

- WOLFF, D. 1987. "Some Assumptions about Second language Text Comprehension". *Studies in Second Language Acquisition*. 9.3.
- XIAOLONG LI. 1988. "Effects of Contextual Cues on Inferring and Remembering Meanings of New Words". *Applied Linguistics* 9.4. Oxford: Oxford UP.

## HOW TO PROVIDE FUNCTIONAL GRAMMAR WITH TYPOLOGICAL-DIACHRONIC ADEQUACY

Javier MARTIN ARISTA  
Universidad de Zaragoza

### 0. INTRODUCTION

One of the strongholds of the theory of Functional Grammar (henceforth FG) as devised by Dik (1989) is its typological adequacy. Indeed, more than eighty languages —most of which are not Indo-European— have been discussed from the point of view of FG. Outside the realm of Typological Adequacy, although intimately related to it, is the topic to which we devote this paper: How can we provide the theory of FG with Typological-Diachronic Adequacy (henceforth TDA) once it is beyond all doubt that Typological Adequacy has been achieved?

This paper is organised as follows: in section 1 we revisit the standards of adequacy from the point of view of FG and Transformational Grammar (henceforth TG). In section 2 we concentrate on the specifications for Descriptive Adequacy and pay special attention to these specifications in the realm of FG. In section 3 we deal with the constraints imposed on the power of FG and in section 4 we define and explain the new concept we have coined: TDA. In section 4 we also discuss how to provide Dik's FG with TDA. Finally, we answer the question whether new constraints arise from the TDA discussion or not (section 5).

### 1. STANDARDS OF ADEQUACY

After stating that previous linguistic theories cannot account for the human capacity of creativity —the capacity that all native speakers of a language have to produce and

understand an infinitely large number of utterances that they have never heard before—Chomsky (1957) devoted the chapter entitled “The Goals of Linguistic Theory” to the problem of the justification of grammars. Chomsky’s claim that the inductive system that had been used by the structuralists should be put aside was logically followed by the remark that the new theory, which was based on a finite set of empirical observations, must predict new phenomena by constructing general rules. The problem that arises is that of how to develop criteria for selecting the correct theory of language—the correct grammar.

In a previous step to the discussion of different levels of adequacy that justify the new grammar, Chomsky (1957: 61) describes three possible relationships between the general theory of language and a given particular grammar that follows from it:

Firstly, the theory must provide a practical and mechanical method for constructing the grammar, given a corpus of utterances. The theory is conceived as a machine with a corpus as its input and a grammar as its output. This is called *discovery procedure* for grammars.

Secondly, the theory must provide a practical and mechanical method for determining whether or not a grammar proposed for a given corpus is the best grammar of the language from which this corpus is drawn. In this case, the theory is a device with a grammar and a corpus as its inputs and the answers “YES” / “NO” as its outputs, as the grammar is or is not the correct one. This is called *decision procedure* for grammars.

Finally, given a corpus and two proposed grammars, the theory must tell us which is the best grammar of the language from which the corpus is drawn (a theory with grammars G1 and G2 and the corpus as inputs and the more preferable of G1 and G2 as output). This is the evaluation procedure for grammars.

In *Aspects of the Theory of Syntax*, Chomsky (1965: 24) formulated the concept *observational adequacy*, which is taken to be the weakest requirement for any grammar of a language. A grammar of a language is said to be observationally adequate if it correctly specifies which utterances are well formed in the language from a phonological, morphological, syntactic and semantic point of view.

The following level of adequacy is called *descriptive adequacy*:

A grammar can be regarded as a theory of language; it is descriptively adequate to the extent that it correctly describes the intrinsic component of the idealized native speaker. The structural descriptions assigned to sentences by the grammar, the distinctions that it makes between well-formed and deviant, and so on, must, for descriptive adequacy, correspond to the linguistic intuition of the native speaker (Chomsky 1965: 25).

According to this definition, a grammar is descriptively adequate if it correctly specifies which sentences are well-formed from a phonological, morphological, syntactic and semantic point of view and also describes properly the phonological,

morphological, syntactic and semantic structure of the infinite set of sentences of a particular language.

The ultimate goal that TG seeks, a universal grammar that consists of a finite set of rules that generates the infinite set of utterances that are correct in all languages, leads Chomsky to the conclusion that descriptive adequacy may not suffice the purposes of the approach; thus the importance given to explanatory adequacy, which is considered the highest level of adequacy:

A theory of grammar may be descriptively adequate and yet leave unexpressed major features that are defining properties of natural languages and that distinguish natural languages from arbitrary symbolic systems. It is for just this reason that the attempt to achieve explanatory adequacy—the attempt to discover linguistic universals—is so crucial at every stage of understanding of linguistic structure, despite the fact that even descriptive adequacy on a broad scale may be an unrealized goal. (Chomsky 1965: 36)

Descriptive adequacy, as we have just seen, lacks explanatory power for, as Horrocks (1987: 18) points out, *a theory that excludes nothing as impossible can in turn explain nothing*. In Chomsky’s terminology a theory that selects the best available descriptively adequate grammar for a given language is said to be *explanatorily adequate*.

So far, we have considered the different levels of linguistic adequacy from the point of view of TG. Following the path of TG, Dik puts forward that FG should conform to the standards of descriptive adequacy as described by TG:

The aim of the theory of FG is to provide the means and principles by which functional grammars of particular languages can be developed. And the highest aim of a functional grammar of a particular language is to give a complete and adequate account of the grammatical organization of the connected discourse in that language. Such a grammar should be able to specify all the linguistic expressions of a language by means of a system of rules and principles in which the most significant generalizations about the language are incorporated. (Dik 1989: 12)

It is interesting to notice here that the formalists have also developed the concept of descriptive adequacy by considering three qualities that, in their opinion, provide a grammar with such adequacy. Radford (1988: 28) has stated that the first condition that must be imposed on any adequate linguistic theory is that it should attain *universality*: the theory should be able to describe adequately the grammar of any particular language. Radford’s second condition—since he cannot consider pragmatic adequacy for obvious reasons—is that the theory is maximally constrained. According to Radford,

We want our theory to provide us with technical devices which are so restricted in their expressive power that they can only be used to describe human languages, and are not appropriate for the description of other communication

systems. Any such constrained (i.e. restricted) theory would then enable us to characterise the very essence of human language. (1988: 29; my italics)

The same steps are taken by Radford when he discusses the third condition that any adequate linguistic theory must meet, *psychological reality*. Radford (1988: 29), following Chomsky (1986), remarks that language is an *internalised system*, a product of the human mind. Therefore, the ultimate goal of linguists should be to characterise the nature of the *internalised linguistic system* which enables humans to speak and understand their native language, this capacity being innate.

The apparent identity of descriptive adequacy in TG and FG has led Miller to conclude that

FG is a subtheory of the standard theory of TG with respect to a set of intended interpretations . . . i.e. for any grammar that can be formulated within FG an equivalent grammar with respect to this set of intended interpretations can be formulated within the standard theory, but not vice versa. i.e. FG is a constrained version of the standard theory with respect to this set of intended interpretations. (1986: 175)

Departing from the concept of descriptive adequacy, Miller devised a method for comparing linguistic theories with regard to strong generative capacity (henceforth SGC). According to Miller (1986: 171) *all grammars equivalent in SGC will have the same descriptive adequacy*. The aim of this method is to compare theories with respect to what they say about the sentences which are derived by the grammars that are considered descriptively adequate by these theories.

Miller (1986), however accurate his method for comparison might be, does not take account of the basic assumptions of the functional paradigm and compares a theory based on formal explanations with another one based on what Dik calls *functional explanation*:

A functional explanation of grammatical phenomena will typically not be based on an assumption of simple form-function correlations, but will instead involve a network of interacting requirements and constraints, each of which may be understood in functional terms itself, but which counteracts in complex ways and in a certain way "competes" for recognition and expression in the final design of linguistic expressions. (1986a: 18)

Although Dik's (1989: 18) emphasis on the utmost importance of functional explanation as the starting point of FG is enough to make it clear that TG and FG are not comparable as to SGC, we should like to quote here Nuyts' (1986: 227) statement that FG *consciously opts for a radical meaning-first view of utterance generation*. Indeed, the fundamental conception that language is a means of social communication through which speakers convey meanings by using the forms socially established in their linguistic code makes it impossible for a theory based on such a

standpoint not only to be a subtheory of but even to be compared on the grounds of SGC with a theory that claims that it is the grammatical competence of the ideal speaker-hearer and how he / she attaches meanings to the linguistic expressions generated by an autonomous syntactic component that linguists must study.

## 2. FURTHER SPECIFICATIONS FOR DESCRIPTIVE ADEQUACY

Up to this point, we have revisited the standards of adequacy of TG and have insisted on the concept of descriptive adequacy—both from the postulates of TG and FG—since it has led to the comparison with respect to SGC; afterwards, we have seen how the formalists specify the concept of descriptive adequacy. Now, we are going to discuss the specifications of the concept of descriptive adequacy from the perspective of FG by concentrating on pragmatic adequacy, psychological adequacy and typological adequacy.

Since the theoretical foundations of FG differ deeply from those of TG, there exist differences with respect to explanatory adequacy, i.e. with respect to the criteria which would allow us to decide which of two descriptively adequate grammars is preferable.

Dik (1989: 12ff) interprets explanatory adequacy as how accurate a theory of language can be. The level of accuracy is measured in terms of three criteria: (i) Pragmatic Adequacy, (ii) Psychological Adequacy and (iii) Typological Adequacy. It is important to remark here that, although these three criteria aim to verify how coherent a given theory is—thus further specifying the concept of explanatory adequacy—these three types of adequacy are included within the realm of descriptive adequacy for they try to discriminate the well-formed utterances produced by the theory. This interpretation has three clear advantages:

(i) it is a way of explaining further what explanatory adequacy is;

(ii) it allows FG to make a difference—by introducing the pragmatic component in this discussion—between its standards of adequacy and the ones of TG, which has set the pace with reference to this topic so far;

(iii) and, finally, it makes it possible for Dik (1989: 16) to speak of relationships among the standards.

### 2.1. Pragmatic Adequacy

The inclusion of pragmatic adequacy within the discussion of the explanatory adequacy of the theory of FG is the logical result of the importance given to the pragmatic component of the theory: since communication is regarded as the primary function of language, the rules that govern social and verbal interaction—pragmatic rules—do not fall behind the rules that give shape to linguistic expressions—phonological, morphological, syntactic and semantic rules. As Martín Mingorance has pointed out,

las reglas semánticas, sintácticas, morfológicas y fonológicas se consideran instrumentales con respecto a las reglas pragmáticas, constituyendo la pragmática el marco descriptivo global en el que se encuadran la sintaxis y la semántica. (1988: 122)

As a result, pragmatic adequacy aims to give informative status to the linguistic expressions uttered by the addresser, who aims to produce an effect on the addressee in a given context. In Dik's words:

We must not think of linguistic expressions as isolated objects, but as instruments which are used by a Speaker in order to evoke some intended interpretation in the Addressee, within a context defined by preceding expressions and within a setting defined by the essential parameters of the speech situation. (1989: 13)

These words follow the line of one of the major points of criticism TG has come in for: its concern with an idealised native speaker-hearer and its putting aside contextual and situational matters. Despite the importance given to the pragmatic component, some linguists, such as Butler (1990: 6) have noticed that this is one of the weakest components of the theory of FG. With this point we do not agree: the meaning-first approach, the central position of the lexicon, the top-down organization and the pragmatic perspective of the morphosyntactic and semantic components provide the theory with pragmatic adequacy. Moreover, the proposal for a hierarchical structure of the clause,<sup>1</sup> in which the layering hypothesis<sup>2</sup> has ultimately resulted, adds a clear pragmatic perspective to the general organization of FG.

## 2.2. Psychological Adequacy

The second criterion discussed by Dik is psychological adequacy:

A grammar that strives to attain pragmatic adequacy . . . must also aim at psychological adequacy, in the sense that it must relate as closely as possible to psychological models of linguistic competence and behaviour. (1989: 13)

It follows logically from the concern with the behaviour of addresser and addressee in real situations of communication that a pragmatically adequate grammar must also be adequate from the psychological point of view by taking account of the models of production and comprehension of linguistic expressions. According to Butler (1990: 13) pragmatic adequacy can be interpreted in two different ways:

(i) the grammatical form should be compatible on the basis of the psychological properties of the human mind that determine it.

(ii) the adequacy that should exist between the form of a linguistic expression and the psychological mechanism that the speaker triggers off with a communicative end.

Again, the boundaries of explanatory and descriptive adequacy respectively are explored by these interpretations. Their advantage over the model of psychological adequacy proposed by the formalists is its concern with aspects of communicative performance, which allows the linguist to take account of both psychological and pragmatic factors, far beyond the restricted —for it is mentalist and idealist— study of grammatical competence proposed by TG.

Indeed, FG has followed a different path: its concern has been with psychological reality and psychological validity. As regards these concepts the difference appears to be that the formalists concentrate upon syntax as abstracted away from the meaning that the utterances have in their contexts whereas the functionalists try to demonstrate how syntax reflects semantic and pragmatic factors and how these factors eventually determine what the syntactic organization is like. The difference, in fact, has further-reaching implications: some scholars working with the FG model (such as Nuyts 1985) have proposed a shift from a Functional Grammar into a Functional Procedural Grammar in which the degree of integration of linguistics and psycholinguistics is higher.

The psychological adequacy of the theory is once more reinforced when Dik (1986b) puts forward a linguistically motivated knowledge representation. He argues that a system which is able to process natural language data in a communicatively adequate way will need a vast data base containing sources of different types of knowledge and that most of the relevant knowledge types can be represented in the form of predicate frames and predications as defined by the theory of FG. This discussion of the knowledge model led to the proposal for computer applications of FG (Dik 1986c), which is introduced as follows:

The computational processing of natural language data is sometimes approached as a purely practical problem, for which "anything goes" as long as the results are reasonably acceptable. Given sufficient ingenuity of the analyst, this approach may yield short-term successes, which will, however, be of limited theoretical interest. As a theoretical linguist, I am more interested in attempts at finding more principled, linguistically and psychologically motivated solutions to the problems involved. (Dik 1986c: 1)

Finally, Dik (1989: 5) proposes the concept *psychological correlate of a natural language*, the natural language user's (henceforth NLU) communicative competence, i.e. his/her ability to carry on social interaction. With this definition Dik wants to state that communicative competence is a concept related to a functional paradigm, different from the concept grammatical competence coined by Chomsky:

Linguistic theory is concerned primarily with an ideal speaker-listener in a completely homogeneous speech-community who knows the language perfectly. This seems to have been the position of the founders of modern linguistics . . . To study actual linguistic performance we must consider the interaction of a variety of factors, of which the underlying competence of the speaker-hearer is

only one. We must make a fundamental distinction between competence (the speaker/hearer's knowledge of his language) and performance (the actual use of language in concrete situations). (Chomsky 1965: 21)

Dik's proposal for the psychological correlate of a language has the advantage of allowing the linguist to study grammatically ill-formed expressions that have good communicative results, for they also belong to the communicative competence of the NLU.

One may conclude, therefore, that the concern with production and comprehension aspects, along with the emphasis on problems of knowledge representation, the computational developments of the theory and the coinage of the concept of *psychological correlate of a language* provide the theory with clear insights in the psychological standard of adequacy. The latest studies within the framework of FG seem to confirm this tendency: Meijs (1990) has explored the problem of how to spread world-knowledge activation once the activation of the linguistic knowledge has been sufficiently dealt with in FG, and Dik (1990) has insisted on the concept functional logic, on how it is possible for the NLU to derive new pieces of knowledge from given pieces of knowledge by means of relational logic.

### 2.3. Typological Adequacy

After revising pragmatic adequacy and psychological adequacy we are going to focus on typological adequacy, the last standard of adequacy proposed by FG.

One of the most controversial postulates of TG from its very beginning has been its ultimate goal of giving birth to a universal grammar. Horrocks comments on this goal of TG that

at the outset of the research programme inspired by Chomsky the existence of an interesting theory of universal grammar was little more than an article of faith. But over the last fifteen years a theory has begun to emerge which incorporates quite abstract principles of considerable explanatory power. As a result many of the properties of the grammars of individual languages may now be viewed as consequences of the internal organisation of the theory. (1987: 19)

In spite of these words, it seems beyond a doubt that TG has restricted its analysis almost exclusively to English and that the heavily formalised apparatus devised by transformational grammarians has been an obstacle for the application of TG to languages other than English. FG, on the contrary, has proposed a simplified model (Dik 1979a), which allows not only for the study of many languages from this perspective but also for the integration of the advances that have taken place in other languages within the framework of the standard theory.

To provide his theory with typological adequacy, Dik (1989: 15) insists on two aspects:

(i) that the theory must not be too concrete because such a theory would not yield descriptively adequate theories of particular languages and would not reach typological adequacy.

(ii) that the theory must have the lowest level of abstractness—meaning by *abstractness* the distance, measured in terms of rules and operations to be applied, between the actual linguistic expressions of a language and the underlying structures in terms of which these expressions are analysed. The power of the theory must be constrained so that it does not become too strong—too abstract—and therefore unable to define the notion *possible human language* or, to put it in other words, incapable of explaining what people do with language.

### 3. CONSTRAINTS UPON THE POWER OF THE THEORY

Dik (1989: 17) proposes the following constraints on the power of FG:

#### a) Avoid transformations:

FG prefers derivations, i.e. gradual expansion of underlying structures, rather than transformations, structure-changing operations that effect changes in underlying structures. This constraint is a deep gap with respect to TG, which allows structure-changing operations such as deletion, substitution and permutation of constituents. None of these operations is allowed within the framework of FG.

#### b) Avoid filtering devices:

Filtering devices (Chomsky 1965, 1977, 1981 and 1982) attempt to get rid of undesired results produced by transformations and ill-formed expressions. Dik bans filtering devices:

The use of filtering devices leads to counter-intuitive types of description, in which the grammar is allowed at some stage to produce structures which are produced only to be discarded later on. (1989: 20)

This constraint is justified on the grounds of the excessive freedom for the formulation of grammatical rules that filtering devices allow, since the undesired results of such rules can be filtered out by devices belonging to the theory.

#### c) Avoid abstract semantic predicates:

The last constraint imposed upon the theory to limit its level of abstractness is the avoidance of abstract semantic predicates. This constraint results in the treatment given to lexical items: all basic contentive lexemes of a language are contained in the lexicon in the form in which they actually appear in the linguistic expression of a particular language.<sup>3</sup>

#### 4. TOWARDS TYPOLOGICAL-DIACHRONIC ADEQUACY (TDA)

In the preceding sections, we have revisited the standards of adequacy of TG and have insisted on the concept of descriptive adequacy—both from the postulates of TG and FG—since the comparison with regard to SGC is based on such a standard; afterwards, we have seen how TG specifies the concept of descriptive adequacy and have discussed the specifications for the concept of descriptive adequacy from the perspective of FG by concentrating on pragmatic adequacy, psychological adequacy and typological adequacy.

Now, it is time for us to decide whether or not the standards of adequacy which have been revised so far are sufficient to justify FG and evaluate the level of accuracy of the theory, given the advances of linguistic sciences in the last decade.

Following Greenberg (1966), Dik (1989: 25) defines linguistic universals as *statements pertaining to the full set of particular languages* and distinguishes four main types of universal.<sup>4</sup> This classification results in the consideration of the concept of *hierarchy*, which Dik defines as follows:

Hierarchies epitomize in compact form the typological organization of a certain sub-domain of the language system. They are powerful tools for capturing the underlying cross-linguistic pattern, while at the same time providing a systematic specification of how languages may differ from each other in the relevant sub-domain. (1989: 29)

Although the remark that hierarchies can be seen as constraints on language change, the brief discussion of some corollaries related to this type of hierarchies and the study of several priorities that affect the above mentioned hierarchies make for the clarification of the relationship that exists between Diachrony and Typology, the theory of FG as stated by Dik (1989) still lacks a detailed discussion of the problem of linguistic change and the relation between Diachrony and Typology. Our point here is that such theoretical reflexion on the very boundary between Diachrony and Typology would provide the theory of FG with Typological-Diachronic Adequacy, while the conclusions would be a constraint on the level of abstractness of the theory and would contribute to the descriptive power of FG—from a synchronic point of view—since it is possible to explain many synchronic phenomena in terms of diachronic change:

Synchronic regularities are merely the consequence of diachronic forces. It is not so much again that "exceptions" are explained historically, but that the true regularity is contained in the dynamic principles themselves. (Greenberg 1966: 186)

On the other hand, we would not do justice to the research project of FG in general and Dik's studies in particular if we did not take account of several studies, such as Dik (1986a), Kefer (1986), Geeraerts (1986), Rijkhoff (1986), Bossuyt (1986), Dik (1989), etc.

As far as linguistic change is concerned, Dik (1986a: 21) includes the following points when setting up the framework of a functional explanation:

(i) There is a continuous competition between different functional prerequisites; the actual synchronic design of a language is a compromise solution, a precarious balance in efficacy with respect to different functional prerequisites.

(ii) This means that language may change, oscillating between different compromise solutions, even if the functional prerequisites remain constant. This may be called *internally motivated change*.

(iii) In contrast to this, *externally motivated change* is involved when languages respond structurally to changes in the functional prerequisites.

(iv) As a consequence of the potential divergence of functional prerequisites, a change in favour of  $F_i$  which at the same time disfavors  $F_j$  may be followed by a further *therapeutic change* repairing the damage done to  $F_j$ .

(v) The operation of linguistic change is *local* in the sense that it is unusual for a change favouring  $F_i$  to be blocked in order to avoid adverse effects with respect to  $F_j$ .

(vi) Saying that a certain feature of linguistic design or change cannot be functionally explained is tantamount to saying that we have not yet been able to find a functional explanation for that feature.

We should underline here the emphasis on the dynamic character of language, which can be explained both in terms of use and change, and the need for functional explanations for all the processes of change in language. Departing from these standpoints, our proposal is that the descriptive adequacy of the theory—given the interpretation of the explanatory adequacy we have referred to above—would be improved by developing the concept of TDA.

The ultimate goal of the inclusion of TDA is to move into what Croft has termed the *dynamic paradigm* without leaving the functional paradigm:

The synchronic system is a constant state of flux, and what the speaker knows about his or her language are the dynamic principles that govern the flux (and, of course, the language-specific conventions that represent stabilizing factors in the synchronic situation. This is the heart of what may turn out to be a new linguistic paradigm, in which the study of types of linguistic variation—cross-linguistic (typology), intralinguistic (sociolinguistics and language acquisition) and diachronic (historical linguistics)—are unified. (Croft 1990: 259)

In the light of these considerations, we can provide the theory of FG with TDA as follows:

(i) To start with, the theory should meet the objectives of historical linguistics:

a) description of the different synchronic stages of a particular language at the four linguistic levels,

b) comparison between these stages,

- c) description of the changes that have taken place and
- d) explanation of these changes.

From the objectives these three requirements follow:

- (ii) The theory must be provided with a model of linguistic change coherent with the functional paradigm, i.e. based on functional explanations.
- (iii) We assume that the theory is pragmatically, psychologically and typologically adequate and can deal satisfactorily with synchronic descriptions.
- (iv) Finally, the typological data that are extracted from synchronic cross-linguistic comparison must perspectivize diachronic research and conclusions.

Croft (1990), following Greenberg (1966 and 1978), Givón (1984) and Comrie (1981) among others, has recaptured a number of hypotheses and developments of synchronic typology that could be successfully applied to diachronic typology. These hypotheses may prove relevant for our study, although our concern is with typological diachrony rather than diachronic typology for we try to enrich our diachronic studies by taking account of typological data but not viceversa; otherwise, our discussion would take place within the realm of the typological adequacy of the theory.

Croft's starting point is that changes in the linguistic structures are changes of grammatical properties that enter some of the cross-linguistic patterns; therefore,

it should be possible to classify typologically linguistic changes themselves, and look for relationships among linguistic processes in the same way as typologists seek relationships among linguistic states. [Croft 1990: 203]

Afterwards, Croft (1990: 204ff) discusses the hypotheses we have just referred to<sup>5</sup>:

(i) Hypothesis of uniformitarianism: the first application of typological studies to historical linguistics was the hypothesis that a reconstructed protolanguage must be of the same type as an attested language state. Since languages of the past are not different from languages of the present the linguistic universals discovered in contemporary languages should also be applied to reconstructed languages.

(ii) From states to stages: the observation of languages such as Latin and modern Romance languages revealed another fact about language change: that certain linguistic changes (SOV to SVO, for instance) bring about a change of linguistic type. As a result of these observations, modern diachronic studies view language types as stages languages pass through rather than states languages are in.

(iii) Hypothesis of connectivity: given a set of attested language stages defined by a set of typological patterns, a language can shift from one stage to any other stage. The connection need not be direct; it can take place through a number of intermediate

stages. Given an implicational universal  $WX \rightarrow YZ$ , the change towards  $XW \rightarrow ZY$  would take place through the intermediate stage  $WX \rightarrow ZY$ .

(iv) Hypothesis of stability: it represents the likelihood that a language will pass from a language stage to another one. According to this hypothesis, linguistic types are ranked according to their likelihood to shift from one order to its opposite: stable vs. unstable linguistic types.

(v) Hypothesis of frequency: frequency is the likelihood that a linguistic type will occur, i.e. how likely a language will pass through a stage involving that type. The hypotheses of stability and frequency can be related to each other in the following way: there are linguistic phenomena that illustrate all possible combinations of stability and frequency:

a) *Frequent and Stable* linguistic phenomena are areally widespread and common in genetically related languages.

b) *Stable and Infrequent* linguistic phenomena are scarce in the languages of the world but common in the genetic groups in which they occur.

c) *Unstable and Infrequent* linguistic phenomena are scarce and sporadic.

(vi) Hypothesis of dominance and harmony: stability and frequency combine with other typological concepts to produce a typological diachronic analysis that accommodates exceptions to certain synchronic universals. Greenberg (1978) proposed a rule that relates dominance and harmony so that dominant constituent orders could occur at any time but recessive constituent orderings could only occur if they were harmonic with some other dominant order. Given the implicational universal  $WX \rightarrow YZ$ , its harmonic patterns would be  $WX \rightarrow YZ$  and  $XW \rightarrow ZY$  and the recessive one  $XW \rightarrow YZ$ ; if the dominant order is  $XW \rightarrow YZ$  the languages to which this implicational universal attain can go from  $WX \rightarrow YZ$  to  $XW \rightarrow ZY$  only through  $XW \rightarrow YZ$  and vice versa, from  $XW \rightarrow ZY$  to  $WX \rightarrow YZ$  through  $XW \rightarrow YZ$ .

(vii) Hypothesis of gradualness: this is the assumption that a language cannot shift directly from stage S1 to stage S3 without passing through stage S2. A gradual change then is a change of a grammatical feature at a time. This hypothesis is related to the hypothesis of connectivity: during the change from a linguistic stage  $WX \rightarrow YZ$  to  $XW \rightarrow ZY$  a given language must go through an intermediate stage  $WX \rightarrow ZY$ , as the hypothesis of connectivity suggests; the hypothesis of gradualness adds that the intermediate stage  $WX \rightarrow ZY$  coexists with  $XW \rightarrow YZ$  in such a way that the change takes place in a gradual way.

(viii) Hypothesis of diachronic prediction: the consideration of stability, frequency, dominance and harmony logically leads to the prediction of what the changes might be like. As to predictions, Kefer has explored the extent to which language universals, linguistic changes and language-specific rules are functionally motivated or explainable:

It is a commonplace that language change is not predictable in a deterministic way. But it should be clear that language-internal considerations make some changes impossible and certain types of change more probable than others. There is some kind of restricted predictability. (1986: 53ff)

Kefer (1986: 63) demonstrates that functional motivations are more predictive in the case of language universals than in the case of language change. By insisting, following Dik (1986a), on the fact that explanations of linguistic universals and language change must be functional, Kefer hints that the power of the extended theory—once diachronic and typological data have combined with synchronic ones—must be constrained. Kefer, however, does not remark clearly the necessity for more constraints upon the power of the theory, neither does he explain what the constraints should be like. We shall go back to this topic in section 5 below.

(ix) Hypothesis of transitory language stages: this hypothesis accounts for synchronically exceptional language stages. According to this hypothesis these stages may take place because they represent diachronic transitions from one well-attested and well-explained stage to another.

(x) Hypothesis of unidirectionality. This hypothesis is a constraint on possible language changes: since sequences of changes appear to take place only in one direction, half of the logically possible language changes are cut out. The implication of this hypothesis, as Croft (1990: 228) has remarked, is that even language changes that appear to be bidirectional turn out to represent two distinct unidirectional changes that involve different mechanisms of language change or involve different intermediate language stages. Therefore, diachronic studies having a typological approach should concentrate on the discovery of unidirectional language processes. This hypothesis, however, poses a problem as regards the interpretation of the hypothesis of connectivity, which states that it is possible for a language to go from a stage to any other stage. If the change from YZ to ZY is unidirectional the change ZY to YZ is impossible and all the languages would eventually become ZY languages. The solution proposed by Croft (1990: 229) is that language processes are unidirectional and cyclic when viewed as changes from a language stage to another.

## 5. CONCLUSION: DO NEW CONSTRAINTS ARISE?

After the revision of the standards of adequacy of FG we have made a proposal for a new standard of adequacy: TDA, i.e. that the theory is capable of generating diachronic explanations from a typological perspective. Afterwards, we have put forward a means of providing FG with TDA. The question now is whether or not new constraints arise from the increase in the descriptive power of the theory that is necessary for it to achieve TDA. As a matter of fact, this question is to be interpreted as two different problems:

(i) Does the TDA enlargement impose new constraints on the descriptive power of the theory?

(ii) Is it necessary to consider new constraints apart from the ones proposed by Dik (1989: 17) once the descriptive power of the theory has been enlarged so that FG can be provided with TDA?

We are going to answer the two questions by discussing whether the TDA proposal is an enlargement or a constraint on the theory. Our point here is that TDA is both an enlargement of the descriptive power of the theory and a constraint on its abstractness.

Indeed, the descriptive power of the theory is enlarged by taking diachronic, synchronic and typological data into account. On the other hand, we reduce the scope of our method by paying special attention to diachronic explanations that are given from the point of view of cross-linguistic studies and putting aside, for the sake of the method, other explanations, such as purely synchronic ones.

Although the abstractness of the theory might increase by considering diachronic and cross-linguistic data when dealing with synchronic phenomena, the fact that our explanations are given within the functional paradigm imposes a major constraint since they must be functional explanations, which avoid abstractness and a high degree of formalisation.

Therefore, the answer to (i) and (ii) is that since the devices which are necessary for FG to achieve TDA constitute both an enlargement and a constraint on the descriptive power of the theory it is not necessary for us to consider new constraints on the condition that we produce functional explanations when considering diachronic data from the typological point of view.

## NOTES

1. See Dik (1989) and Dik and Hengeveld (1990).
2. See Hengeveld (1988) and Butler (1990).
3. See Dik (1978, 1979 and 1989).
4. Four main types of universal are distinguished:

	unconditional	implicational
absolute	Type A	Type B
statistical	Type C	Type D

Example of Type A: All languages have the property P.

Example of Type B: Almost all the languages have the property P.

Example of Type C: For all languages, if a language has the property P then it also has the property Q.

Example of Type D: Statistical implicational universals are statements of the form of the preceding example for which no absolute validity is claimed to hold.

5. In this discussion, I draw on Croft (1990:240ff), who follows Greenberg (1966, 1978). Unless they are explicitly acknowledged, the examples and the remarks from the point of view of FG are mine.



## REFERENCES

- BOSSUYT, A. 1986. "Functional Requirements. Causes or Constraints upon Language Change?" *Belgian Journal of Linguistics* 1: 127-147.
- BUTLER, C. 1990. "Functional Grammar and Systemic Grammar: A Preliminary Discussion." *Working Papers in Functional Grammar* 39. Amsterdam: University of Amsterdam.
- CHOMSKY, N. 1957. *Syntactic Structures*. The Hague: Mouton.
- . 1965. *Aspects of the Theory of Syntax*. Cambridge (MA): MIT Press.
- . 1977. *Essays on Form and Interpretation*. Amsterdam: North Holland.
- . 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- . 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge (MA): MIT Press.
- . 1986. *Knowledge of Language: Its Nature, Origin and Use*. New York: Praeger.
- COMRIE, B. 1981. *Language Universals and Language Typology*. Oxford: Blackwell.
- CONOLLY, J. H. and S. C. Dik, eds. 1990. *Functional Grammar and the Computer*. Dordrecht: Foris Publications.
- CROFT, W. 1990. *Typology and Universals*. Cambridge: Cambridge UP.
- DIK, S. C. 1978. *Stepwise Lexical Decomposition*. Lisse: De Ridder.
- . 1979. *Functional Grammar*. Dordrecht: Foris.
- . 1986a. "On the Notion Functional Explanation." *Belgian Journal of Linguistics* 1: 11-52.
- . 1986b. "Linguistically Motivated Knowledge Representation." *Working Papers in Functional Grammar* 9. Amsterdam: U of Amsterdam.
- . 1986c. "Functional Grammar and its Potencial Computer Applications." *Working Papers in Functional Grammar* 18. Amsterdam: U of Amsterdam.
- . 1989. *The Theory of Functional Grammar. Part I: The Simple Clause*. Dordrecht: Foris.
- . 1990. "Relational Reasoning in Functional Logic", in J.H. Conolly and S.C. Dik, eds. 1990: 273-288.
- DIK, S. C., and K. Hengeveld. 1990. "The hierarchical structure of the clause and the typology of perception verb complements." *Working Papers in Functional Grammar* 37. Amsterdam: U of Amsterdam.
- GEERAERTS, D. 1986. "Functional Explanations in Diachronic Semantics." *Belgian Journal of Linguistics* 1: 67-93.
- GIVON, T. 1984. *Syntax: A Functional-Typological Introduction*. Amsterdam: Benjamins.
- GREENBERG, J. ed. (1963) 1966. *Universals of Language*. Cambridge (MA): M.I.T. Press.
- . 1978. *Universals of Human Language*. 4 vols. Stanford: Stanford UP.
- HENGVELD, K. 1988. "Layers and Operators in Functional Grammar." *Working Papers in Functional Grammar* 27. Amsterdam: U of Amsterdam.
- HORROCKS, G. 1987. *Generative Grammar*. London: Longman.
- KEFER, M. 1986. "On Functional Explanations of Language Change, Universals and Rules." *Belgian Journal of Linguistics* 1: 53-66.
- MARTÍN MINGORANCE, L. 1988. "Léxico y sintaxis en la Gramática Funcional de S.C. Dik." *Actas de las I Jornadas de Lengua y Literatura Inglesa*. Logroño: Colegio Universitario de La Rioja.

- MEIJIS, W. J. 1990. "Spreading the Word: Knowledge-Activation in a Functional Perspective." In J. H. Conolly and S. C. Dik, eds. 1990: 201-215.
- MILLER, P. 1986. "On Certain Formal Properties of Dik's Functional Grammar." *Belgian Journal of Linguistics* 1: 171-221.
- NUYTS, J. 1986. "What Formalists Seem Not to Understand About Functionalism." *Belgian Journal of Linguistics* 1: 223-237.
- RADFORD, A. 1988. *Transformational Grammar*. Cambridge: Cambridge University Press.
- RIJKHOFF, J. 1986. "Word Order Revisited. The Principle of Head Proximity." *Belgian Journal of Linguistics* 1: 95-125.