (such as auxiliary verbs) undergo grammaticization at approximately the same period of time. Its membership in a structural class, then, is not determined solely by its meaning, but at least in part by chronological coincidence." (Bybee & Dahl 1989:61)

Thus, there is a certain degree of chance involved in paradigmatization as indicated by Bybee & Dahl's phrasing "chronological coincidence". This implies that paradigmatization is in a certain sense independent of other aspects involved in the process of grammaticalization. There is no evidence for viewing paradigmatization as a necessary factor at all. (Indeed, do particles and conjunctions form paradigms?) We therefore consider paradigmatization a process which requires a (sub-)model of its own.

There seem to exist three factors involved in paradigmatization: overlap in the carrier classes, the meaning of the gram and its position in the pattern. Paradigmatization may cause several states of affairs: One pattern displaces another (which presupposes that the carrier classes are virtually identical and the meanings of the grams are very similar). Another possible result is the splitting of the carrier classes among the patterns. For example, let us assume that there is a pattern (P) occurring in intentional, volitional and predictive contexts. Another pattern (Q) arises for intentional contexts. Two things may then happen: Either Q and P coexist and potentially acquire specialized connotations (that is they split up their carrier classes in intentional contexts), or Q becomes the conventional pattern for intention. The latter alternative looks like grammaticalization with respect to Q as well as degrammaticalization with respect to P, since the use of P becomes more restricted (the carrier class becomes smaller). It is this last possibility which makes paradigmatization highly difficult and relevant for GT, since a precise and testable

statement of the unidirectionality claim (cf. sect. 2.3) requires a clear understanding of this kind of interaction between grammaticalizing patterns.

There are many quite complex and poorly understood phenomena with respect to paradigmatization (to mention just one: analogical levelings between inflectional paradigms, where the mere occurrence of analogy proves that the paradigms are real in some sense and not just convenient ways of representation for grammarians). On a more general level, the following questions must be addressed in order to establish a model of paradigmatization:

- How are speakers able to establish relations between patterns on a paradigmatic axis based on overlap in the carrier classes and the meaning and position of the gram?
- Why should they do so at all?
- Under what conditions does paradigmatization occur?

There are two phases to be modeled: For one - and this is characteristic of an early phase of grammaticalization - several patterns are often in 'competition' since they convey similar meanings (e.g., often there are several patterns containing signs for 'class, group, clan' all of which express plurality) and only a few (sometimes just one) will 'survive'. For another - characteristic for a later stage of grammaticalization - grams from different sources being grammaticalized to approximately the same degree form a structural class and eventually, if fused, inflectional paradigms.

8.4. The mechanics of grammaticalization: coalescence

Another aspect of grammaticalization not dealt with up to now is coalescence (or fusion). Although highly grammaticalized patterns often exhibit the affixation of grams to their carriers, this is not necessarily so. Therefore, we hold that this process again requires a (sub-)model of its own. As with paradigmatization, this process has hardly been studied in detail so far. It seems reasonably clear that it is connected with position and frequency. What is not clear is why postponed elements generally coalesce faster/easier than preposed ones,[31] and why in some languages grams are hardly ever affixed or fused while in other languages the advancement to complete fusion of grams is common. Furthermore, there is probably a correlation between meaning and coalescence (see Bybee & Dahl 1989:66f), but its exact extent and the actual mechanics of the process are still very poorly understood. What is clear, however, is that here - as distinct from most other processes - language-specific factors play an important role (in isolating languages there is no agglutination or fusion), such that GT must allow for some kind of language-specific 'parameter-setting' with respect to this process.

Another parameter or aspect of grammaticalization also belongs here: phonological erosion. This presupposes cliticisation and hence should be considered a (sub-)aspect of coalescence.

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31 Cf. the recent discussion concerning the suffixing preference, for example, Hall (1988), Hawkins & Gilligan (1988), Bybee et al. (1990).

9. Grammar

In this paper we have attempted to sketch a dynamic model of grammar (morphosyntax) which is radically based on discourse and involves two components: the theory of general cognitive principles and the theory of grammaticalization. A theory of the lexicon and a theory of the sound structure (phonology) would have to be added in order to provide for a comprehensive model of languaging. As hinted at in section 7.1, there are certain aspects common to the development of lexemes, grams, and phonemes so that it may well turn out that a general theory may be proposed which ~~which~~ models the common basic aspects of languaging for the lexicon, the grammar as well as the phonology, and that submodules of this general theory provide for the specifics of each of these areas.

The general cognitive principles account for the basics of communicative interaction as well as for some basic aspects of grammaticalization (most importantly, automatization). Evidence for these principles comes from discursive practice (the study of language in use), historically-attested grammaticalizational changes and sources which are not specifically concerned with language (most importantly, psychology, but also sociology, biology, etc.). Grammaticalization together with lexicalization accounts for the inventory of signs and patterns (i.e., the 'element-bound' morphosyntax) used in a given speech community. As for the patterns, grammaticalization provides a network of interrelations as they are evidenced by historical developments. Note that grammaticalization does not presuppose the notion of grammar as a given, stable, tightly-integrated system, nor does it presuppose a canon of grammatical categories or functional domains. Instead, the network of paths of grammaticalization empirically established by cross-linguistic comparison serves as a point of reference with respect to which the dynamics of a specific pattern may be stated (where it comes from and what potential further developments are). No claim is being made that every language must fill in certain points in this network, nor that this network is in any sense part of the cognitive disposition of speakers. Instead, what may be cognitively 'wired' are certain general features underlying the individual changes which make up the network.

9.1. General cognitive principles

Our hypothesis involves the claim that certain aspects of languaging are taken care of by general cognitive principles which may be independently established or at least corroborated by extra-linguistic evidence. What we have in mind are facts such as the following:

1) Human cognition tends to structure experience and operates with schemata. Therefore, that patterns arise from repetition, that language (to a certain extent) is structured, is not a peculiar property of language nor of speaking.[32] That ritualization (emancipation, habituation, automatization, see Haiman 1991) occurs is nothing that can or must be explained by linguistics. Note that our notion of structure is a

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[32] We are not competent to model human cognition, nor are we familiar with all the relevant literature. It may suffice to point to the work by Anderson (1983) within psychology and to connectionist approaches in artificial intelligence (cf. Bechtel & Abrahamsen 1991), in order to show that there are frameworks in related areas which are fully compatible with the view of human cognition espoused here. Bates et al. (1988) present a framework for language acquisition which theoretically and empirically corroborates the present approach.

dynamic notion; there is no hard-wired structure. Structure arises from repetition and may become obsolete through excessive use.

2) There are some very general principles of reasoning involved in processing (verbal as well as non-verbal) signs such as inferencing, metaphorical and metonymic transfer, the concept of causality, iconicity, etc. Evidence from linguistic behaviour is important in identifying and modeling these processes, but evidence from other areas (perception, problem solving, etc.) shows that these are not strictly linguistic processes, but follow general cognitive principles.[33] Therefore, though it may be convenient to propose specifically linguistic phrasings for these principles (such as Behaghel's laws), it should be a goal in the future to establish a framework which clearly indicates the general cognitive status of these principles. Research up to now, however, shows that the results of the application of these principles may contradict each other (competing motivations, see above). The resolution of such contradictions may be specific to particular domains and thus may require specifically linguistic models.

9.2. Grammaticalization theory

The theory of grammaticalization consists of at least four modules:

1) The theory of source elements which answers the following questions: Which elements qualify for undergoing grammaticalization? Is it possible to formulate general constraints on these items?

2) The theory of the grammaticalization process proper. This process involves three aspects: decategorialization, carrier class-formation, and pattern formation. The interrelation of these three aspects remains to be worked out in detail. This includes the question as to whether the three aspects are relevant to all stages in the process to the same degree, or whether grammaticalization instead is a cover term for several heterogeneous (sub-)processes. The major goal of this theory is to provide for a network of paths of grammaticalization based on the cross-linguistic comparison of the development of patterns (element-bound structure). This includes a precise statement of the unidirectionality claim (which changes or aspects of changes are claimed to be unidirectional?).

3) The theory of paradigmatization (see sect. 8.3)

4) The theory of coalescence (see sect. 8.4)

The first two modules are closely interrelated, and it may well turn out that they should be lumped together into one core module. Since there is sufficient evidence for the fact that neither paradigmatization nor coalescence are necessary correlates of grammaticalization, these two modules seem to require a theory of their own (including principles and parameters which are only relevant to these two modules rather than to the overall process). Nevertheless, all of these modules are, of course, interrelated and the overall model has to provide for their interaction.

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33 Regarding (linguistic and non-linguistic) categorization Corrigan (1989) provides a highly informative discussion of this issue. See also the references in the preceding footnote.

9.3. GT-based grammar

In this view, grammar then is not a tightly integrated system, but rather a set of procedures and elements (patterns and signs) which - to begin with - are interrelated only in so far as they are all useful for negotiating meaning. Whether and how they are interrelated in more substantial ways remains to be shown empirically (and may vary from speech community to speech community). The traditionally-assumed subsystems of syntax and morphology are then divided among various components and modules. Thus if asked: *Where is syntax?* our answer is: the most general aspects of linear order and constituency are taken care of by general cognitive principles. Aspects of element-related structure (case marking, infinitives, subordinators, etc.) are part of the core module of the theory of grammaticalization. As regards the question: *Where is morphology?*, our answer is: syntagmatic aspects of both word-formation and inflection are taken care of by the core module of the theory of grammaticalization, paradigmatic aspects by the theory paradigmatization, and mechanical aspects (including morphophonology) by the theory of coalescence.

With regard to grammatical practice, our approach has the following implications: Grammars would not be organized by subsystems (morphology, syntax) or by grammatical categories or functional domains. Instead, they would consist of one or two chapters which spell out the specifics of the discursive practice in a given speech community. That is, it must be shown how the general principles are reflected in actual language use in different genres (narratives, procedural texts, conversations, etc.) and to describe how the existing conflicts (competing motivations!) are resolved in this practice. This part would also contain a short description of the major patterns used in negotiating meaning (favored clause types, cf. the quote from Hopper above (FN 17)). Further chapters would contain detailed descriptions of all identified patterns organized along paths of grammaticalization (since these paths overlap and diverge certain basically arbitrary decisions still have to be made in the organization of the materials).[34] These descriptions include, as far as possible, suggestions as to the source and further development(s) of a given pattern. Furthermore, there will be a special chapter with details on the extent and manner of interaction of patterns along related paths (this may include lists of formal paradigms). Finally, the chapter on coalescence gives a general characteristic of the language regarding the formal behaviour of grams (similar to that known from traditional morphological typology) and spells out the details of complex interactions between grams and carriers (morphophonology).

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34 Inasmuch as the major gram-types empirically established by cross-linguistic comparison resemble traditional categories, there will be, of course, a certain similarity between this organization and the traditional one.

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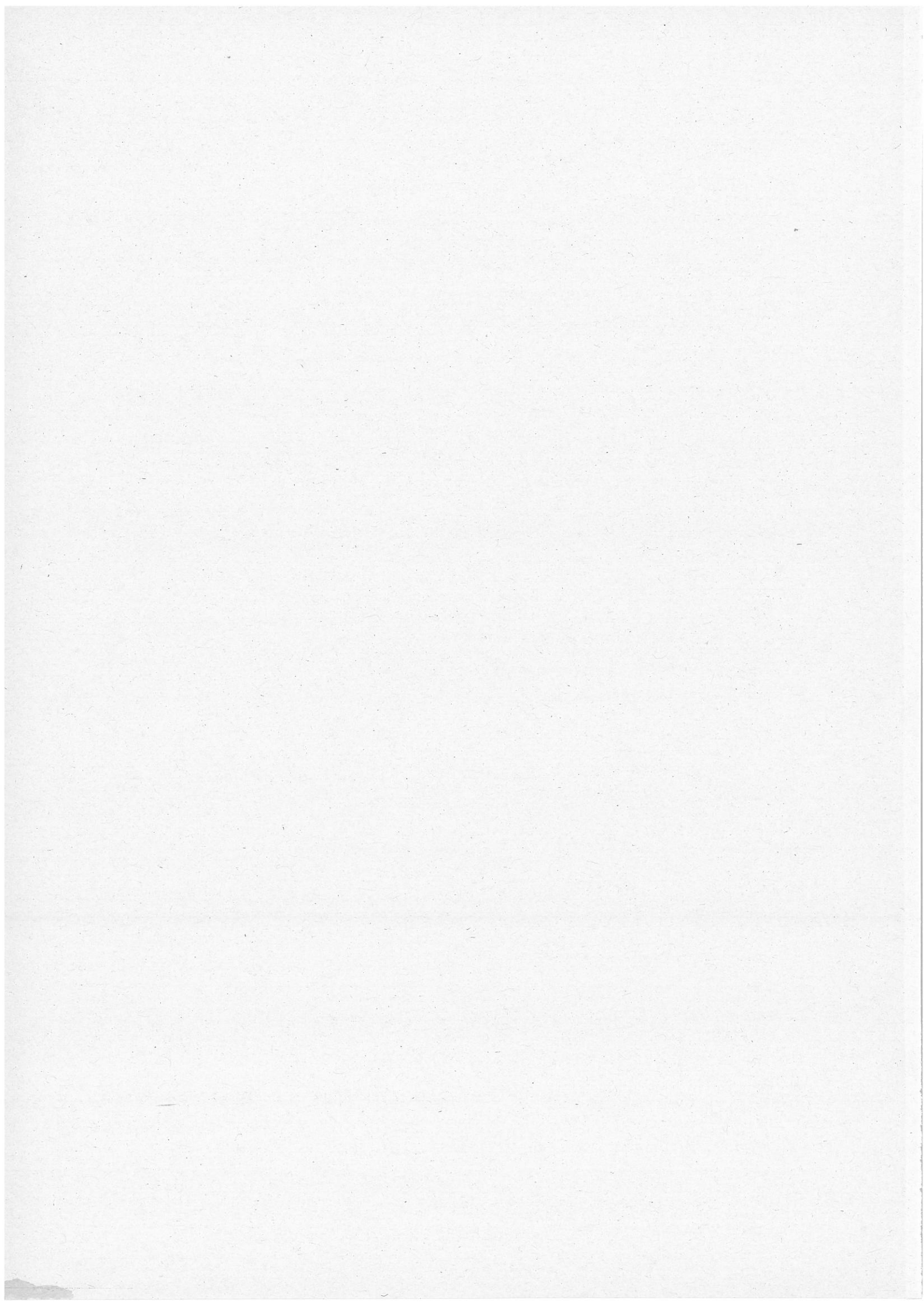
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