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Language change: some implications for the theory of Functional Grammar

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0. Introduction¹

To the generally accepted requirements of observational, descriptive and explanatory adequacy as formulated in Chomsky (1965), FG adds three requirements more. A functional grammar should be pragmatically, psychologically and typologically adequate (Dik 1997:12f). Interestingly, although references to historical data are made quite regularly in FG publications to support specific analyses (cf. Dik 1980, 1986, 1987; Bossuyt 1983; de Groot & Limburg 1986; Goossens 1987, 1996; Connolly 1991; Hengeveld 1992; van Hoorick 1994; Olbertz 1996; and Wichmann 1996), no author suggests the addition of yet another requirement, i.e. diachronic adequacy, to the theory in general.² Implicitly, a view on the place of diachrony in linguistic explanation is sketched in Dik (1986). Seen from the perspective presented there, a possible linguistic change - be it internally or externally motivated - always leads from one possible language to another possible language. And a major requirement for a functional theory is that it defines precisely what a possible human language is. The problem with this definition of change is that it seems to be too broad in the sense that it will sanction a transition between any two possible states S_i and S_j of language L - and even between two languages L_i and L_j for that matter - as a possible change, whatever time distance there may be between both states, and whatever the nature of the differences between them.³ Also, no direct predictions may be derived from that definition as to what changes might and might not be expected, given some particular state S_i for L , in other words: what is the likelihood of

¹ I wish to express my gratitude to three (not so) anonymous reviewers who have tried to keep me on the right track. I am, of course, fully responsible for any erroneous thought or expression that has remained.

² A notable exception is found in the work of Bossuyt. A monograph on the principles of a functional theory of language change, which is an elaboration of Bossuyt (1983), and a draft of which has been made available to the current author, has not yet been offered for publication.

³ Another aspect that such an approach does not provide for is that of the evolution of a language in the sense that it may attain a stage that no longer conforms to the definition of 'possible human language'. This issue is not normally the object of discussions on language change at all, and will not be explored further here. I will also remain agnostic concerning the evolution of language in its stricter sense, i.e. the question how, over the last couple of million years, human language developed from the primate communication system. This is a matter of much debate outside linguistics (cf. Hurford et al. 1998), and it is my strong conviction that, eventually, a linguistic theory should be adequate from this angle as well.

two in themselves possible states S_i and S_j following each other in time. Therefore, such an approach is in need of refinement to the extent that it should define a notion of minimal change, and that it should introduce a set of motivations for a shift between two particular states to occur in the first place. Only then could it be matched to a hitherto synchronic theory.

The only constraining hypothesis concerning the process of language change that we do find in the FG literature, introduced in Bossuyt (1983), and adopted in a somewhat modified version in Dik (1987), is the Functionality Principle. This principle states that, during language change, there will never be a stage where a language cannot express an essential function in an unambiguous way.⁴ However, it is not further specified what an essential function is, nor whether a set of essential functions is assumed to be language-specific or of a universal nature, and whether such a set - and by implication the functionality of a language - may change over time. Circularity seems to be a realistic threat when testing such a general principle in the face of actual data: functions that disappear were apparently not essential. In order to avoid this, I will interpret the Functionality Principle as follows. It predicts that there will never be a transitional stage between two minimally different possible states S_i and S_{i+1} in language L where, as a result of some ongoing process of change C from S_i to S_{i+1} , the grammar, or rather, a group of speakers of L temporarily lacks the means specifically necessary to express a certain essential function F , which is relevant for both S_i and S_{i+1} , i.e. that L is temporarily inadequate in that respect. This leaves open the possibility that change C may introduce new functions to L , and may eliminate functions no longer deemed necessary by the speakers of L . It also leaves open the possibility that at a later stage, F is reintroduced again. Stated in this way, the Functionality Principle hinges critically both on the notion of minimal change, and on a definition of 'function of a language'. Only with these defined, does its tenability become an empirical matter.

I conclude that, by defining 'minimal change' and by providing an apparatus for establishing restrictions on possible changes in grammars in terms of universally or typologically essential functions, the diachronic subtheory may be constrained in the same insightful fashion as establishing restrictions between components of a grammar does for the synchronic counterpart, i.e. by dramatically constraining the search space for acceptable changes. If adequacy is taken in its usual sense of a set of criteria for selecting the 'best' grammar from a set of observationally (and descriptively) equivalent grammars, then diachrony should be added to the inventory of adequacy requirements for a Functional Grammar.

In this paper I will discuss some aspects of such a diachronic subtheory. This will

⁴ Obviously, the 'ideal speaker' is envisaged here. There might, at least in principle, be specific individual speakers who do have an 'incomplete' version of the language at their disposal. This holds trivially for a Pidgin to Creole scenario of language change.

be done against the background of an explanatory framework based on the competing motivations approach (cf. Haiman 1983; DuBois 1985). The paper is organized as follows. In section 2 I will introduce a formalism for representing processes of language change in a FG-like fashion. In section 3 a diachronic scenario will be presented as discussed in Lord (1993) for some widespread phenomena in the context of so-called serial verbs. Taking that scenario as a point of departure, section 4 will demonstrate the use of the formalism of section 2. Finally, in section 5, I will try and give a functional explanation for the serial verb phenomena using the competing motivations mode of reasoning. But first, in section 1, I will give a brief sketch of the view on language change that is the background to the rest of the paper.

1. Language change

Following Labov (1982), I hold that language change is the complex result of the interaction between processes in the language community on the one hand, and the communicative needs and the creativity of individual members of that community, including language learners, on the other hand. This is the case for changes that result from language-internal motivations and those that result from language contact, although the ultimate effects may be different. Therefore, in a description of the process of language change, the role of both the language community as a whole and the individual speakers should be taken into consideration. Changes often originate in the idiolect of individuals, stemming from speech processing, including errors, and communicative needs, and may surface at any level of grammatical description, running from phonological adaptations via lexical insertions to the reorganization of constituent order. But the propagation of these changes to the language as such is a group process. As far as motivations for global language change are concerned, my assumption will be that non-linguistic factors will play a more prominent role than linguistic ones. This may be expressed by the following hierarchy, which is in harmony with the notion of Functional Explanation (Dik 1986):

- (1) Social factors >
- Areal factors >
- Pragmatic factors >
- Functional factors >
- Structural factors

By social factors I mean global processes in the language community, such as the interaction within subcultures, with their respective sociolects and dialects, and also between such groups. Sociolects and dialects may be institutionalized via education, official organizations, advertisement, entertainment, etcetera. Areal factors comprise

'Sprachbünde' and language contact in general. Pragmatic factors comprise general communicative notions such as processing and message management, and more specific aspects such as honorific systems, and discourse notions such as topicality and focality. These factors I locate outside the grammar proper, although they may, of course, have their reflection in the grammatical system. Functional factors have to do with underlying representations: the semantics and pragmatics of the clause. Structural factors determine the formal aspects of expressions: syntax, morphology and phonology.

The hierarchy in (1) should be interpreted such that, in general, a higher factor will provide a motivation for a change to come about, and to spread among the speakers of the language, while the lower factors provide both the 'raw material' for and the constraints on the precise shape of the change. Changes may, in fact, originate on any of the respective levels. However, they are more likely to find their motivation on a higher than on a lower level. Although many changes are possible in languages, especially in the case of language contact in a situation of socio-economic inequality between the language communities and subcommunities (cf. Hekking & Bakker to appear), it is not very likely that 'anything goes'. What constrains changes may be determined by a hierarchy like the one in (1).

Assuming the above, how should language change be perceived from the angle of the grammar of some language L? Seen from the perspective of a linguistic theory such as FG, the grammar of a language L can be regarded as a coherent set of grammatical elements, defined in terms of that theory, and coding the knowledge of the 'ideal' speaker/hearer, a concept that is a hybrid between the speech community and the individual speaker. An element E of that grammar may be a phonological or morphological rule, a syntactic template, a lexical item with its meaning definition, the semantic representation of a clause, a complete construction, etcetera. I will assume that element E belongs to language L if at least some (arbitrarily) minimum number N_{\min} of speakers of L have E as a part of their idiolect.⁵ Further, for any E there may be different instantiations, contexts in which or conditions under which it may be used. A more formal representation of the use of E in the language community of L is given in (2) below. If S is the set of all speakers of L, and $I_j(E)$ is a specific instantiation j of element E of L, then S_j is the subset of S that use $I_j(E)$ actively; H_j is the set of individuals that accept $I_j(E)$ as grammatical without actively using it. Typically, S_j is a subset of H_j .

$$(2) \quad E, \quad [\{ I_1(E), S_1, H_1 \}, \\ \{ I_2(E), S_2, H_2 \}, \\ \dots \\ \{ I_k(E), S_k, H_k \}]$$

⁵ I deliberately make no distinction between language and dialect here. Throughout, spoken rather than written language is intended.

If we assume a certain level of abstraction for E, $I_1(E)$ through $I_k(E)$ represent Labov's variable rules, as relevant for the subsets of speakers S_1 through S_k of S, respectively.

Another quantity that is implied in the set of all elements E of language L is Bickerton's (1990) notion of implicational scales. These are simply tuples of the type $\{E_j, E_k\}$ where (active) users S_k of E_k are a subset of S_j , the users of E_k . Implicational scales mark coherent paths through L, and as such give insight into what elements go together in a grammar of L.

The grammatical effects of language change may be detected on different levels of this representation. Firstly, the number of speakers which use some E in any of its instantiations may be lower than N_{min} . Then E may be on its way out (in that case we expect there to be considerably more hearers of L who recognize it but never use it). Or E may be on its way in (then the number of hearers who recognize E may not, in fact, be larger than that of the active users). This is typically the case for some new lexical item. The same may be happening for an instantiation I_j of E. This is what often precedes cases of markedness shift, i.e. more speakers start using a certain construction in a context in which only very few speakers used it at an earlier stage. We may also witness a stage in a process of grammaticalization.

We may consider the set of marginal E's and $I(E)$'s - i.e. those with their use below N_{min} - as the cradle and the deathbed for elements of L respectively. Following Harris & Campbell (1995), and ignoring borrowing as a result of language contact for the time being, I will assume that new E's and $I(E)$'s may enter the set of acceptable constructions of L in two ways: as a result of extension or reanalysis by old and new speakers of L. Extension is exemplified by (3) below.

(3) What's eating Gilbert Grape?

In this case, the original concrete meaning of the predicate 'eat' has been extended to the mental domain. This gives us a new instantiation of the predicate for a subset of the speakers. Extension is generally seen as a process based on metaphor. It eventually leads to a paradigmatic change in the grammar of L.

Reanalysis is exemplified by (4a-b) from Finnish (taken from Harris & Campbell 1995:71).

(4) a. lapse-n rinna-lla
child-GEN chest-LOC
'On the child's chest.'

b. lapse-n rinnalla
child-GEN next-to
'next to the child.'

Here, the locative noun is reanalyzed as a postposition. Reanalysis is generally seen as a process based on metonymy. It introduces a syntagmatic change in the grammar of L.⁶

Technically, this two-way distinction would suffice for most cases of (minimal) language change. However, I will add two types of change that are often distinguished, especially in the literature on grammaticalization: generalization and specialization. Both may be seen as specific subtypes of extension, and are often witnessed in grammaticalization processes. In the case of generalization, the meaning of some form extends, not to some other domain, but to a hyperonym of the original domain. E.g. the meaning of the English auxiliary 'can' was originally restricted to learned capacities, as in example (5a). This was probably due to the cognitive aspect in the meaning of the verbal predicate *can* 'to know', in use as a two-place verbal predicate till well in the 17th century (cf. Goossens 1987), and that gave rise to the auxiliary. Later on, its meaning was extended to general 'possibility', as in (5b) (the distinction is expressed in French by the verbal predicates *pouvoir and savoir*).

- (5) a. Anna can ride a bike
b. Anna can make me laugh

Specialization works the other way around: it narrows the meaning down to a hyponym of the original domain. This is illustrated by the Dutch modal *mogen* 'may'. The original 'participant-external possibility' was restricted to 'deontic possibility', as in (6) (example and terminology from Van der Auwera & Plungian 1998:89f).

- (6) Jan mag weggaan nu
John may away-go now
'John may leave now.'

Two more points I would like to make here.

The first is that many, if not most forms of diachronic language change are gradual in the sense that they take place over a relatively long period of time, and involve a number of generations of speakers. The, often silent, assumption is that such changes are internally motivated, from within the language and the language community, and that there is little or no influence from outside, i.e. other languages or dialects. Presumably, such diachronic processes proceed via minute steps, often not more than gradual shifts in

⁶ Hopper and Traugott (1993) take more or less the same position for grammaticalization, a subdomain of language change. They assume analogy and reanalysis to be the basic mechanisms behind most grammaticalization processes, while considering them to be instantiations of two deeper, conceptual motivations: metaphor and metonymy.

markedness, or the virtually invisible adaptation of meanings of predicates to new contexts. Several variants may co-exist during a prolonged period. However, there are several other scenarios of language change that go at a much quicker pace than diachronic change. Consider the following processes of linguistic alteration, running from most to least 'dramatic' in the sense of rate and effect of the change in comparison to a previous stage:

- A. First language acquisition
- B. From Pidgin to Creole
- C. Language contact: substrate
- D. Language contact: superstrate
- E. Language contact: non-dominant dialect
- F. Language contact: dominant dialect
- G. Diachronic change in isolation
- H. Changes in adult grammar

Note that first language acquisition (A) and changes in the adult grammar (H) are taken to be the two extremes on this scale. In the case of the first, the only constraints on what may change are in fact those imposed by the universal learnability principles (in some theories: universal linguistic capacity, or 'UG'), and the extant languages. Creolization, including some types of grammaticalization and relexification, is assumed to be a relatively rapid process. This may be due to 'functional pressure', i.e. the pressure on a linguistic system that is functionally 'incomplete', as in the case of a Pidgin, or a very young Creole, to become a fully-fledged communicative system.⁷ Depending on socio-economic conditions, C and D (second language acquisition) may have a more or less dramatic influence on the first language. In the most extreme cases, languages may be disguised to a large extent by a superstratum over a few generations (cf. the Romance languages), or even vanish without a trace (cf. many Amerindian languages). To a lesser extent, the same may happen between dialects of the same language (E, F). This all depends heavily on the circumstances: there are examples of more or less perfect bilingualism within communities that extend over a number of generations without the languages involved being affected too seriously. Diachronic change (G), the type discussed in this paper, is the slowest type of language change, in as far as it takes place in its purest form at all, without other linguistic systems interfering. My point of departure will nevertheless be that many of the principles that determine diachronic change - both the motivations and the constraints - are relevant for the other types of language change. In the more dramatic cases, extra factors have to be taken into consideration that may affect the speed and nature of the process. If this turns out to be a tenable position, then a theory

⁷ Cf. De Bruyn (to appear) for examples from Sranan.

that is diachronically adequate will tend to be adequate, at least to some extent, also in the face of language acquisition, language contact and language loss.

A second point concerns the direction of language change. It has been amply shown for grammaticalization that the vast majority of cases are unidirectional, i.e. leading from lexical or less grammaticalized forms to more grammaticalized ones (cf. Hopper & Traugott 1993:94f; but see Nevis 1984, Ramat 1992 and Norde 1997 for examples of so-called degrammaticalization). However, for examples of language change outside the realm of grammaticalization the situation is more complex. Several types of change seem indeed to be unidirectional, such as the shift from genitive to partitive, and from passive to ergative. Harris & Campbell (1995:330f), on the other hand, give some examples of bidirectional changes stemming from domains such as word order, alignment systems and relative clause formation. However, these authors suggest that a more fine-tuned analysis of these cases in terms of constraints on contexts might reveal some kind of unidirectionality after all. As a working hypothesis, I will assume that unidirectionality is more likely to the extent that, measured on a scale of grammaticalization, the trajectory is longer and the changes are ultimately more dramatic than in the case of degrammaticalization, while the latter is of a more 'local' character in the sense of being very much language or construction-specific. However, degrammaticalization should be assigned a place in the theory of linguistic change.⁸

In the following section this picture of language change will be translated into the terminology of an FG-like grammar.

2. A formalism for the representation of language change in FG

Formalisms are not a central goal of linguistic theory. However, they may be instrumental in clarifying and modelling complex linguistic processes and representations. In this particular case, we would want a formalism to provide us at least with the means:

- a. to represent a particular type of construction in terms of an FG-like grammar, on all linguistic levels relevant for (a specific instance of) language change;
- b. to indicate what alternatives there are in the speech community for a specific construction at a given point in time;
- c. given several diachronically related constructions, to establish a path between them; and

⁸ An interesting example of 'degrammaticalization' as an effect of language contact is discussed in Hekking & Bakker (to appear), where it is shown that the Amerindian language Otomí borrows prepositions from Spanish to express semantic relations that were originally expressed by suffixes.

d. to express what a change is.

Taking the clause as the highest level of description, then the representation of a construction should refer to both the underlying clause (UC) and the set of expression rules (ER) involved in the realization of the UC, since changes may occur on either level. A very general, first representation of a construction could be a tuple that combines the UC and ER aspects of that construction, as in (7a):

(7) a. { UC, ER }

Processes of language change may then be represented by a series of such tuples. In (8a) below some underlying meaning representation gets a different expression. It may be seen as a simple form of reanalysis. In (8b) the opposite takes place: an expression gets a different meaning. (8b) is the abstract form of both generalization and specification. The special character of these two is represented in the relation between UC_1 and UC_2 . Extension will look like (8c): the original meaning is retained. (8d) gives a trajectory of indeterminate length where a number of extensions and reanalyses may have taken place.

(8) a. { UC_1, ER_1 } \rightarrow { UC_1, ER_2 }

b. { UC_1, ER_1 } \rightarrow { UC_2, ER_1 }

c. { UC_1, ER_1 } \rightarrow { (UC_1, UC_2), ER_1 }

d. { UC_1, ER_1 } \rightarrow ... \rightarrow { UC_j, ER_k }

Of course, in actual practice, such a global schema may be far too imprecise to capture all the details of some process of language change. Furthermore, it has to be expanded in at least three ways. Firstly, changes may be of a more general character than FG underlying representations normally are. This calls for UC and ER representations that are more abstract than the usual ones which represent a sentence. One way to do this is by using abstract predicates as in example (10) below, or by using variables that range over sets of values for operators, functions etcetera. This point will be discussed in somewhat more detail below. Secondly, since changes typically become manifest on different formal levels of the expression and are discussed in terms of those levels, a more refined version of ER should be developed. A third point is whether or not we need a language-independent level of representation for the meaning and change of meaning of expressions of language L.

Let us first have a closer look at the expression rules. Changes appear either at the syntactic level (e.g. constituent order), the morphological level (e.g. agreement marking

and grammaticalization processes) or the phonological level (e.g. loss of a final consonant), or a combination of these. A problem for representing this is that, apart from the familiar templates and corresponding placement rules for the first two levels, the expression component in FG has not been very well worked out in the canonical version of the theory. For phonological representations, no separate formalism has been proposed at all so far. But even if we restrict ourselves to syntax and morphology, then the separation between the generation of forms and the linear ordering process of the forms creates complications, as has been shown in Bakker (1994). For the computer model of FG presented there, both levels were integrated via a formalism called Rule Templates (RT's). These are treelike morphosyntactic structures, with the placement rules coded as conditions on the fillers of the intermediate (syntactic) and terminal (morphological) nodes. When used for a placement operation, only the slots that are filled with lexical and morphological material will remain, under the deletion of the conditions.⁹ RT's will be assumed for the representation of syntax and morphology here; a more complete proposal for the expression rules may be found in Bakker (to appear). I have no specific proposal for the phonological component. In the formalism, we will now split up the ER component into three parts, leading to the following extended version of (7a):

(7) b. { UC₁, SYNT₁, MORPH₁, PHON₁ }

A second addition to the schema of (7a), viz. a conceptual, and in principle language-independent representation underlying the expression under consideration, needs somewhat more motivation here. A central point for FG is the avoidance of language-independent concepts in meaning representations. UC's contain actual predicates of the object language. Furthermore, language dependency is particularly manifest in the theory of stepwise lexical decomposition (Dik 1978), and in the representation of selection restrictions (cf. Dik 1997:91f). However, under these assumptions we are left with a problem. Apart from language-specific predicates, the theory allows for a number of abstract, universal 'grammatical' notions in underlying representations, such as the labels for functions and operators (AGENT, INSTRUMENT, PAST, PLURAL, DEONTIC, etcetera). Semantic functions are intricately connected to selection restrictions, and, via these, to the semantic aspects of terms that serve as fillers for argument and satellite positions. By stating selection restrictions in terms of predicates of the object language, the

⁹ Certain empty slots may be retained, e.g. those that have phonological impact, as for 'soft mutation' in Welsh, and possibly also for the 'empty affix' example from Idoma that I will give below. 'Morphology' should be interpreted here as 'inflectional morphology'. I assume the traditional distribution where derivation and compounding are part of the lexicon (with some intervention of the expression rule component), and inflectional morphology is part of the expression rules proper.

operation of these rules on the semantics of filler terms seems to be more or less straightforward.¹⁰ However, what is not clear is how we should formulate the universal lexical default rules of the type given in (9):

(9) SemanticFunction=AGENT -> SelectionRestriction=*pred*

where *pred* is a predicate of the object language, e.g. *human*, *humano*, *menselijk*, etc. The same problem is presented by analyses that generalize over sets of predicates in the lexicon, as in Dik & Hengeveld (1991). That paper makes a number of observations about the type of object arguments of perception verbs, as seen from the perspective of the layered clause model. Regularly, reference is made to the predicate frame of such verbs in terms of an abstract representation as in (10), where PERCEIVE_v generalizes over a set of (English or other) verbal predicates:

(10) PERCEIVE_v (X₁)_{Proc} (CERT X₁)_{Go}

We might, of course, interpret a notion such as PERCEIVE as a label to be assigned to items in the lexicon, subcategorizing over the set of V predicates.¹¹ It would then define a set of verbs that, at least synchronically, are not necessarily semantically related, as with gender distinctions in most languages. However, if the verbs are in fact related semantically, such labels would duplicate what is already coded in the meaning representations. It is much more insightful and interesting if we interpret statements such as (9) and (10) as (lexical redundancy) rules that generalize over the meaning definitions of an, in principle unrestricted, set of predicates in a number of languages, which is what they are probably intended to be in the first place.

Cases like (9) and (10) are, in fact, very common. Most rules sensitive to semantic aspects of terms or predications have to deal with such general concepts. This may be obvious for underlying clause construction. But the expression rules may also have to deal directly with abstractions over meaning representations. This is particularly the case with constituent order, where 'empathy' hierarchies, based on notions such as HUMAN, ANIMATE, CONCRETE etcetera, are involved (cf. Kuno & Kaburaki 1977 and Allan 1987; and see Bakker 1994:137f for an FG perspective on this).

The same point plays a role in the grammar of individual languages. For example,

¹⁰ What is necessary, however, is a syntax for selection restrictions that is compatible with that of meaning representations of predicates and terms. This has not been worked out in the theory so far. Bakker (1994: 203f) gives some tentative examples.

¹¹ In terms of the notation of Dik (1997), it would then translate into something like (i):
(i) P [V : PERCEPTION]
where PERCEPTION denotes a subcategory of the verbs in the lexicon, and P is a variable ranging over all predicates.

a grammar of English should make clear why speakers will treat the expressions in (11) below as (near) synonyms, while the crucial aspect of that synonymy is coded lexically in (11a) and in a modal operator in (11b):

(11) a. I am obliged to do that.

b. I must do that.

What we are in need of, then, are two things. First, there must be an independent level for the representation of the abstract notions and generalized rules mentioned above. Obviously, this is necessary for a model of the grammar of a language, and even more so for a model that generalizes over grammars. However, individual language users seem to be capable of making the same generalizations, e.g. when they assign a specific type of state of affairs to newly acquired lexical items, including the typical argument types and the selection restrictions. I will therefore claim that at least part of such a representational level is relevant for the individual language user, too, and in that sense is part of the model of the natural language user (M.NLU; cf. Dik 1997:1f). I will call this level the 'conceptual level'.¹² Further, in order for this level to interact with language-specific facts, there must be a mapping between this store of more general cognitive, possibly universal concepts such as HUMAN, PERCEIVE and DEONTIC on the one hand, and the concrete predicates of the object language on the other. I will assume that such mappings may come into existence during the language acquisition process, probably induced to a large extent by a combination of linguistic and non-linguistic input. The complete set of these notions may consist of two parts. Firstly, the grammatical notions, expressed by operators, functions and other language-independent elements of a functional grammar, such as the empathy hierarchies mentioned above. And secondly, the atomic predicates of the lexicon, i.e. the set of lexical elements that are not decomposable into more elementary elements. If we assume that the elements of this restricted set are partially, though not necessarily completely universal, and assign an abstract status to them, then we have made them interchangeable with the set of grammatical notions, with which they may in fact partially overlap. At the same time we have a way in which the lexicon 'bottoms out' in the grammar. This set of conceptual elements, which may contain both universal and language-specific elements, then co-defines the notion of functionality of a language: it contains the elements that qualify for the status of having a universally or typologically essential function.¹³ For the rest of this paper, I will take the conceptual level and

¹² Within FG, several authors have discussed conceptual representations, and a more cognitive approach to grammar. Cf. Nuyts (1992), Hesp (1990), and Harder (1996).

¹³ A recent proposal for what such semantic primitives may look like may be found in Wierzbicka (1996). I will not speculate on their innate or acquired status, avoiding the Whorfian question here.

its mapping onto the atomic predicates for granted, and extend the tuple of (7b) further to:

(7) c. { CONC₁, UC₁, SYNT₁, MORPH₁, PHON₁ }

In order for this scheme to be an instrument for the representation of processes of language change - one of the objectives of this paper - we need to make one more provision. Although specific lexical items may be present in tuples such as (7c), and more specifically in the UC, SYNT and MORPH part of it, a separate place should be assigned to the lexicon as a whole. This gives us:

(7) d. { CONC₁, LEX₁, UC₁, SYNT₁, MORPH₁, PHON₁ } or, in shorthand:

e. { C₁, L₁, U₁, S₁, M₁, P₁ }

The notion 'grammar' will be reserved for the U through P levels.

A process of language change will be described in a number of consecutive steps, each represented by a tuple of the type given in (7e). I will stipulate that, in a diachronic scenario consisting of a range R of tuples t, the difference between a consecutive pair of tuples t_j and t_{j+1} in R should represent a minimal change in that scenario. For (part of) a scenario to be complete the implication is that no empirically relevant intermediate stage between t_j and t_{j+1} be detected that further specifies the path leading from t_j to t_{j+1}. An extra assumption will then be that a minimal change typically, but not necessarily, takes place on one of the six levels represented in t, and then possibly spreads to other levels.¹⁴

Frequently, changes have an effect first in the syntax and consequently in the lexicon. This is the case for changes in selection restrictions, followed by changes in meaning definitions, as in example (12).

(12) I see your point

Apparently, at some stage in the history of the verbal predicate *see*, its selection restrictions were creatively violated, extending its use, originally restricted to visible, first-order objects, to one, or a very restricted set of higher-order objects. Then, at a second stage, in analogy to this, the use of the predicate spread to other abstract objects, paving the way for a second, independent meaning of the verb to develop, as in the (very tentative and incomplete) meaning postulates in (13a) and (13b), respectively.

¹⁴ Tuples of the type (7e) are a descriptive device for formalizing processes of language change, and do not constitute the actual grammar of a language. I assume, however, that the theory relates all tuples t stipulated for state S_i of language L to the grammar and the lexicon of L at time i - the elements E of section 1 - in a direct fashion.

- (13) a. [PERCEIVE (x_i)_{AGENT/EXPERIENCER}
 (x_j :<CONCRETE>)_{GOAL}
 (x_k :EYES:(x_i)_{POSSESSOR})_{INSTRUMENT}]
- b. [PERCEIVE (x_i)_{AGENT/EXPERIENCER}
 (x_j :<MENTAL>)_{GOAL}
 (x_k :BRAIN:(x_i)_{POSSESSOR})_{INSTRUMENT}]

I will assume that a minimal change involves at least one, and possibly more conceptual elements as mentioned above, or other non-decomposable features of the grammar. The implication of this is that apparent continua in language change and 'fuzzy' in-between categories dissolve into a number of discrete steps, defined in terms of atomic or compound elements of the grammar. This may well be the case for the gradual shift of independent verbs to auxiliaries, for generalizations of auxiliaries as in the example of *can* in (5a-b) above, the extension of selection restrictions, and so forth.¹⁵

Within the theory of grammar, the motivation for a process of language change should be associated with the level that manifests the 'first' minimal change. Changes that start on the S, M or P levels will have a formal motivation, those starting at the C, L or U levels a functional one. As discussed in section 1, and formalized in (2), language change will be assumed to have taken place when a minimum number of speakers consistently use a novel combination of form and meaning. This should exclude phenomena that remain restricted in the sense that they do not spread to some minimal group of speakers, and must be seen as local innovations, belonging to the sociolect of some subculture only, often maintained for pragmatic reasons, i.e. a signal of group membership. Such changes are typically short-lived, and do not initiate a trail of consecutive minimal changes. I will speak of language change only if the phenomenon is successful in the sense that it does spread to other sociolects and dialects, and may be decomposed into a sequence of minimal steps, involving a number of generations of speakers. Thus, essentially, although several scenarios of language change have been described in detail in the literature, especially cases of grammaticalization, and some minimal changes may therefore appear to be of a more or less predictive nature, the term 'language change' may be applied only with hindsight.

Given the above sketch of a minimal change, and what was said about functionality in section 1, we are now in the position to reconsider the Functionality Principle. For it to hold, no essential functional element should be lost when going from state S_i of a language to state S_j which differs from S_i at least with respect to one (minimal) pair of

¹⁵ 'Halfway' phenomena such as so-called vector verbs in Hindi (Hook 1991), co-subordination (Foley & Van Valin 1984:241f) and constellations from the serial verb domain to be discussed below are also a case in point.

tuples $\{t_k, t_{k+1}\}$. Since such an element may be part both of the grammar and of the lexicon, I will distinguish between 'lost from the grammar', 'lost from the lexicon', and 'lost from the language', i.e. from both grammar and lexicon. Only in the latter case will the Functionality Principle be assumed to have been violated. If a change in general affects a form-function combination, then we can say that (pure) reanalysis is not directly relevant for the Functionality Principle since it does not affect the function, only the form. In the case of extension - a form gets another function - there are several possibilities, depending on whether or not there are other forms that express the old and new function of that form. This is depicted in figure 1 below. Brackets indicate options.

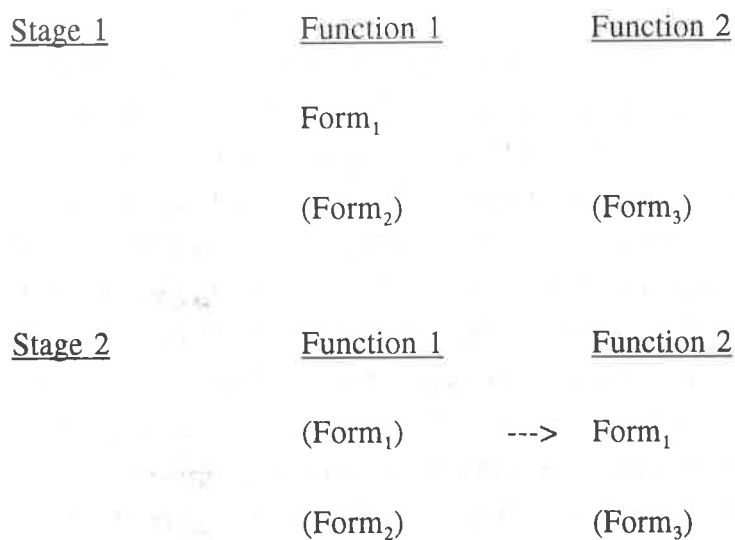


Figure 1

The first distinction is whether the form that gets another function - Form₁ - retains its old function or not. In the case of a minimal change the latter seems to be unlikely: the term 'extension' even seems to exclude the immediate loss of the old meaning/function. However, in a scenario that stretches over a longer period of time this might be the case, at least theoretically. Then we do have a functional loss, unless there is a Form₂ that caters for the original function, at least by the time that Form₁ loses it. If Form₂ is 'late' then we again have a situation of (temporary) functional loss.¹⁶ Independently of this, there may or may not be a Form₃ that already fulfills Function₂ before it is also acquired by Form₁. If this is not the case, then there apparently was a functional gap, or at least a situation

¹⁶ If Form₂ was there all the time, i.e. before the change of Form₁, then we have a so-called 'push' scenario. If Form₂ gets function Func₁ only after Form₁ lost it, then we have a so-called 'pull' scenario.

where the language acquires a new function, hitherto not expressed.

Haspelmath (1998:36f) gives a number of examples of a specific 'extension' scenario, stemming from several genetically and areally unrelated languages, i.e. Welsh, Hebrew, Lezgian, Turkish, Udmurt and Kannada. In all these cases, an original Present form acquired Future interpretation while more or less at the same time there arose a new Present form. E.g. in Lezgian a periphrastic 'be + simultaneous converb' construction arose, still analytic in the 19th century (e.g. *fī-z awa* [go-CONV be] 'is going'), but synthetic in the modern language (*fī-zwa* 'is going, goes'). The current form may still be used in dynamic and static interpretations, i.e. with and without Progressive aspect. The old form (e.g. *fī-da* 'will go, goes') expressed both Present and Future, but is used in the modern language only in the latter function. What is manifest from these examples is that, typically, we witness a relatively long period where forms are multifunctional, and functions are expressed simultaneously by several forms. According to the original formulation of the Functionality Principle, we should speak of functional incompleteness in such cases, since non-ambiguity is required. However, given the high degree of polysemy of linguistic signs, and the fuzziness of meaning definitions in general, I think this requirement should be dropped. Besides, it would be strange to have a uniqueness requirement for the expression of newly acquired functions while accepting the fact that existing functions may be expressed ambiguously, i.e. by a form that co-expresses another function. Therefore, I suggest that the Functionality Principle may be restated as follows. Let S_1, S_2, \dots, S_n be a series of states of language L, all relevant for a minimal set of speakers over a minimal number of generations, such that they minimally differ from each other in terms of at least one scenario of language change. All functions F that are never absent from any stage S in the development of language L are essential functions of L. Functions that are essential for any language will be called universally essential. L is incomplete for function F if F is expressed in S_1 and S_n , either or not ambiguously, but not in $S_2 \dots S_{n-1}$. If no S_n may be found that contains F then it will be assumed that F has been dropped from the language, and should not be considered as essential for L, therefore not as universally essential. The Functionality Principle now predicts that no function that has proven so far to be essential for a typologically representative sample will be missing from some language L not in the sample. In other words: the principle is violated by L if L may be shown to have been incomplete for some hitherto universally essential function F. Typological research should then decide on the status of F, i.e. whether it should be dropped from the list of essential functions since it is also missing from other languages. Provided that they have more features in common with L, these languages may then form a language type together with L. In this way, the Functionality Principle may get an

empirical basis.¹⁷

In section 4 I will apply the formal scheme introduced in this section to a diachronic scenario that frequently occurs in unrelated languages of the world. For the sake of clarity, I will leave out the associated sets of speakers from the representations, simply presupposing them. But first, in section 3, I will briefly introduce that scenario in an informal fashion.

3. Language change and the serial verb context

First discussed in work on African languages, so-called serial verbs have been the topic of a host of linguistic research projects. In the first place this has taken place in the descriptive and typological domains, with mainly studies on specific languages appearing over the last century and a half (cf. Riis 1854). However, the phenomenon has also been studied from the perspective of more theoretically oriented frameworks, both formal (cf. Schachter 1974; Veenstra 1996) and functional (cf. Foley & Van Valin 1985). Lord (1993) takes a diachronic perspective to describe a number of phenomena that may be observed in South-East Asian and Creole languages, and, above all, in a number of genetically related Niger-Congo languages. Most examples are taken from the several dialects of Akan - Twi, Fante, Asante and Akuajem - as spoken in Ghana. For the sake of argument, in this paper I will adopt the scenario that she sketches. I will not discuss its plausibility, nor a number of the details, nor the nature of her data, often stemming from 19th-century accounts.¹⁸

In brief, Lord presents us with the following. The diachronic process starts with two coordinated clauses, each representing its own State of Affairs. The (pronominal) subject of the second clause (S_2) is coreferential with either the subject or the object of the first clause (S_1). This situation may be represented as in (14a) (the curly brackets signal optionality):

(14) a. $S_1(NP_{i,subj} V \{NP_{j,obj}\})$ Coord $S_2(Pro_{i/j,subj} V NP)$

In certain contexts, mainly under the influence of the semantics of both main verbs, the constellation of (14a) may become reanalysed as describing one State of Affairs. This is demonstrated below, where the English translation approaches the interpretation of the Twi sentence in (15), and for which (14a) provides a generalized representation:

¹⁷ Of course, the above interpretation of the Functionality Principle now crucially hinges on notions such as 'minimal set of speakers', 'minimal - and possibly also maximal - number of generations'. However, these notions should be defined independently for other reasons. Furthermore, it should be established what is a 'typologically representative sample'. For this see Rijkhoff and Bakker (1998fc).

¹⁸ But see Osam (1994) for a critical discussion of Lord (1993).

(15) Twi (Lord 1993)

mi-ka asem na mi-kyere no.
I-speak word and I-show him
'I told him something'

After reanalysis, the coordinator may disappear and, at a later stage, the coreferential subject pronoun also ceases to be expressed, leading to the representations in (14b) and (14c) respectively:

(14) b. $S_1(NP_{i,subj} V_1 \{NP_{j,obj}\}) S_2(Pro_{ij,subj} V_2 NP)$

c. $S_1(NP_{subj} V_1 \{NP_{obj}\}) S_2(V_2 NP)$

We have now what Lord calls a serial verb context: two VP's stand immediately next to each other. The whole construction may now be reanalysed as just one clause:

(14) d. $S(NP_{subj} V_1 \{NP_{obj}\} V_2 NP)$

In this context, tense, mood, aspect (TMA) and agreement markers, typically the same on both verbs, if present at all, disappear from the second V as being redundant.¹⁹ This lowers the verbal status of V_2 and its recognizability as a verb in a serial context. At a later stage, V_2 may be reanalysed as a preposition in that position:

(14) e. $S(NP_{subj} V_1 \{NP_{obj}\} Prep NP)$

This is the stage of *fi* in Twi which occurs both as a preposition and as an independent verb; see example (16):

(16) Twi (Lord 1993)

a. ohinne no fi akwam.
chief this be-from Akwam
'This chief is from Akwam'

¹⁹ Taking the usual definition of State of Affairs as a point of departure, sharing tense is even a presupposition for the unification of the two SoA's to come about in the first place. In his mainly syntactic account, Schachter (1974) assumes that the fact that TMA markers are expressed only once in these cases is indicative of both VP's sharing the same S node.

- b. o-yi ho fi dompem na o-di.
 he-take-off marrow from bone-in and he-eat
 'He took the marrow out of the bone and ate it'

In languages genetically related to Twi, such as Idoma, the grammaticalization process for the verb *ní*, a cognate of *fi*, has even gone further. In the southern dialect of this language, we find a nominal prefix, *l'*, with locative meaning. In the central dialect of Idoma, the locative marker has disappeared altogether from the language, leaving only a trace that has a phonological impact on the first phoneme of the following noun. This could be represented as in (14f) and (14g), respectively:

(14) f. S(NP_{subj} V {NP_{obj}} Prfx-NP)

g. S(NP_{subj} V {NP_{obj}} O-NP)

This is, in very broad terms, Lord's account of a specific example of grammaticalization in a serial verb context. She gives a number of other examples of the (presumed) grammaticalization of verbs in that context, where they end up as object markers, any of a range of semantic function markers, adverbs, or auxiliaries. In all cases, the developments occur along more or less the same lines. I will therefore assume it to be a rather representative diachronic scenario that may well be fit for the demonstrative purposes of the next section.

4. Using the diachronic formalism

I will now tentatively translate the verb-to-preposition scenario of (14a-g) as a series of (supposedly minimal) steps using the formalism developed in section 2. For the initial stage I will take the representation of the coordinated sentences given in (14a), and repeated here.

(14) a. S₁(NP_{i,subj} V {NP_{j,obj}}) Coord S₂(Pro_{i/j,subj} V NP)

Since the semantics of the verbs involved plays a crucial role in the grammaticalization that is to come about, I will presuppose a context where the first verb is an action verb and the second a locative, as in the Twi example (16b), repeated partially here.²⁰

²⁰ Probably, the semantic constraints on the verbs involved are less straightforward than the simple labels ACTION and LOC suggest. Given the discussion above about the status of the conceptual level in relation to meaning definitions, constraints of any complexity may be stated in terms of both predicates and grammatical categories.

- (16) b. o-yi ho fi dompem
 he-take-off marrow from bone-in
 'He took the marrow out of the bone'

I will give a more or less full representation of the U, S and M levels when called for. I will only mention those aspects that are relevant for the point I want to make and not overburden the representations with optional and alternative elements, and other formalities. 'lex' represents a lexical morpheme, 'gram' a grammatical morpheme.

$$\begin{aligned}
 & I. \quad \{ C_1, \\
 & \quad L_1, \\
 & \quad U_1 = \\
 & \quad [\pi_4 E_1: \\
 & \quad \quad ([\pi_{3i} X_1: [\pi_{2i} e_1: [\pi_{1i}: ACTION_v (\Omega_{x_1}) (\Omega_{x_2})] (e_1)] (X_1)] \\
 & \quad \quad \& \\
 & \quad \quad [\pi_{3i} X_2: [\pi_{2i} e_2: [\pi_{1i}: LOC_v (\Omega_{x_2}) (\Omega_{x_3})] (e_2)] (X_2)] \\
 & \quad \quad (E_1)) \\
 & \quad S_1 = [\quad [[[]_N]_{NP} []_V [[]_N]_{NP}]_S \\
 & \quad \quad []_{COORD} \\
 & \quad \quad [[[]_N]_{NP} []_V [[]_N]_{NP}]_S]_S \\
 & \quad M_1 = [\quad [lex]_N [[gram]_{agr} [gram]_{tma} [ACTION]_v]_V [lex]_N \\
 & \quad \quad [gram]_{COORD} \\
 & \quad \quad [gram]_N [[gram]_{agr} [gram]_{tma} [LOC]_v]_V [lex]_N] \\
 & \quad P_1 \}
 \end{aligned}$$

The utterance is conceived as one speech act from the start. Bakker (1994: 243f) gives arguments for this analysis of certain types of coordinated clauses. Note that in U_1 the respective π_1 , π_2 and π_3 operators are the same for both coordinates; this is indicated by the shared index i . One of the arguments of the action verb is shared by the locative, in this case the second one. The syntactic and morphological representations take the shape of (fragments of) templates, with their functional positions. S_1 gives the template at the sentence level, with the slots relevant for the expression of this actual clause. M_1 gives the relevant slots of the templates at the bottom end of the analysis: those containing the morphemes.

The first step in the diachronic process is the reanalysis of the two states of affairs in I . as one. My assumption is that this is a conceptual process, at the level of C_1 in I , while the expression is in the form of utterances with structure S_1 , calling for underlying representations like U_1 . Thus, I distinguish between the conceptualized state of affairs (in

this case one) and the semantically represented state of affairs (here: two).²¹ The implication of this is that the predication, or rather the underlying clause, is not necessarily fully equivalent to the corresponding mental conception. Therefore, it is not the 'deepest' representation of the expression involved, but a (mainly) semantic representation somewhere between (abstract) conceptualization and (formal) expression. This gives us II:

II. { C₂, L₁, U₁, S₁, M₁, P₁ }

Thus, my assumption is that if constructions like (14) are used in a critical number of conceptually (near-)single SoA situations, the underlying representations may also be reanalyzed under these conditions as one state of affairs, due to a tendency to iconicity between the two. This leads to underlying representations as in III below. Here, both predications are embedded under the same set of operators, and share the same e variable. The expression rules need not be adapted, since they must be able to cope with this type of UC's for independent reasons (cf. Bakker 1994:243f):

III. { C₂,
L₁,
U₂ =
[π_4 E₁:
[π_3 X₁: [π_2 e₁: [π_1 :
[ACTION_v (Ω X₁) (Ω X₂)
&
LOC_v (Ω X₂) (Ω X₃)] (e₁)] (X₁)] (E₁)]]
S₁, M₁, P₁ }

Subsequently, the coordinator may become optional in these contexts (IV), and excluded (V), through a change in the corresponding expression rules:

IV. { C₂, L₁, U₂, S₂, M₁, P₁ }

V. { C₂, L₁, U₂,
S₃ = [[[]_N]_{NP} []_V [[]_N]_{NP}]_S
[[[]_N]_{NP} []_V [[]_N]_{NP}]_S]_S

²¹ An alternative view would be that the conceptualized state of affairs has 'always' been one in these cases. However, since I assign a high amount of explanatory force to iconicity, i.e. the mutual shaping and reshaping, not only between semantics and syntax, but also between conceptualization and semantics, this is not very likely. On the other hand, however, such semantically multiple representations of conceptually simplex states of affairs may trivially be caused by the lack of (verbal) predicates with those complex meaning definitions.

$$M_1 = [\quad [lex]_N [[gram]_{agr} [gram]_{tma} [ACTION]_v]_V [lex]_N \\ [gram]_N [[gram]_{agr} [gram]_{tma} [LOC]_v]_V [lex]_N], \\ P_1]$$

In yet another step further down the diachronic path, the expression of the pronoun is suppressed, leading to an adaptation of the M component:

$$VI. \quad \{ C_2, L_1, U_2, \\ S_3 = [\quad [[[]_N]_{NP} []_V [[]_N]_{NP}]_S \\ [[[]_N]_{NP} []_V [[]_N]_{NP}]_S]_S \\ M_2 = [\quad [lex]_N [[gram]_{agr} [gram]_{tma} [ACTION]_v]_V [lex]_N \\ [[]_N [gram]_{agr} [gram]_{tma} [LOC]_v]_V [lex]_N], \\ P_1]$$

In this constellation, which is called the 'serial verb context' by Lord (1993), the locative verb will undergo generalization of its semantics, which makes it acceptable in more contexts, implying a change in the lexicon (VII). The fact that its semantics become less and less specific will weaken its position in the competition for the status of head of the clause. As a result, the locative verb will lose the expression of tense, mood, aspect and agreement markers. This affects the M component (VIII). This will be followed by an adaptation of stress and prosody for expressions containing these forms, patterned after those which have a function word in the position of the locative. Syntactically, we now have one sentence (IX):

$$VII. \quad \{ C_2, L_2, U_2, S_3, M_2, P_1 \}$$

$$VIII. \{ C_2, L_2, U_2, S_3, \\ M_3 = [\quad [lex]_N [[gram]_{agr} [gram]_{tma} [ACTION]_v]_V [lex]_N \\ []_N [[]_{agr} []_{tma} [LOC]_v]_V [lex]_N], \\ P_1]$$

$$IX. \quad \{ C_2, L_2, U_2, \\ S_4 = [\quad []_N]_{NP} []_V [[]_N]_{NP} \\ []_V [[]_N]_{NP}]_S, \\ M_4 = [\quad [lex]_N [[gram]_{agr} [gram]_{tma} [ACTION]_v]_V [lex]_N \\ [LOC]_v [lex]_N], \\ P_2]$$

At this stage, it is still possible that native speakers will analyze the locative as a verb (cf. Osam 1994). However, some speakers may start reanalyzing it as a preposition (Xa

below). So we may have alternative analyses among the language community for a period of time (Xb = IX). The reanalysis affects the underlying representation: what was once a predication now gets the status of a satellite. The lexicon may be affected if the locative verb has been dropped along the way as an independent verbal predicate in its own right. In that case we may witness suppletion by another verbal predicate that fills the lexical gap, possibly giving us Xc. If prepositions already exist in the language concerned, then the expression rules will not be affected.

Xa. { C₂, L₂, U₂ =
 [π₄E₁:
 [π₃X₁: [π₂e₁: [π₁:
 [ACTION_v (Ω_{X1}) (Ω_{X2})] (Ω_{X3})_{LOC}] (e₁)] (X₁)] (E₁)]
 S₅ = [[]_N]_{NP} []_v [[]_N]_{NP}
 [[]_{prep} []_N]_{NP}]_S,
 M₅ = [[lex]_N [[gram]_{agr} [gram]_{tma} [ACTION]_v]]_v [lex]_N
 [gram]_v [lex]_N],
 P₂ }

Xb. { C₂, L₂, U₂, S₄, M₄, P₂ }

Xc. { C₁, L₃, U_k, S_k, M_k, P_k }

This is an incomplete and tentative formalisation of the processes described by Lord (1993). It is meant for demonstrative purposes only. The steps are most probably not minimal in the sense that intermediate steps would be revealed in a more finely tuned reconstruction. However, we have an instrument with which to describe the respective stages in a diachronic scenario quite precisely in terms of the theory, and to make explicit in what order they take place. In this case the order is that of a functional rather than a formal scenario. What such a representation does not reveal, however, are the possible deeper motivations behind the respective changes. It is to these that we turn in the final section.

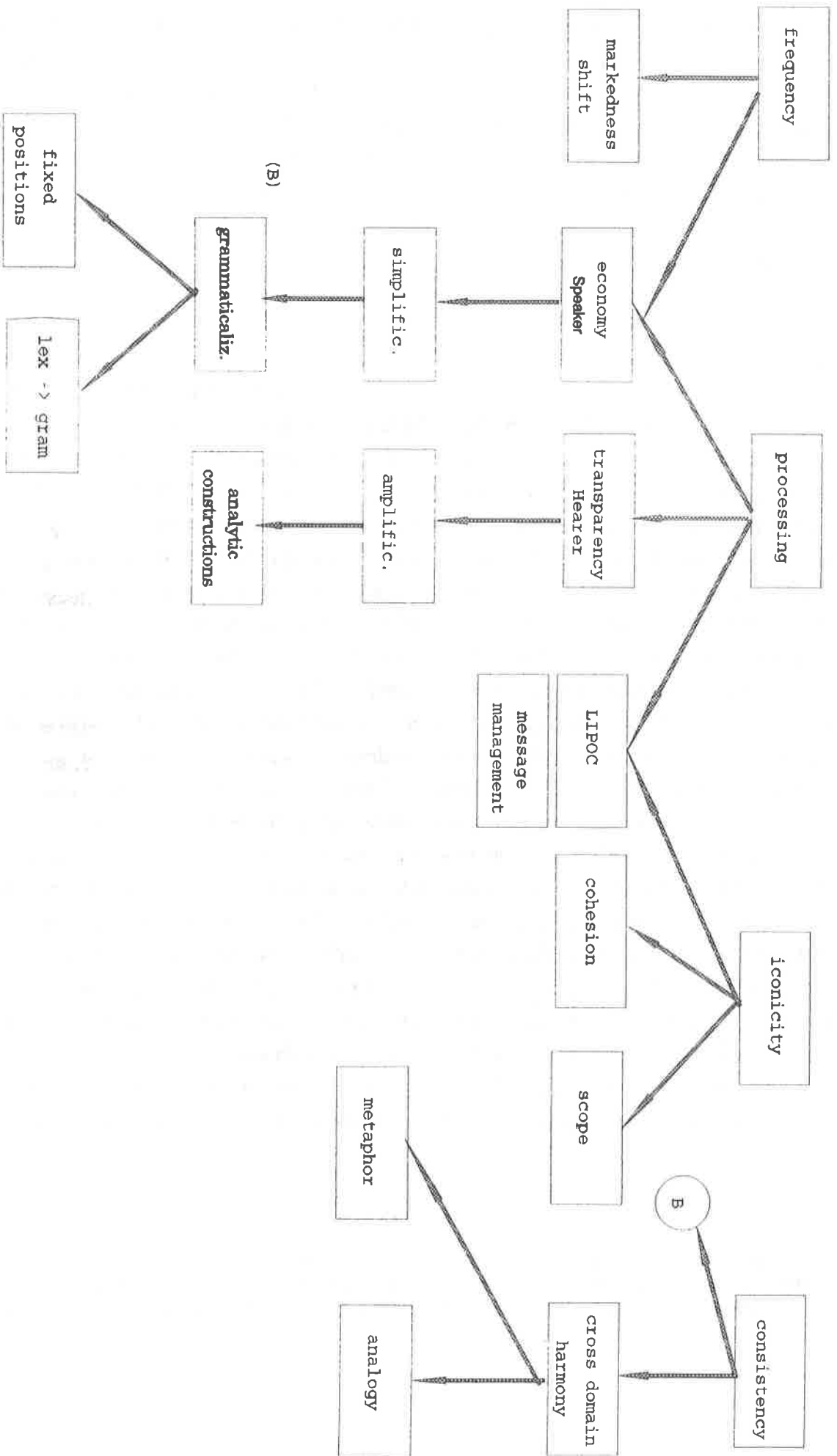
5. An explanation in terms of competing motivations

The fact that the action of II in section 4 is interpreted as one state of affairs on the semantic level may be instrumental in making the expression of the coordinator and the subject pronoun unnecessary at a later stage. We might say that often one specific change leads to another change. However, in FG the explanation for linguistic phenomena, including changes, is typically sought outside the grammar, on a language-independent level, where use is made of more general principles of human reasoning and

communication. For instance, word order patterns are thought to be motivated by a number of principles, some very general, some more specific, such as iconicity, head proximity and LIPOC. A number of these are discussed by Dik (1997:399f) and Rijkhoff (1990). In Bakker & Siewierska (1992) a coherent, partially redefined set of such principles were integrated into an explanatory network. A computer model of this network was tested on a database of around 90 languages with word order variables. Taking a slightly adapted version of that model as a point of departure, and leaving out those principles that are specific for word order, I will now show that it may also be used to provide the motivation for the diachronic phenomena in the serial verb context of the previous section. Figure 2 on the next page gives an overview of (part of) the network. There are four independent main forces: processing, iconicity, consistency and frequency. Processing is the motivating force behind such principles as economy and transparency. These two may be in competition, since the former will constrain the amount of linguistic material used, possibly leading to grammaticalization, while the latter may expand the message for more clarity, leading to the introduction of lexical material, among other things. Iconicity has the usual interpretation of linguistic form mirroring underlying concepts. It is conducive to cohesion, i.e. the avoidance of discontinuity, and the mimicking of underlying scope relations by the formal aspects of the expression. The third main force, consistency, motivates cross-domain harmony. For word order, this creates a tendency to consistent head-modifier or modifier-head orders. In the semantic domain, it may stimulate analogy and metaphoric extension. Finally, frequency represents the language user's awareness of the frequency with which certain constructions and expressions are used, giving rise to markedness shift, semantic bleaching, etcetera.

Each of the steps in the grammaticalization process in the serial verb context leading from verb to preposition may be explained by one or more of the principles of figure 2. The underlying idea is that the principles represented in the network are universal, i.e. they are relevant on the conceptual level for any speaker of any language. Individual grammars are the result of the interaction of these principles. At any stage, they are a system in balance, where the influence of certain principles may be more apparent in a specific language than that of others. However, grammars are continuously under the pressure of all the principles, also the 'hidden' ones. Eventually, the latter may make their presence manifest through some change. In fact, the same set of motivations explain why a grammar gets a certain shape, and why it remains that way for some time, therefore blurring the opposition between synchronic and diachronic explanation. The following may be the explanation for the changes of section 4.

The first linguistic change, from II to III, may be the result of iconicity/cohesion and consistency: in general, one conceptual state of affairs is expressed as one extended predication. Bringing both extended predications under the scope of the same π_2 operators (and therefore also the higher operators) codes them semantically as one state of affairs. Economy will make the coordinator and the pronoun disappear (steps IV-VI). The



generalization of the meaning of the second verb that takes place in this context may be a result of metaphoric extension (VII).²² Consistency - a simple sentence has one verbal head that carries TMA and agreement markers - will concentrate affixes on the more verbal of the two verbs: in this case the first one (VIII). Consistency will further model the prosody and stress patterns to that of a simple sentence (IX). If the language already has prepositions, analogy may cause the second verb to be reanalyzed as a preposition. If not, then we may witness the introduction of a new type of grammatical element (an adposition) through grammaticalization (Xa).

6. Conclusions

In this paper, I have paid attention to several aspects of the theory of Functional Grammar.

First, I have argued for the addition of diachronic adequacy to the set of requirements for a FG-like grammar. The grammaticalization process of verbs to prepositions in the serial verb context was analyzed on the basis of a competing motivations network, in which the distinction between synchrony and diachrony is blurred to a great extent. However, since the timespan for changes in a language are a multiple of the lifespan of a speaker, and we have to include several new generations of speakers in most diachronic scenarios, it is not very likely that we could generalize over synchronic and diachronic processes. This calls for an independent diachronic adequacy criterion.

Second, I suggested that the Functionality Principle as formulated in Dik (1987) cannot hold, unless we distinguish between essential functions that are always expressible by any speaker at any stage and less fundamental ones, which may or may not be expressible in a language for some period of time, or, in fact, at no stage at all. It may well be the case that non-essential functions correspond to what is expressed grammatically (cf. TENSE) while essential functions (also) get lexical expression (cf. TIME). The constraint on unambiguousness was dropped in the light of the overall level of ambiguity of linguistic signs out of context. The notion of 'minimal change' was introduced in order to make the Functionality Principle testable in the first place.

Third, I proposed a formalism for making a process of language change explicit on the relevant levels of a functional grammar. Hierarchical structures on the syntactic and morphological level were shown to be necessary for such a formalization.

Fourth, it was suggested that, for a number of diachronic and synchronic descriptions in FG, a language-independent conceptual level of representation should be

²² One could argue that this step goes in parallel with the earlier changes. In this case we would have an example of a complex minimal change, which takes place at several levels of description at a time. A precise analysis of the relevant data should make this clear. More often than not, however, such fine-grained diachronic information is not available.

assumed that unites the set of atomic predicates of a language and the set of grammatical notions that play a role in language description and explanation.

Finally, I gave a brief sketch of the relation between individual grammars and the language community. Language change can only be fully understood if both dimensions are studied in their complex interactions. In order to make this interaction more explicit, it should be made clear how scenarios of the type represented by I - X in section 5 relate to the respective sets of representations as given in (2) in section 1.

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