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Principles of grammaticalization and linguistic reality*

Olga C.M. Fischer

Abstract

This paper considers a number of deterministic conceptions that occupy a central position in current thinking about the process of grammaticalization, both in formal and functional theories of grammar. After a general discussion of the way the phenomenon of grammaticalization is dealt with from the point of view of grammar change and language change, and the explanatory value of these two rather different approaches, the paper turns to an examination of *determinants* considered to play a role in grammaticalization, i.e. the principle of unidirectionality, the idea of conceptual chains (grammaticalization as a semantically driven process), of grammaticalization as a mechanism or cause in itself, and the so-called parameters of grammaticalization. These assumptions will be critically examined with the help of two case studies, i.e. the grammaticalization of the infinitival marker *to* and of semi-modal *have to* in the history of English. In addition, other factors will be looked at of an essentially synchronic nature, which may interact in this diachronic process, such as iconic factors and the synchronic state of the grammar/language. Both of these play an important part in the way grammaticalization proceeds. The paper concludes that certain tendencies can indeed be discerned in grammaticalization, but that the process is first and foremost steered by the shape of the synchronic language system. The conclusion also offers some thoughts on how the synchronic factors that steer grammaticalization may yet set off a long-term development through the implicational properties of the structure that is grammaticalizing.

1. Introduction

The organizers of the symposium on *Determinants of Grammatical Variation in English* stressed in their introduction that “rule-based deterministic conceptions of grammar do not adequately reflect linguistic reality” and also that the “[m]ore promising models are those that assume a wide variety of more or less closely linked interacting factors determining grammatical variation”. In my contribution to this debate, I will consider a process in which each developmental stage presents a choice of variants, i.e. the phenomenon of grammaticalization. In grammaticalization, *layering* (that is, the synchronic presence of diachronic variants expressing the same meaning or linguistic function) plays an important role. My present aim is to find out what determines at each stage the choice between variants, and thus what determines the next stage of the process. In doing this I will take issue

with a number of deterministic conceptions that play a role in the way the process of grammaticalization has been conceived of in the literature, both in formal and functional theories of grammar. Especially I would like to critically consider the ideas of unidirectionality, of conceptual chains (grammaticalization as a semantically driven process), of grammaticalization as a mechanism or cause in itself or as an epiphenomenon, and the so-called parameters of grammaticalization. In addition, I will indicate what other factors may interact in this diachronic process which are of an essentially synchronic nature, such as iconic factors and the state of the synchronic grammar. Both of these play an important part in the way grammaticalization proceeds. What follows will be based on two case studies of grammaticalization in English that I have investigated in earlier work, i.e. the grammaticalization of infinitival *to* (cf. Fischer 1997, 2000) and of the semi-modal *have to* (cf. Fischer 1994b). In my discussion I will lean heavily on the data gathered for those two studies. My intention here is to concentrate on their results and to discuss the consequences of these for the determinative factors or principles under discussion here.

2. Determinants in grammaticalization

Most functionally oriented linguists stress the fact that grammaticalization processes are unidirectional (for some this is even a principle of grammaticalization, cf. especially Haspelmath 1999), and that they are mechanistic and semantically driven, while more formally inclined (including generative) linguists tend to see grammaticalization as an *epiphenomenon*: i.e. grammaticalization itself is not a mechanism, nor a cause for change, rather it is the accidental result of a number of common changes such as re-analysis, analogy, phonetic reduction, etc., which cluster together and thus result in a process that could be called grammaticalization (cf. especially Newmeyer 1998: chapter 5, but also less formally oriented linguists such as Harris and Campbell 1995: 20, Campbell 2001).

In some recent generative publications (notably Roberts and Roussou 1999, and see also Roberts 1993), grammaticalization seems to have become equivalent to one mechanism in the process namely re-analysis. Whereas Abraham (1993: 13) – who also belongs to the generative school – is still more tentative and describes re-analysis as a “subcomponent” of the process of grammaticalization, i.e. that part which “can be handled exclusively by means of clear categorial distinctions and a restructuring of the constituents”,¹ for Roberts and Roussou it seems to have become the main mechanism.² They assume that “grammaticalization involves some sort of

categorial reanalysis of lexical material as functional material" (1999: 1014). Instead of seeing such a re-analysis as the result of a number of different factors or determinants, including as Abraham (1993: 7–8) notes "die Zwischenstufen" ('intermediate steps', involving semantic, iconic and pragmatic factors), Roberts and Roussou do not consider these to be part of the grammaticalization process itself, co-steering the re-analysis. (Or, to put it in generative terms, these factors are not considered to be *triggers* of change – for a definition of *triggers*, see note 6). Rather, they explain the re-analysis in terms of "structural simplification", which is a "natural mechanism of change" (p. 1014). It seems to me that this pushes the explanation one step back because the question inevitably arises: where does the necessity for structural simplification come from? For structural simplification to fulfil this natural role, it has to be always present in any impending situation of change, even before the re-analysis. What they need to explain, in other words, is what stops the principle from applying earlier. In their explanation of grammaticalization, they therefore argue from the other direction, as it were. The quest is not so much for triggers that set the grammaticalization into motion, but for factors that prevent the need for structural simplification to apply earlier (cf. p. 1023). In their description of four cases of grammaticalization, there is usually one crucial factor that *prevents* an earlier re-analysis, and this factor is always syntactic (and unitary). For instance, in the case of the English modals, the crucial causal factor is the *loss* of the infinitival *-en* ending (p. 1024), or, to put it differently, the loss of *-en* caused opaqueness which moved structural simplification into action. In the development of subject agreement markers out of pronouns in North West Romance, it is the *loss* of a local movement rule due to the paradigm reduction of subject clitics. Movement rules are seen in this framework as "a marked option" (p. 1021) because they involve adjunctions (p. 1020), *ergo* the loss of such a rule is always a structural simplification. Most of the cases discussed by Roberts (1993) and Roberts and Roussou (1999) indeed involve the loss of a movement rule, as Haspelmath (1999: 1053) notes, "... their central proposal is that grammaticalization changes can generally be understood as reanalyses involving a structural simplification, especially as involving fewer movement operations." It is a neat way of accounting for the process of grammaticalization, because we have to deal with only two syntactic factors, the re-analysis itself and the syntactic factor that prevented it, but can it really also be said to provide "an enlightening account of grammaticalization" (p. 1022)? One wonders whether the strictly formal methodology is an aid to understanding the complex process of grammaticalization or an obstruction.³

Structural (generative) linguists reject the diachronic process-aspect of grammaticalization. They argue that when we look at this phenomenon from the point of view of speakers or learners who can only base their grammar on or deduct it from the synchronic output they hear and who cannot be aware of historical processes taking place in a language, the only possible conclusion is that grammaticalization cannot exist as a principle or mechanism of change in the form proposed by functional linguists. Where functional linguists working within grammaticalization theory see the process as a “chain”, which is “the result of conceptual manipulation” (cf. Heine et al. 1991: 171, 174 and *passim*), generative linguists are only interested in the links that make up the composite *chain*, and they see these links as independent of one another, i.e. for them there isn’t really a chain. The reason for this is, first of all, that the notion of conceptual manipulation is difficult to incorporate into a formal theory of grammar in which the semantic module is an interpretative one (with pragmatics being more or less ignored), and in which the syntactic module is seen as central.⁴ Secondly, generative theory accepts a rather simple and strict model for language acquisition, and a highly abstract (simple and elegant) model of grammar; in this model there is no space for variation and diachronic developments, and hence no way in which a (diachronic) *chain* of changes could be incorporated.

Because of these last two factors, there is, first of all, little room for changes taking place in the grammar of the speaker after the so-called critical period (if change is possible after this period, it is of an additive rather than a radical nature), and secondly, because of the *distance* between the concrete performance data and the abstract grammar, it is difficult if not impossible to account for small changes in the output (consequently, they are often ignored).⁵ These small changes may not have an immediate effect on the abstract rules of grammar (the question then of course is: how do they arise, how does the grammar generate the changed constructions?), but when these changes on the output level increase, and when variation increases, this may eventually result in a change in the grammar, but only at the end of the line, so to speak. In other words, what generative linguists look at is the purely grammatical or formal result of the various processes that have been playing around, while functional linguists are more interested in these processes themselves, and in the variation, which may eventually lead to a more radical (or deep) *formal* change in the grammar.

These differences can be captured in another way. We can study language change from the point of view of the speaker. We then concentrate on his competence and on the grammar that he deducts from the surround-

ing (synchronic) output. Let us call this the study of grammar (or competence) change. In order to describe grammar change we must take account of the shape of the theory of grammar and how this interacts with the output presented to the learner. Changes on the performance level may then act as *triggers* for grammar change. The explanation for any change lies in the interaction of these two entities: the speaker's grammar (which includes the principles of UG) and the triggering experience. In other words, the variation that causes language change is not important in its own right unless it provides a *trigger*; consequently, according to this view, variation may be ignored if it does not lead to deeper (i.e. grammar) change. The theory of grammar thus plays a most crucial role here because it is the theory that decides which *triggers* are of interest and which are not.⁶ Since the emphasis in generative theory is on syntax, it is almost inevitable that the changes that constitute *triggers* are also themselves syntactic (cf. the work of Roberts and Roussou discussed above). This then leads to a neglect of other factors (semantic, pragmatic, iconic) that functionally oriented linguists see as the main *triggers* or determinants in grammaticalization. The question next is, what decides whether a change constitutes a grammar change or not? The answer surely is that this depends on the form of the theory of grammar that we have hypothesized. Since there are still many questions to be answered here (for instance, should we opt for fewer rules, constraints and principles, and thus conceive of grammar as highly abstract, or should we allow more semi-automatic processing and a more prominent role to lexical idiosyncrasies⁷), it is not easy to determine what linguistic change constitutes grammar change and what does not.

Generative linguists, for this reason, look at cases where a number of surface changes seem to cluster together, which may point to a deeper grammar change (cf. van der Wurff 2000, and the work of Lightfoot referred to in note 5). This is a good working strategy, and such cases, if they can be found, are a clear indication that a grammatical rule at a deeper level *exists*. Examples of such clusterings have been proposed in the literature, notably in connection with the English modals. It is clear, however, that there is no consensus about the radical nature of the modals change (cf. note 5). It looks, in fact, as if there is an inverse correlation between depth of data and radicality. The more detailed in data a case study is, the less likely it seems to be that the phenomenon in question is presented as a radical change; compare for instance the differences between the results of Warner's and Lightfoot's investigations into the modals (see note 5). Another problem here is the nature of the radical change. If the change does not produce further and simultaneous surface evidence (further changes in

the output), then it is more difficult to uphold that such a change took place. Turning to the modals again, the greatest problem with Lightfoot's proposal was that the simultaneous surface changes that were presented as evidence of the radical category change, were themselves changes that had been going on for some time. They all concerned the gradual obsolescence of constructions, i.e. they did not constitute *new* constructions. In order to show that re-analysis has taken place, we need to show that new constructions arise that cannot be generated by the same grammar that produced the old ones. To give an example. Clear evidence that a re-analysis has occurred in the so-called *for* NP to V construction (as in, *It is bad for you to smoke*; cf. e.g. Fischer et al. 2000: 214–220), are cases where *for* + NP can no longer function as the old benefactive dative phrase, because the new construction disobeys the constraints of the benefactive dative. For example, when there are two *for*-phrases in the clause in the new situation, this constitutes a violation of the so-called θ -criterion (as in Chomsky's [1981: 239] famous example, *It is pleasant for the rich for poor immigrants to do the hard work*), or when *for* is followed by expletive *it* (as in *It is essential for it to rain soon*), it violates the constraint that the NP must be animate, etc. Such direct evidence is not available for the radical shift proposed by Lightfoot, at least not for the modals *as a class* in any simultaneous fashion.

We can also concentrate on language in use and study changes in the output from the point of view of the output itself. This would be the study of language change, and this is the approach taken by traditional and many functional historical linguists. By looking at how language changes (and here we have the advantage that the data on which we base our description are observable data – unlike the [indirect] grammar data), we may come to learn eventually more about the theory of grammar. In other words, we approach the question from the other direction. Following this approach, we are inclined to study innovations and changes from their very beginning. All noticeable changes are taken into account, not just the triggers that may lead to grammar change. The objection often levelled against this approach is that it reifies language: language does not change, rather, speakers change their language.⁸ In other words we should concentrate on what speakers do and not on what language does. This may be essentially correct (but see the complications noted in note 8), but at the same time it is worthwhile to point out that at this moment in time (having not yet enough insight into the workings of the brain) we can only know what speakers do by looking at language, how it *behaves* and how it changes. Both the grammar- and the language-change approaches are indirect as it were; it is

by combining them that we should be able to get a little more insight into our linguistic competence.

We have seen how our notion of what constitutes change, how the differences between grammar change and language change, influence our notion of what *determines* change. Determinants are likely to be smaller in number when change is seen as grammar change, while variation itself will be ignored if it is not considered to be a *trigger* in the context of the theory of grammar. Furthermore, from this point of view grammaticalization itself cannot be a determinant in change. For those linguists, however, who concentrate on the diachronic process of grammaticalization (i.e. who concentrate on language change), the determinants which drive or steer the process are more local and of a semantic-pragmatic nature, and the process itself is also often seen as a determinant because of its unitary and unidirectional nature. We will now have a look at the two case studies announced in the introduction, to see what factors determine the changes that have taken place there.

3. The grammaticalization of infinitival *to*

It is generally acknowledged in the literature that the allative preposition *to* (or its equivalent in other Germanic languages) developed into an infinitival marker when it became combined with an infinitive. Jespersen (1927: 10–11) describes it as a process where *to* became weakened in meaning due to its fixed position before the infinitive, and where the *to*-infinitive itself encroached on the terrain of the bare infinitive, replacing it in many of its functions so that *to* became a mere marker of the infinitival form without any meaning of its own. He adds that this process can be seen in English but also in other Germanic languages, such as German, Dutch and Scandinavian. Haspelmath (1989) essentially repeats this story, illustrating the way grammaticalization works with data from (mainly) German. He argues that the *to* (or *zu*) development should be seen as “a universal path of grammaticization”.

In both accounts, the grammaticalization itself is seen as a determinant, it is seen as an inexorable process, that, once started, could not be stopped, and Haspelmath shows that it neatly follows all the parameters involved in grammaticalization (with one exception where the condition is vacuous, see [1e] below) as distinguished by Lehmann (1985). Thus, he notes for German (but all this can be silently extended to English in his view):

- (1) a) an *increase in paradigmaticity* in that the number of prepositions that can be used with the infinitive decreases to just one, i.e. *zu*
 b) an *increase in bondedness*: i.e. *zu* and the infinitive start behaving as a unity
 c) *loss of paradigmatic variability*: the choice of complements after a particular verb becomes reduced to just one
 d) *loss of integrity*: both semantically and phonetically *zu* becomes reduced. The phonetic evidence is not so clear for German *zu*, but does apply to Early Middle English *to* (there is spelling evidence for this in the form of *te* and *t'* variants) and Dutch *te*. Semantic reduction is clear, among other things, from the fact that another preposition expressing 'goal' is found to reinforce the earlier *zu*.
 e) *reduction in syntagmatic variability*: not applicable because the *zu*-infinitive starts out as a PP that already had a fixed order of constituents
 f) *reduction in scope*: the scope of *zu* becomes confined to its immediate constituent, i.e. the infinitive⁹

In Fischer (1997a), I discuss these parameters one by one in relation to the development of *to* in English. It is interesting to observe that at first English *to* more or less follows the above parameters, although for English, not only (e) is vacuous, but also (a), and in a way (b) and (f) as well. (a) is vacuous because the only preposition that occurred with an infinitive from the very beginning was *to* (I am ignoring the Scandinavian loans *æt* and *till*, since they are later and dialectal, cf. Visser 1963–73: §897).

As far as (b) is concerned, there was cohesion between *to* and the infinitive from the very beginning, as there was between any preposition and the NP that it governed in Old English, i.e. no other elements could occur between *to* and the infinitive (cf. Los 2000: 252–253). Because of this cohesion, it is not surprising that the scope of *to* was also from the beginning restricted to the following infinitive (cf. [f]). When we look at Old English *to*, we note that *to* is normally repeated before a second conjunct. In Fischer (1996), I discussed all the cases of coordinated infinitives in the Old English part of the Helsinki corpus,¹⁰ and additional examples found in Callaway (1913: 150–51, 173–74), Visser (1963–73: §967) and Mitchell (1985: §§929, 935, 956), and came to the conclusion that the repetition of *to* before the second conjunct is the rule (it was repeated in 96.8 per cent of all cases attested in the Helsinki corpus). When *to* is not repeated, the second infinitive must be seen either as part of the first, i.e. the two infinitives form

a *group* (examples found here are generally a translation of a single infinitive in Latin), or the second infinitive has a different status. The latter doesn't express an activity *different* from the first infinitive, or subsequent to it, rather, it expresses the content of the first activity, or the way through which the first activity may be achieved. Thus, this case involves not two coordinate infinitives but a hierarchically ordered set with the second dependent on the first. The following examples show the differences. (2) is the normal case, where the two infinitives, both preceded by *to*, are coordinated and express two separate activities. Of the instances with a second bare infinitive, (3) is an example of the *group*-infinitive, and (4) shows the second infinitive as dependent on the first:

- (2) *Wið eageana sare, haran lifer gesoden ys god on wine*
 against of-eyes sore, of-hare liver boiled is good in wine
to drincenne, & mid þam broþe ða eagan to beþianne
 to drink and with the broth the eyes to bathe
 'Against eye-sore, a boiled hare's liver is good to drink in wine, and to bathe the eyes with the broth (Helsinki Corpus, *Quadrupedibus*, de Vriend 1972: 27)
- (3) *ic cwom forðon to delanne vel sceadenne*
 I came therefore to part or separate
monnu wið fæder his & dohter wið moder hire
 man from father his and daughter from mother her
 'I came therefore to part or separate a man from his father and a daughter from her mother' (Helsinki Corpus, *Rushworth Gospels* Skeat 1871–87: 89)
 (Cf. Latin *ueni enim separare hominem aduersus patrem suum et filiam aduersus matrem suam*)
- (4) *ic eom gearo to gecyrenne to munuclicere drohtnunge,*
 I am ready to turn to monastic way-of-life,
and woruldlice ðeawas ealle forlætan
 and worldly practices all leave-off
 'I am ready to turn to a monastic way of life and forgo (by forgoing) all worldly practices' (Callaway 1913: 150–51, *Ælf. Hom.* I 534)

This leaves us only with parameters (c) and (d). (c) is a somewhat difficult case. It looks indeed as if there has been a reduction in the choice of complements after each particular verb. Verbs that in Old English could take both *that*-clauses and *to*-infinitives (such as the equivalents of 'command',

'intend', 'plan' etc.) now only use the *to*-infinitival complement. On the other hand, verbs that could take both a bare and a *to*-infinitive in Old English, usually can still take two different complements in present-day English, except that the bare infinitive has been replaced by the *-ing* form (cf. Fischer 1997a: 268–269). It is not the case, in other words that the *to*-infinitive ousted the bare infinitive as suggested by Jespersen (cf. above).

Parameter (d), however, is very clearly present in the development from Old to Middle English. There is evidence for the phonetic reduction of *to* to *te* in the spellings used in the Middle English part of the Helsinki corpus. There is also clear evidence that *to* must have become weakened in meaning: after the Old English period, we frequently see *to* accompanied by an additional preposition, *for*, showing that its original meaning of 'purpose' had to be reinforced by a new 'purpose'-marker. The use of a second preposition indicates at the same time that *to* itself was no longer a preposition. It could of course be argued that *for + to*, formed a new, combined preposition, but there are further Early Middle English examples which show *to* in combination with other prepositions, such as *with* and *of*, indicating that *to* had become a mere infinitival marker (for examples, see Fischer 2000: 157). That the purpose-sense of *to* had weakened semantically is also clear from occasional examples such as,

- (5) *And in my barm ther lith to wepe / Thi child and myn*
 and in my bosom there lies to weep, your child and mine
 (Macaulay 1900–01, Gower *Conf. Am.* III 302)

To wepe in (5), which expresses an activity simultaneous with that of the matrix verb, clearly does not express purpose or a subsequent activity.

Thus, as far as the development in the Middle English period is concerned, we have a clear case of the grammaticalization of *to* to an infinitival marker. Some of the grammaticalization of *to* may already have taken place at an earlier, pre-Old English stage, witness the vacuity of four of the six parameters. On the other hand, it is also possible that *to* and the infinitive were pretty much a fixture from the very beginning.

To sum up, the following changes have been shown to mark the development:

- (6) the grammaticalization of *to* in its early stages:
- a) strengthening of *to* by *for*
 - b) phonetic reduction of *to*
 - c) occurrence of *to*-infinitives after prepositions other than *to*
 - d) loss of semantic integrity (loss of directional sense)

With the changes in (6), we have a situation that is typical in any grammaticalization process and that is the *layering* of the old and the new forms. Next to infinitival marker *to*, there still exists the preposition *to*, which has undergone none of the above changes. *If* we accept the principle of unidirectionality as valid, we must also accept that with the onward process of grammaticalization, this layering will develop into further divergence or the replacement of the original preposition by another form. This has indeed happened in Dutch where the infinitival marker *te* has no connection anymore with the particle *toe*,¹¹ from which it first developed, while the preposition itself has changed into *tot*. In German, the form for infinitival marker and preposition is still the same, but their uses have further diverged, as Haspelmath (1989) has shown. In English, however, the process has not continued in the same direction as German and Dutch. We see a number of new developments in Late Middle English and Early Modern English that all go against the grammaticalization parameters described in (1) above.

- (7) degrammaticalization developments involving *to*:
- a) appearance of split infinitives
 - b) increase in scope
 - c) strengthening of semantic integrity
 - d) loss of all double prepositions, including *for*

The use of split infinitives (7a) in present-day English, such as *to not go*, *to silently abhor*, is a well-known fact. They first appear in the Late Middle English period; they are not found in Old English (cf. Visser 1963–73: §§977–982). Scope increase (7b) is clear from the fact that in present-day English there is no need to repeat *to* before a second infinitive, whereas this was not possible in Old English (if *to* was not repeated, it involved a meaning difference, see the discussion above), nor is it allowed in either Modern German or Dutch, cf. (8),

- (8) *He went into the church to pray and (to) light a candle for his sick wife*
 ‘Er ging in die Kirche um zu beten und eine Kerze anzustecken für seine kranke Frau’
 ‘Hij ging de kerk in om te bidden en een kaars aan te steken voor zijn zieke vrouw’

Thus, in Modern English *to* can have scope both over the first and the second infinitive, while in Dutch and German *te/zü* must be repeated. Con-

cerning (7c), constructions such as the Middle English one given in (5) (*ther lith to wepe*) are no longer possible in present-day English. This in contrast to Dutch, where the *te*-infinitive is common after verbs like *to lie* when no purpose is intended, as in *Hij lag te slapen*, 'He lay to sleep [i.e. sleeping]'. As to (7d), the *for to* infinitive has disappeared from standard English. Similarly, it became impossible to use the *to*-infinitive after other prepositions roughly after the Middle English period (cf. Visser 1963–73: §976),¹² whereas this is still possible in Dutch, where the *te*-infinitive can appear with such prepositions as *zonder* 'without', *met* 'with', *door* 'through', *na* 'after' etc., and to a lesser extent also in German.

What does all this tell us about *determinants* or principles of grammaticalization? It shows that the process need not necessarily be unidirectional. The grammaticalization process may proceed regularly up to a certain point (while it does not have to go through all grammaticalization parameters as we have seen), and may then turn backwards reversing (some of) the grammaticalization parameters. Thus, (7a) shows the reversal of parameter (1b); (7b) reverses (1f), while (7c) and (d) reverse parameter (1d). It also shows us that the parameters of grammaticalization need not decide the process, they are merely indicators that a process may be under way. In the case of English some of the parameters may indeed have been in place from the very first appearance of the *to*-infinitive. This case further indicates that there must have been other forces at work that *disturbed* the grammaticalization process. What is the status of these disturbing factors? Might they not with equal reason be called *determinants*?

I believe that there were two important factors which steered the development of the *to*-infinitive in English. The first and most important is the form and shape of the grammar at the time the grammaticalization reversed. Another, auxiliary factor may have been iconic pressure, which is a latent, universal feature in the grammar.¹³

There is no room to go fully into the developments that infinitival complements underwent in Middle English, so a brief discussion of the various changes will have to suffice. It is important to note, however, that the list of changes discussed all involve changes which are typical of English and not shared by Dutch and German.

Concerning the form and shape of the contemporary grammar, there is, first of all, the important question of the category status of the infinitive. Los (2000: 233–283) shows that the traditional view, namely that the Old English infinitives were NPs and that these became more verbal in Middle English, is far too simple, and from a purely Old English point of view, largely incorrect. Their nominal status in Old English had been deduced

from the fact that originally they derived from nouns (as the dative ending in *-enne* indeed suggests), but Los makes very clear that as early as Old English the *to*-infinitive had verbal properties and was more or less equivalent to a subjunctive *that*-clause. Although the development of verbal properties must have started before the Old English period, there is still some evidence for its origin as a PP, and the absence of a clausal negator, a perfective infinitive and a lexical subject shows that the *to*-infinitive did not have the full trappings of a clause in Old English yet. It can also be shown that the *to*-infinitive increased some of its nominal properties in Early Middle English, in that it came to be used in subject position in that period for the first time. Soon however, this new use was given up in favour of the gerund, which was on the rise in Middle English, which made it possible for the *to*-infinitive to develop further in a verbal direction. It is interesting to observe that the Dutch infinitive has retained more of this nominal status to the present day. Unlike in English, where there are severe temporal restrictions on the use of non-extraposed subjects associated with the concept of factivity (cf. Bolinger 1968), the *te*-infinitive can still be freely used as a subject, and the bare infinitive in Dutch can even be preceded by a determiner and/or adjective (cf. Los 2000: 246–249). No doubt the absence of the verbal gerund in Dutch was conducive to this situation. Thus, what is clear is that the infinitives in the two languages developed differently: in English they remained more verbal (even acquiring further clausal features, see below), while in Dutch they gained additional nominal properties.

Furthermore, new structures appear in Middle English involving the *to*-infinitive. We see the rise of split infinitives, already mentioned above, of independently negated infinitives (as in *They warned her not to get involved*), perfective infinitives, passive infinitives after verbs other than modals (as in *Let them be thrown into the bay*), and so-called ECM (Exceptional Casemarking) (or a.c.i.) constructions (as in *I believe him to be innocent*). It is clear that these new features all involve a fuller clausal range for the infinitive (i.e. the infinitive can now have its own tense features, its own negator, and its own lexical subject). The rise of perfective and negated infinitives is also attested in Modern German and Dutch and may not be truly new features but accidental gaps in Old English (cf. Los 2000: 26), but the other features are all special to English. In Fischer (1991, 1992, 1994a) I have attributed the rise of the passive infinitive and the ECM constructions to the change in word order in English, which became a strict SVO language in the Middle English period; Los (2000: 285–344) too relates these changes to the loss of OV orders and of V2. Since Dutch and German retained OV and V2, this may be the main reason why the three

languages diverged in the further developments of the *to/te/zu*-infinitives. Finally, it must be stated that the spread of the *to*-infinitive at the cost of the subjunctive *that*-clause, whose replacement was very rapid in Middle English (cf. Manabe 1979), must have been partly due to the early loss of the subjunctive inflection in English, again showing a difference with Dutch and German. The latter retained the subjunctive much longer (German still does) and both also make use of *that*-clauses, where English can often only use a *to*-infinitive.

The conclusion that can be drawn from these changes is that the infinitival marker *to*, instead of remaining an appendage to the infinitive (which was the result of the early stage of grammaticalization), began to be interpreted as an independent element, with a meaning of its own. Los (2000: 352) describes the change in formal terms as follows: “*To* has the same features to check as the subjunctive, and like the subjunctive it checks them in T. In Old English, it is a clitic on the infinitive, and checks its features covertly; in Middle English, it starts to move to T overtly and is no longer a clitic but a free word.” *To* indeed functions as a tense-modality marker, it indicates a T domain different from the domain of the matrix verb. This can be seen most clearly in the new ECM constructions that begin to appear after verbs of perception in the Middle English period. Perception verb complements with a bare infinitive had been common in Old English. In these constructions, matrix verb and complement share the same tense domain. In the new Middle English constructions, however (which, incidentally, do not occur in German and Dutch), the use of *to* indicates a shift in tense domain. In the examples of (9), the activities conveyed by the matrix verb *se* ‘to see’ and the infinitival verbs *to be forlore* and *to forgon* respectively, are not simultaneous, *to* points to a future event:

- (9) a. *it thoghte hem gret pite/ To se so worthi on as sche,*
 it thought them great pity to see so worthy one as she
With such a child as ther was bore,/
 with such a child as there was born
So sodeinly to be forlore
 so suddenly to be totally-lost
 ‘it seemed to them a great pity to see so worthy a woman as she
 was to be destroyed together with the child that was born to her’
 (Macauley 1900–1901, Gower, *Conf.Am.* II, 1239–42)
- b. *for certeynly, this wot I wel’, he seyde,/*
 for certainly, this know I well, he said

*'That foresight of divine purveyauncel
 that foresight of divine providence
 Hath seyn alwey me to forgon Criseyde,'*
 Has seen always me to forgo Criseyde
 'for certainly, this I know well, he said, that the foresight of divine
 providence has always seen that I would lose Criseyde' (Benson
 1988, Chaucer *T&C* IV,960–62)¹⁴

Looking at the change from a semantic point of view, it could be said that this new use of *to* is close again to the meaning of the preposition *to* from which the infinitival marker derived and with which it was presumably still 'layered'.¹⁵ Layering, as opposed to divergence, must mean in terms of language learning that for the speaker the two items are still associated, that they belong to the same prototype. Presumably the preposition *to*, being more meaningful, is also more prototypical. It could be said therefore that the degrammaticalization is supported iconically in that the infinitival marker *to* moves closer again to prototypical *to* re-acquiring a sense of direction, of goal. Metaphorically, place is often used to indicate time, and here, similarly, goal or direction is used to indicate future (tense) or possibility (modality). The type of iconicity involved here is isomorphism – which, in this case, also involves persistence (cf. note 16). The development of English *to* can be seen as follows:

(10) stages of grammaticalization of *to*

(a) α	(b) α	(c) α	β
—	—	—	—
x	xy	x	y

(α = the signans *to*; β = the reduced signans of *to*; x = signatum 'goal'; y = signatum 'infinitival marker')

At stage (10a) there is isomorphism because *to* has only one signatum, i.e. the allative meaning of *to*. At stage (10b) *to* has two different signata, functioning as a preposition as well as an infinitival marker; i.e. the isomorphism has been disturbed. In a typical grammaticalization process the new stage would be as in (10c) restoring isomorphism (this represents the Dutch development). In English, however, there was a partial reversal to stage (10a) in order to restore isomorphism. Isomorphism is the most simple type

of diagrammatic or relational iconicity, i.e. the notion that one form should correspond to one meaning (cf. Haiman 1980).¹⁶

4. The grammaticalization of *have to*

The role played by iconicity in the degrammaticalization of the *to*-infinitive is not a crucial one, it must be seen rather as an aggravating factor that co-supports the other synchronic syntactic factors that were found to be influential in the process. Iconicity comes more clearly to the fore in the grammaticalization of *have* and the *to*-infinitive.

In line with similar developments involving a possessive verb like *have*, where *have* in combination with an infinitive grammaticalized from a full verb into an auxiliary, it has usually been taken for granted that English *have to* represents a *regular* case of grammaticalization. Thus, van der Gaaf (1931), Visser (1969: §1396–1410), and Brinton (1991) all more or less accept the following three developmental stages for the construction, *I have my work to do/I have to do my work*. At the earliest stage the construction has the following features: *have* at first is used as a full verb, meaning ‘to possess’, the NP *work* functions as the direct object of *have*, the *to*-infinitive is not obligatory, the infinitive functions as an adjunct dependent on the NP, and word order is not relevant, it does not influence meaning.

In a subsequent stage of the development, the meaning of *have* slowly generalizes and acquires obligative colouring in combination with the *to*-infinitive, the *to*-infinitive becomes obligatory, the infinitive no longer functions as an adjunct to the NP but as an object complement of the matrix verb *have*, and the original object of *have* (*work*) becomes an argument of the infinitive.

In the final stage we see the appearance of inanimate subjects (possessive *have* + infinitive always had animate subjects), and the appearance of intransitive infinitives, i.e. the original object can now be dropped altogether. Re-analysis or rebracketing from (11a) to (11b) now follows,

- (11) a. *I [have [my work to do]]*
 b. *I [[have to do] my work]*

resulting in a fixed *have* + *to*-infinitive + NP word order. Note the sudden shift in word order between (11a) and (b), which is difficult to account for satisfactorily within this account.

It is quite clear in this sketch of the putative development of *have to* that the grammaticalization proceeds along a path of semantic change – bleaching of possession first, the development of obligative colouring later – and that the syntactic changes – the word order change and the rebracketing – are subordinate to it, following hard on the heels of the semantic change. Because the development is seen as gradual, the various stages are extremely difficult to disentangle. This is noticeable also from the fact that van der Gaaf (1931), Visser (1969) and Brinton (1991) do not agree as to when the different stages occur. The change, therefore, is seen as a typical chain, driven semantically.

In my own investigation of this case (Fischer 1994b), I considered all the instances in which *have* is followed by a *to*-infinitive in the Helsinki corpus (which covers the Old, Middle and Early Modern periods). Looking at a total of 643 examples, I came to the conclusion that there is no evidence for a gradual semantic change in *have* from ‘possess’ via a more general meaning to an obligative sense as envisaged by the studies reported on above. The generalized meaning of *have* already existed in the earliest recorded (Old English) period,

- (12) *And her beoð swyþe genihtsume weolocas... Hit hafað eac*
 And here are very abundant whelks ... It has also
þis land sealtseap̄as, and hit hafaþ hat wæter
 this land salt-springs, and it has hot water
 ‘And there are (or: ‘it has’) plenty of whelks ... the country also has
 (or: ‘there are also’) salt springs and hot water’ (Bede, Miller 1890–
 91: 26, ll. 9–12)

and a modal obligative colouring of *have* was possible in Old English too, but only in constructions where *have* and the infinitive thematically *shared* an object, i.e. in constructions like:

- (13) *hæfst ðu æceras to erigenne*
 have you acres to plow
 ‘do you have acres you could/should plow?’ (Ælf. *Gram.* 135.2)

where *æceras* is syntactically and thematically the object of *hæfst* and can also be interpreted as the thematic object of *erigenne*. Obligative colouring did not occur in the following construction types:

- (14) *þæt he stowe hæfde in ðæm streame to standenne*
 that he room had in the stream to stand
 (Bede, Miller 1890–91: 436, ll. 7–8)
- (15) *Ic hæbbe anweald mine sawle to alætanne*
 I have power my soul to leave
 ‘I have power to lay down my life’
 (*WSGospels*, Skeat 1871–1887: 10.18)

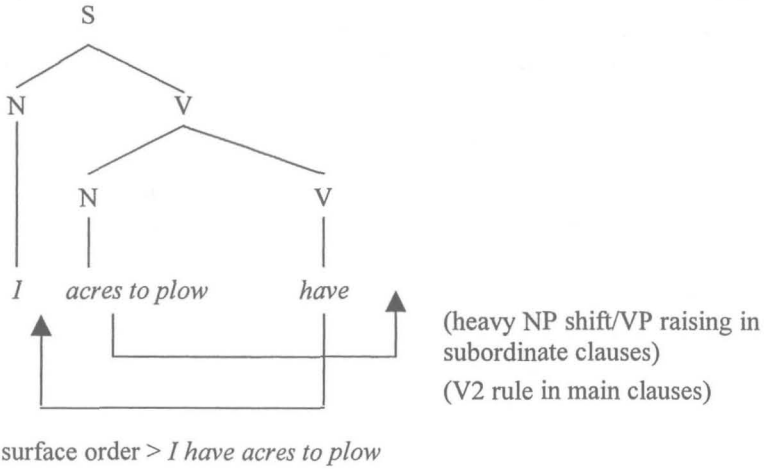
where the infinitive has no object of its own (14), or where both *have* and the infinitive have their own objects (15). It is important to note, furthermore, that the modal colouring in construction types like (13) was not necessarily one of obligation. In (16) (of the same type as [13] containing a *shared* object), obligative meaning is not possible in a context where Christ refers to spiritual food,

- (16) *Ic hæbbe mete to etene þone þe ge nyton*
 I have food to eat that that you not-know
 ‘There is food I may eat that you know nothing of’
 (*ÆHom* 5 225, Pope 1967: 298)

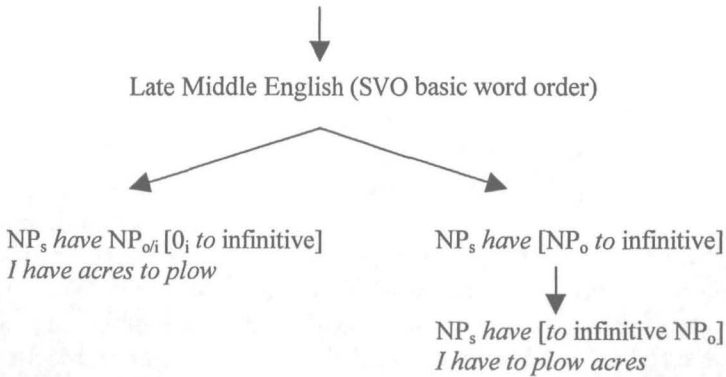
All the more firm syntactic evidence for the change (the appearance of inanimate subjects, absence of an object of *have*, double use of *have*, etc.) is very late, occurring only from the Early Modern period onwards. In fact, it can be shown that these syntactic changes follow upon a (general) word order change. The basic SOV word order of Old English, which persisted quite long in infinitival constructions in Middle English, ensured that the order of the three basic elements involved in type (13) constructions, was in normal circumstances (so when no movement rules were involved) almost always *have* + NP + *to*-infinitive. The medially positioned NP could function equally well as an object of the main verb *have* (due to the V2 rule in main clauses, which would move *have* to a position before the NP object), and as an object of the infinitive. (17) below shows the Old English situation (I have used a simplified tree structure).

When the word order in Late Middle, Early Modern English became generalized to SVO everywhere, the structurally ambiguous surface position of the object NP was no longer available: that is, the object NP had to shift to a postverbal position with respect to the verb which gave it its semantic role. Since *have* usually had a generalized meaning in this construction, the usual position for the *shared* object became the one *after* the infinitive, with which it had a stronger thematic bond. This change is shown in 18.

- (17) surface order in Old English (an SOV language) in both main and subordinate clauses of type (13)



- (18) Old English (SOV basic word order)
 NP_s *have* NP_{o/i} [0_i *to* infinitive] (main and subclauses)
 NP_s NP_{o/i} *have* [0_i *to* infinitive] (subclauses)



So it was the SOV > SVO word order change that fixed the order of the *have to* construction in type (13) to *have* + *to*-infinitive + NP, and which ultimately led to the re-analysis described in (11). Or, to put it differently, the word order change caused the adjacency of *have* and the *to*-infinitive, which in turn led to a semantic change, in which *have* and the *to*-infinitive

were considered one semantic unit. The other syntactic changes involving *have to* (intransitive infinitives, inanimate subjects, the use of ‘double’ *have to have*, the development of *have to* into an epistemic modal via an earlier deontic stage) all date from *after* the word order change.

What may be learned from this case? What are the determinants in the change? We see,

- a) no gradual generalization in meaning, no intertwining with gradual syntactic adaptations; the semantic bleaching of *have* has been around for at least six hundred years
- b) a syntactic change causing the adjacency of *have* and the *to*-infinitive. This change is not linked to an earlier semantic development, but the result of a general word order change
- c) syntactic adjacency > new structural unit (rebracketing) > new semantic unit
- d) a semantic change in *have to* to a modal auxiliary as a result of the new adjacency and of metonymic forces (conversational implicatures), caused by the inherent ‘goal’ meaning of *to* (for which see section 2) and the occasional modal colouring that could be present all along in these *have* constructions depending on the other lexical items in the clause
- e) analogy? The frequency of other V-V constructions analyzed as Auxiliary-V may have aided the restructuring

Further support for this scenario may be found in the fact that in the closely related languages Dutch and German the auxiliarization of the cognates of *have to* did not take place, at least not to the same extent.¹⁷ The reason for this difference may be the fact that German and Dutch did not undergo the SOV > SVO change, which was the cause of the ensuing adjacency. The reinterpretation of the new structural unit as a semantic unit is an iconic phenomenon. It is the reverse of Givón’s (1985: 202) *proximity principle*, derived from what he calls an “iconic meta-principle”: “The closer together two concepts are semantically or functionally, the more likely they are to be put adjacent to each other lexically, morpho-tactically or syntactically”. One would expect the proximity principle also to be valid the other way around, i.e. the moment two elements are placed together syntactically or formally, it is likely that they will begin to function together semantically or functionally.

The determinants in this case therefore are the contemporary shape of the grammar, and iconic pressure. Semantic bleaching is not a determinant,

even though it is a prerequisite. There is no conceptual chain, since the change starts off syntactically. Re-analysis is central, but it takes place at the beginning rather than the end of the process. Haspelmath's (1999) idea that the *maxim of extravagance* is the motor behind grammaticalization, is unlikely here because the adjacency of *have* and the *to*-infinitive is clearly an accidental result, and not an innovation by a speaker who wishes "to attract attention" by using "unusually explicit formulations" (Haspelmath 1999: 1043).

5. Concluding remarks

I have tried to show by means of these two case studies that it is very difficult to find (a) common denominator(s) in grammaticalization. The unidirectional development from more concrete to more abstract, from more lexical to more grammatical, from open (noun, verb) to more closed categories (preposition, pronoun etc.) is indeed a strong tendency, but cannot be a principle or determinant unless we try to explain away all counter-examples. It also cannot be denied that pragmatic inferencing and semantic change play an important part, that semantic bleaching may be involved, but again they need not play a primary role; that is, not in the sense of a chain resulting from conceptual manipulation whereby the syntactic developments necessarily *follow* semantic developments. It was shown in the case of *have to* that semantic bleaching (i.e. the development towards a more abstract, grammatical meaning) was a prerequisite for grammaticalization but not a result of it – on the contrary, it could be said that the quasi-modal *have to* is an enrichment of the earlier bleached *have* –, whereas in the early stages of the *to*-infinitive bleaching must be seen as part of the process itself because it is simultaneous with the other factors involved in the process.

The same story holds for Lehmann's parameters or properties of grammaticalization. They are very useful diagnostics for grammaticalization but again it is not necessary that they are all present in the process. As we saw in the early grammaticalization of infinitival *to*, some of the parameters must have been vacuous from the beginning. Structural and/or categorial re-analysis seems to be a firm component of grammaticalization but it is not necessarily situated near the end of the process (as the analysis of the cases discussed in Roberts and Roussou [1999] suggests), as again the *have to* case has made clear. Here it was the word order change and the ensuing adjacency of *have* and the *to*-infinitive which led to the structural re-

analysis. All the other aspects of this grammaticalization case, marking *have to* as an auxiliary rather than a verb (involving categorial re-analysis), occur after the structural re-analysis. It is also important to note that the *weight* of re-analysis as a component in the process differs according to the theoretical framework used. In generative theory re-analysis is seen as the most important if not the only mechanism in grammaticalization because only structural factors are considered; in other words, it is the result of a number of surface changes (phonetic and semantic reduction, semantic/pragmatic changes) which themselves are not interpreted as changes in the grammar. Most functionally oriented linguists likewise believe that re-analysis is an important mechanism but in their view there is not one, *deep* structural re-analysis but a chain of smaller ones that may spread lexically by analogical extension. They would see pragmatic inferencing as a type of re-analysis, too, on the semantic level, which produces small-scale structural re-analyses in its wake, so to speak.¹⁸ The point then is, do we see these smaller semantic and structural changes as involving (local) grammar changes or do we only see grammar change occurring after the analogical extension of the re-analyses has been played out in full?

Linguists who see grammaticalization as an epiphenomenon, as an accidental conglomerate of various mechanisms of change, cannot really explain why the process is so common and to a certain extent predictable (in the sense that it can be predicted of ongoing changes that they are likely to follow a certain path). Such a view of grammaticalization, however, does help to explain why not *every* process once started runs its full course, and why processes involving cognate elements do not always run the same course in related languages as the cases of infinitival *te/zu/to* and *have to* have shown.¹⁹ It takes account of the fact that language acquisition is discontinuous, and, most importantly, it takes account of the circumstances of the present speakers' grammar. We have seen that the synchronic contours of the grammar are crucial in the process of both *to* and *have to*. However, this way of looking at grammaticalization does not explain why we so often have a grammaticalization chain. The formalist solution could also lead to extreme reductivism, i.e. one could easily argue that *each* linguistic change is in fact a collection of changes. A sound change, for instance, looks neat and tidy after the event, but it is also a change that is not necessarily purely phonetic: it may diffuse lexically, it may start and not succeed (historical evidence for this would be hard to find because not recorded in the spelling, but there is enough evidence of this from sound change-in-progress investigations), it may even be left in the balance for a long time when the old and the new form have both overt and covert pres-

tige in the speech community. Here, too, other mechanisms may play a role, external ones such as prestige, internal ones such as iconic factors (e.g. phonaesthemes and the avoidance of homonymy, cf. Samuels 1972: 45–48 and 67–75 respectively). How can we decide, in other words, whether any particular sound change is a unitary phenomenon, or a conglomerate of smaller changes? Sound change may look more simple both structurally and semantically than grammaticalization, but is it? Of course the moment that meaning becomes involved (which is less frequently the case in sound change) the situation becomes more complicated, idiosyncratic developments are more likely to creep in, but is that a reason to doubt the possible unitary nature of grammaticalization?

There are two areas that need to be investigated in order to get a more complete view of the nature of grammaticalization, i.e. whether it should be seen as an epiphenomenon or as something more solid. First of all, as is emphasized and discussed by Janda (2001), we need to pay attention to the sociolinguistic background and to sociolinguistic mechanisms: “the persistent trend of grammaticalization across generations can perhaps best be accounted for by invoking a model which focuses precisely on the relations between generations in a speech community.” He refers to work, among others, by Ohala (1989, 1993) on the nature of sound change, noting that only the beginning of a sound change is phonetically motivated and that hypercorrection plays a far more important role than has usually been assumed. Janda writes,

It could thus be said that sound-change tends to be regular, not due to persistent influence from some kind of articulatory or auditory/acoustic phonetic naturalness, but instead because exaggerations and misconceptions of phonetic tendencies tend to involve stepwise generalizations based on the natural classes of phonology And the reasons for these (over) generalizations can be sought in the social-group-marking function so often brought to light in sociolinguistic research. (Janda 2001: 305)

He therefore proposes a new language acquisition model which is much more complex than the well-known Klima-Andersen generative model; a model which incorporates synchronic language variation as well as grammatical innovations within an individual. In this model, the social function of age-group marking plays an important part, i.e. it helps to explain the socially motivated extension of what begins as a simple phonetic change.

Janda (2001: 304) writes that the progress of a sound change to other phonological environments may “sometimes obey implicational principles ... but [that they] are often independent.” It is quite possible, however, that

implicational principles are more important in grammaticalization (because semantic factors are much stronger here), and that that may explain why the process so often proceeds in the same direction: the adoption or loss of one property implying the next one as it were. Plank (1995) studies the progress of both grammaticalization and degrammaticalization, and notes that the latter differs from the former not only in its lesser frequency and in direction but also in “die Art des schrittweisen Ablaufs” (‘the way in which it devolves stepwise’, Plank 1995: 200). He shows schematically how a grammatical structure *y* may possess an *x* number of properties, how these properties are linked internally, and how they are linked externally to different formal categories.²⁰ He illustrates how this works in practice for the properties that are important in the marking of adnominal relations, showing how the properties are related to each other thematically, and how they are linked and in what order to the forms expressing this relation. That the properties are linked is shown by the neat, stepwise decline (or increase depending which form one takes as basic) of properties between forms in fully synthetic languages and forms in fully analytic languages, with Latin (which uses a genitive case inflexion exclusively) and English (which uses mainly prepositional phrases) serving as endpoints. Grammaticalization then involves, as Plank shows, the gradual orderly loss of the thematically linked properties along this cline. He next studies the degrammaticalization of the genitive in English from a full case ending to a clitic and notes that the same properties are involved but with a different chronology: a stepwise reversal does *not* take place. In the case of the English genitive two particular properties in the middle of the scheme collapsed through other (external) circumstances, and this led to a disturbance of the original implicational order of properties. What occurs next is a re-establishment of order (which Plank calls “resocialization”) as follows: it is not the properties themselves that get re-ordered (they cannot be because they are implicational and two links have been lost), but it is the formal expression that gets re-ordered (changed) in such a way that it fits the left-over, disturbed properties. In the case of the English genitive, the form changes from an affix into a clitic because this was the best way to salvage the properties that it still possessed.

Two interesting facts emerge from this study. First of all, it shows that degrammaticalization cannot be a mirror image of grammaticalization because it is caused by the disturbance of properties and not by the orderly loss of one property linked to another.²¹ Secondly, it shows the importance of implicational properties in the case of adnominal marking. It suggests that the progress of a grammaticalization change from a PP to an inflex-

ional affix follows a specific implicational order. It suggests further that this order ultimately depends on the type of change involved in any grammaticalization. Quite naturally, when an adnominal relation grammaticalizes, the process will be different (because a nominal expression has different implicational properties) compared to when a verb grammaticalizes into an auxiliary or a subject pronoun into an inflexional verbal ending.²² In other words, Plank's study shows the orderly progress in any case of grammaticalization as well as differences between types. We will need to find out, therefore, by means of further investigations to what extent the *continuity* or chain-like quality found in grammaticalization cases, is a result of sociolinguistic factors (Janda's idea) or structural, implicational ones (or indeed both), and secondly, to what extent the different properties of structures and their formal expressions lead to different types of grammaticalization paths and the use of different types of mechanisms and parameters. If implicational properties are found to play an important role in grammaticalization processes, it would be difficult to uphold that grammaticalization is a mere epiphenomenon.

I think it can be concluded that the *determinants* or principles of grammaticalization are by no means firm or fixed but depend very much on the circumstances of the language or its grammar under investigation, and on general iconic principles that interact with these circumstances. In the real linguistic world many rules are no more than tendencies.

Notes

- * I would like to thank Adrienne Bruyn, Anette Rosenbach and the editors, Britta Mondorf and Günter Rohdenburg, for their careful reading of this paper and for the very helpful suggestions they have each made to improve it.
- 1. The full quotation is as follows: "Reanalyse ließe sich leicht als jener Teil dessen beschreiben, was innerhalb des Grammatikalisierungsprozesses ausschließlich mit Mitteln eindeutiger kategorialer Unterscheidungen und mit Restrukturierung von Konstituenz zu erfassen ist. Reanalyse wäre innerhalb eines solchen begrifflichen Rahmens einfach eine Subkomponente der Grammatikalisierung insofern, als die unter Grammatikalisierung klassifizierten Typen des Wandels erst bzw. nur syntaktisch, d.h. durch Restrukturierung oder durch Kategorien-/Wortartwechsel sichtbar werden müssen" ('Re-analysis could easily be described as that part of what within the process of grammaticalization can be grasped exclusively by means of clear categorial differentiation and restructuring of constituency. Within such a terminological frame, re-analysis would simply be a sub-component of grammaticalization in so far as the types of change classified under grammaticalization must become visible first, or in other words, only syntactically, that is, by means of restructuring or a shift of category/part of speech. (Abraham 1993: 13–14).

2. It is interesting to observe in this respect that Haspelmath (1998) has suggested that re-analysis is not part of grammaticalization, indeed that “[g]rammaticalization and re-analysis are disjoint classes of phenomena” (p. 315). This idea, however, can only be upheld if one defines re-analysis in a way not recognized by other scholars. Campbell (2001: 145–149) discusses the criteria or diagnostics which Haspelmath uses to distinguish the two phenomena in great detail. He shows that they are rather idiosyncratic. They, in fact, seem to be adapted to Haspelmath’s ‘new’ definition of re-analysis (Geurts [2000a and b], in his commentaries on Haspelmath [1999], also notes his tendency to present “an unduly narrow conception” of familiar terms). For instance, when one takes ‘ambiguity’ as a diagnostic for re-analysis but not for grammaticalization, then one must class the change in the *for* NP *to* V construction (see below) as re-analysis, whereas it is quite clear that it involves grammaticalization too, in that a benefactive preposition becomes a (more general) complementizer. Similarly, when a diagnostic for grammaticalization is its unidirectionality (re-analysis being classified as ‘bidirectional’), then the loss of the impersonal in English could be seen as grammaticalization as suggested by Haspelmath (1998: 338–340), even though the case doesn’t seem to show any of Lehmann’s (1985) parameters (no phonetic or semantic reduction, no bonding, no increase in paradigmaticity, etc.). In fact, I would even question its unidirectionality, because in Middle English some original nominative experiencer subjects became dative (cf. Denison 1993: 71–72), and with some impersonals, the dative experiencer remained, while the thematic role of source/cause became subject.
3. There may be another problem related to this, as noted by Geurts (2000a). Grammaticalization is typically a phenomenon of language (as a communicative system), and not of the individual speaker. Geurts writes (p. 784) that there is no continuum between content and function words in the individual speaker (this would agree with the approach taken by Roberts and Roussou), but also that grammaticalization (on the language level) is not a result of an individual’s conscious decision (p. 786). In other words, it is a little odd to see a re-analysis that takes place in an individual’s competence as the equivalent of grammaticalization.
4. This can clearly be seen in the treatment of grammaticalization by Roberts and Roussou (1999) mentioned above.
5. Generative linguists are mainly interested in how linguistic features and constructions hang together and how this *hanging together* is shown up by change. Thus their interest is in *radical* changes rather than superficial ones. How much evidence has been gathered so far for the existence of radical changes? The category change in the English modals, which Lightfoot (1979: 81–120; 1992: 142–54; 1999: 180–85) considers to be of a radical nature in the grammar of 16th-century English (it was the paradigm case in Lightfoot 1979), was quite gradual on the output level both before and after the putative radical change. Warner (1993) indeed shows that the modal verbs were exceptional within the category of verbs already in Old English, and that they still are in present-day English, but to a higher degree, and that the progress of exceptional behaviour was by incremental lexical changes within each modal verb. Reviewers and critics of Lightfoot (1979) have also voiced severe doubts about the radical category change involving the Old English quantifiers (see Bennett 1979; Fischer and van der Leek 1981: 311–317), the *to*-infinitives (Warner 1983: 200–202; Fischer 1996; Fischer et al. 2000: chapter 7, and see below, section 2) and the introduction of a rule of NP Preposing (Fischer and van der Leek 1981: 325–339; Warner 1983: 202–206). In all these cases, the data proved stubborn and the various new constructions were not as neatly simultaneous and related as they should have been to prove the existence of one deeper change.

6. It is important to realize that the status of these *triggers* is different from the status of what Milroy (1992: 169–172) calls *innovations* or what Harris and Campbell (1995: 54 and passim) call *exploratory expressions*. The latter two are examples of variations that may lead to linguistic change, but need not. I.e. they do not (yet) constitute change. Triggers in generative theory, on the other hand, are full-blooded changes because they lead to grammar change. However, not all *changes* (in the sense of Milroy) need be triggers. Thus, we have a scale of changes running from least to most influential: innovations (changes at the individual level) > changes (changes on the language level that are midway in the S-curve) > triggers (changes that lead to further changes elsewhere). The first two may be determined by empirical observation of language data, the last one depends on the theoretical framework one works in.
7. A fairly abstract theory of grammar will work with clear categories and restrictive rules and constraints (restrictive both in number and form) as to how the various categories are ordered syntactically. Rules will be as general as possible and will try to capture the majority of the generated constructions. A less abstract, more surface-related grammar will have rules that apply on the whole less generally; more of the grammar will be part of the lexicon, whose rules are restricted to lexemes or small groups of lexemes and are thus more idiosyncratic. In the latter type of grammar there are more rules to learn, in other words, but the rules themselves are easier because less abstract, and constructions may be processed semi-automatically rather than generated by the grammar each time. The categories too may be less clear-cut, may be fuzzy even, and slight shifts are more easily understandable (and more easily describable in terms of the grammar). These shifts are often driven by context and by the way we perceive the external world (pragmatic inferencing, for instance, will play an important role in the shifts). The most extreme proponent of the latter view is Paul Hopper with his *Emergent Grammar*, where strict rules and categories have all but disappeared, and grammar is for ever on the move, so to speak, constantly in the making. As always, there is something to be said for both points of view: the model of grammar (if we ever manage to describe it) will no doubt have elements of both.
8. This issue is discussed in great detail in Keller (1994) and Yngve (1996: esp. chapter 3). They both discuss the problems that exist with respect to the scientific approach to language. Language is not a living organism that can be described and analyzed in terms of natural laws, speakers are the real organisms involved. So we should study human brains in their environment in order to find out more about language. In this respect, not only the concentration on *parole* would be wrong – which is indeed the generative viewpoint – but also the concentration on *langue*, because in Saussure's opinion *langue* dealt with the object of language "independent of the individual" (Saussure [1916] 1986: 37; 1983: 19), "[t]he activity of the speaker must be studied in a variety of disciplines, which are of concern to linguistics only through their connexions with linguistic structure." In other words the speaker is not central to Saussure's investigations into language either (see also Yngve 1996: 31). Yngve calls the problem *domain confusion* and shows that it has deeply affected generative theories. He writes, "In retrospect, and with a sensitivity to domain confusions, it can now be seen that the various criteria and tests [in Chomskian linguistics] that were introduced were all operating in the logical domain. They effectively defined a priori certain characteristics to be attributed to the structure of language. Thus they were disguised assumptions creating and introducing the objects of study in detail. Each criterion characterized an a priori view of some characteristic of language or the objects of language, and since there was no reality, no object with existence prior to tests, they did not describe any existing object and there was no guarantee

that they would even be consistent with one another. With no physical reality, no scientific tests are possible" (Yngve 1996: 45–46).

At the same time, there is the paradoxical situation that language change is not directed by the will of man. Keller shows how linguistic changes (in the Milroyian sense, see note 6) may occur whose result is as if it were the opposite of what the innovations brought about by speakers set out to do (it is the "non-intended consequence" of an accumulation of individual, intended actions, Keller 1994: 64). Keller refers in this respect to the *invisible hand* - phenomenon. He shows that, although innovations begin (sub)consciously and are in a sense weakly teleological or *final*, the linguistic change that may arise out of a number of individual innovations, must itself be seen as a causal phenomenon, i.e. caused by natural laws. Keller writes (1994: 80): "The results of final, or as I prefer to say, intentional actions accumulate under certain conditions and bring about structures which do not lie within the sphere of final individual actions. The accumulation is a causal problem. Thus, both the 'finalists' and the 'causalists' have a share of the truth. Their error lies in the exclusivity of their claims, as both fail to notice the interaction of final and causal processes." This view of Keller's seems to reduce the importance of the individual speaker in *change* (as opposed to *innovation*). It seems highly likely that for explanations of long-term processes of change (such as grammaticalization) we must look at sociolinguistic processes next to grammar change. This is in fact the stance taken by Richard Janda in a recent article in *Language Sciences*: granted that "grammaticalization phenomena ... represent an epiphenomenon which can therefore have no global properties and no long-term 'path(way)s' of its own, ... we are then obliged to explain why grammaticalization as a conjunction of separate processes does tend to proceed in the same direction over time" (2001: 304). His suggestion is that it is "sociolinguistically motivated generalization by successive generations that allows grammaticalization phenomena to show apparent graduality and a predominant directionality despite discontinuous transmission over time" (p. 307). For more discussion of this, see also section 5.

9. William Croft brought to my attention in the discussion of this paper that this parameter has been called into question by Tabor and Traugott (1997). Tabor and Traugott have suggested a new way of looking at grammaticalization, which ignores the notion of unidirectionality for the time being, and instead focuses on a new hypothesis namely that processes that involve the hallmarks of grammaticalization (these hallmarks being: evidence of [1] morphosyntactic change, [2] pragmatic/semantic change, [3] gradualness) involve scope *increase* rather than decrease. I am not yet convinced that this is a good direction to take because it obscures the real differences between grammaticalization and degrammaticalization. The case of *to* discussed here clearly shows scope decrease in both German and Dutch, where the original preposition has fully grammaticalized, while English *to* shows scope increase at the moment that it *degrammaticalizes*. The grammatical changes that Tabor and Traugott discuss, all showing scope increase, are not the most typical grammaticalization (in the original sense of the term, i.e. including unidirectionality) cases. One involves the English genitive, which has been seen as a prime example of degrammaticalization, cf. Janda (1980) and Plank (1995); one involves the verbal noun becoming a gerund, which I would see as a case of reanalysis (brought about by, among other things, phonetic confusion between the original verbal participle ending in *-ende/inde* and the nominal ending *-ung > -yng*) and not grammaticalization since it shows no sign of semantic or phonetic reduction or any of the other parameters distinguished by Lehmann; while cases which involve subjectification (such as the modals, and the development of sentence adverbials) – which indeed

- generally show scope increase – seem to me to be basically different from regular grammaticalization instances (i.e. no real loss of integrity, no increase in paradigmaticity, increase in bondedness?). In other words, Lehmann's parameters are still useful diagnostics for the process of grammaticalization, as far as I can see.
10. For more information on this corpus, see Kytö (1991).
 11. Except in lexicalizations or fixed expressions such as *ten oosten van* 'to the east of', *te lijf gaan* 'to body go', i.e. 'attack', *te Amsterdam* 'at Amsterdam'.
 12. With the exception of the new prepositional phrase *instead of*, which takes a *to*-infinitive (next to a gerund) even up to the present day. All other prepositions disallow a *to*-infinitive from about 1500 onwards, with a few later examples, mainly from Spencer's *The Fairy Queen*, where he used archaic language on purpose.
 13. Cf. Plank (1979: 131): "Der frühkindliche Spracherwerb zeichnet sich durch eine ausgeprägte Präferenz zu ikonischer Zeichenbildung aus, die als 'natürliches' Substrat jeder Zeichenbildung zumindest latent wirksam bleiben dürfte, wenn auch nach Maßgabe von Symbolisierungsnotwendigkeiten" ('language acquisition in young children is characterized by a very strong preference for the formation of iconic signs, which, as a natural substratum of all sign formation, probably remains at least latently active even though tempered by the need to symbolize'), and also Givón (1995: 61): "One must consider the pervasive iconicity of human language merely the latest manifestation of a pervasive preference for isomorphic coding in bio-organisms".
 14. For more details on how this rather difficult example (of which there are three in Chaucer) should be interpreted, see Fischer (1995: 10–11).
 15. I am using the term *layering* here in a more narrow way than in Hopper (1991) and Hopper and Traugott (1993: 224), in that the layering is restricted to forms within one cline (i.e. the layering concerns one and the same formal element), and not to layers within a functional domain (including *renewal*). A *layered* item becomes *divergent* when the speaker no longer sees the formal connection between the items in the cline, i.e. in lexical terms the polysemous items have become homonyms.
 16. For more information on the role played by iconicity in grammaticalization processes, see Plank (1979), Fischer (1999). Fischer (1999) argues that metaphorical shift, renewal, phonetic reduction and persistence, all processes important in grammaticalization, are iconically based.
 17. There is one small group of expressions in Dutch, where *hebben* 'have' seems to come very close to a modal auxiliary expressing pure obligation; these expressions are commonly accompanied by the word *maar* 'but/only', as in *Je hebt het maar te doen* 'you have it only to do'. It seems to me that these expressions are a subtype of the regular use of *hebben* + *te* infinitive in Dutch. They always mean 'there is nothing else for you to do/that you can do but ...'. Since the expression always refers to the only thing that one can still do, in practice it comes to mean that one *must* do it. So far there is no evidence that a pure modal is developing in Dutch from this subtype. The same seems to be true for German, *haben zu* + infinitive can only be used when there is such a restriction, i.e. when the thing that has to be done is the only possibility. So one can say, *Du hast das Buch zu lesen, sonst ...* 'you have to read this book, otherwise ...', but one would not normally say *Ich habe mit dem Zug zu fahren, weil ich kein Auto habe* 'I have to travel by train because I don't have a car'.
 18. Cf. Croft (2000: 160), who describes it thus, "Pragmatic inference ... is a type of metanalysis: a contextual ('pragmatic') property of the meaning is reanalyzed as an inherent ('semantic') property of the meaning, and a related inherent property is reanalyzed as a contextual one." Like structural re-analysis, the re-analysis on the seman-

- tic/pragmatic level takes place syntagmatically. In that sense it is different from (semantic) metaphor and (structural) analogy, which take place on the paradigmatic axis.
19. I do not agree, therefore, with Haspelmath (1989) who refers to “universal paths of grammaticalization” cutting across related languages; and I would use with great caution “the application of ... cross-linguistic generalizations about grammaticization [as] a standard technique to guide an investigation of grammaticization in a particular language” (Hopper 1991: 20) because this may lead to a preconceived analysis of the facts, as happened for instance in Brinton’s (1991) analysis of the grammaticalization of *have to* (cf. Fischer 1994b).
 20. His proposal is similar to the way sounds are analyzed on the phonetic/phonological level. Each phonetic sound (or form) consists of a number of distinctive features (or properties), and these sounds (allophones) are linked to an abstract structure, i.e. the phoneme. In sound change, too, the links between the features play an important role in the way allophones alter, and in the way allophones are linked to phonemes.
 21. There are also of course more direct and formal reasons why degrammaticalization cannot be a mirror image of grammaticalization. One can to some extent predict how a full form would reduce phonetically, but one cannot predict the reverse, the choices would be almost unlimited (cf. Geurts 2000a).
 22. It may explain, for instance why the scope-parameter works differently in different cases, as noted by Tabor and Traugott (1997). See also note 9.

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