

# Descriptive Theories, Explanatory Theories, and Basic Linguistic Theory<sup>1</sup>

*Matthew S. Dryer*

## 0. Introduction

Linguists often distinguish work they characterize as descriptive from work they characterize as theoretical. Similarly, linguists often characterize certain work as atheoretical. This label is sometimes applied, not only to descriptive work on particular languages, but also occasionally to crosslinguistic typological work. I argue in this chapter that this way of talking represents a fundamental confusion about the relationship between theory and description. First, there is no such thing as atheoretical description. Second, although it is confused to talk about theory and description as contrastive notions, it does make sense to talk about a contrast between description and explanation. I further argue that there is a need for both descriptive theories and explanatory theories. Descriptive theories (or theoretical frameworks) are theories about what languages are like<sup>2</sup>. They are theories about what tools we need in order to provide adequate descriptions of individual languages. Explanatory theories (or theoretical frameworks), in contrast, are theories about *why* languages are the way they are.

The distinction between descriptive theories and explanatory theories is not widely recognized in linguistics, although it is not hard to identify the historical explanation for this. First, pregenerative theories, such as American structuralism, explicitly disavowed the goal of constructing an explanatory theory. As such they were examples of descriptive theories, but the underlying assumption was that that was the only type of theory needed. Generative grammar, in contrast, has aimed at being an explanatory theory. Furthermore, a central tenet of generative grammar, especially clear in the work of Chomsky since the mid-1970s (e.g. Chomsky 1973), has been the idea that a single theory can serve simultaneously as a descriptive theory and as an explanatory theory.<sup>3</sup> Such a view follows from Chomsky's ideas about innateness: if one believes that languages are the way they are because of our innate linguistic knowledge, then a theory about that innate linguistic knowledge will simultaneously serve as a theory about what languages are like and as a theory about why they are that way.

Curiously, however, many linguists who reject Chomsky's views about innateness seem to implicitly accept the Chomskyan view that a single theory will serve both theoretical goals. Many functionalists, in particular, propose kinds of explanations for why languages are the way they are that are radically different from those of Chomsky, yet they often see questions of how to describe languages as the domain of formal linguists, confusing issues of descriptive theory with issues of explanatory theory. In this chapter, I examine the implications of rejecting the Chomskyan view of a single theory serving both theoretical goals, and examine the question of what sort of theory will serve as an adequate descriptive theory. I argue that what Dixon (1997) calls "basic linguistic theory" will serve as such a descriptive theory.

This paper is primarily directed at linguists who can be construed as functionalist, using the term in a broad sense that includes most work in typology and work by descriptive linguists<sup>4</sup>. The central issue discussed in this paper is what sort of theory we need for linguistic description, if one adopts a functionalist view of language, which for the purposes of this paper can be characterized as the view that functional or grammar-external principles play a central role in explaining why languages are the way they are.

## 1. The History of Linguistic Description

Over the past quarter century, quite independently of developments both in formal theory and in functionalist theory, there has been a growing convergence in the ways in which languages are described. When one examines grammars written in the period of around 1965 to 1975, one finds considerable variation in the assumptions that authors make in what descriptive tools to employ.

Some grammars assume little beyond the concepts of traditional grammar. Other grammars assume some version of structuralism, using that term in its traditional sense to denote theoretical models, like American Structuralism, that predate the generative era. A number of grammars assume tagmemics, a “neo-structuralist” theoretical framework associated with Kenneth Pike and much of the descriptive work by members of the Summer Institute of Linguistics. Still other grammars from this period adopt the framework of transformational-generative grammar, generally some version close to that of Chomsky (1965). And many grammars assume some combination of these theoretical approaches.

The period from 1965 to 1975 represents what is probably the period with the greatest degree of variety in assumed theoretical approaches. After around 1975, this variety declined for a number of reasons. One reason for this is that there was a sharp decline in the use of generative grammar as a means of describing entire languages. The main reason for this sharp decline was the changes in thinking in Chomskyan generative grammar, the abandonment of the sort of transformational model assumed in the previous decade, and its replacement by a model in which rules played a lesser role and in which constraints on rules took a central role. The new generative approach was not practical as a theoretical framework for describing entire languages. For one thing, most of the generative literature dealt with phenomena that from the perspective of describing entire languages are rather peripheral, and the sorts of nuts and bolts that are central in describing a language became theoretically uninteresting to Chomskyan generative theory.

A second factor in the decline in the variety of approaches to describing language during the 1970's was that structuralist approaches were becoming increasingly out-of-fashion. Although structuralism had faded from centre-stage during the early 1960's as a significant approach to theoretical questions, especially in the United States, it had remained entrenched in many places among people whose central interests were descriptive, and as a result, it continued to have a major impact on language description well into the 1970's. Its eventual decline during the 1970's represented little more than the fact that people whose primary training was structuralist were increasingly retiring and younger linguists, even those whose interests were primarily descriptive, often knew less about structuralist approaches.

A third factor in the decline in the variety of approaches was the significant increase in work in linguistic typology and the attention paid to looking at languages from a typological perspective. Because, at least from a sociological point of view, linguistic typology represented an alternative to generative grammar, its work was of interest to descriptive linguists in a way that generative grammar was not. In addition, descriptive linguists found work in typology very useful in helping them understand the languages they are working on. The impact of this on language description was that many linguists who in previous decades might have written descriptive grammars either from the perspective of traditional grammar or from a structuralist perspective allowed their mode of description to be influenced by typological insights. In a number of respects, typological work was (and is) closer to traditional grammar than to more formal theoretical approaches. This fact, the informal nature of typology, and the direct relevance of typology to the sorts of descriptive issues faced by descriptive linguists meant that typological work had a tremendous impact on descriptive work.

The tie of typology to traditional grammar was a natural one: Greenberg's classic 1963 paper on word order universals contrasts sharply with most other work at the time in assuming a set of descriptive notions that are to a large extent simply those of traditional grammar. While the typological work of the 1970's freely supplemented traditional grammar with notions required to describe many non-European languages, such as ergativity, an example of the link to traditional grammar was the bringing back to central stage of the notions of subject and object, notions which had not played an important role either in structuralism or in generative grammar. While the picture is complicated by the fact that the re-emergence of these as important descriptive notions was also partly due to relational grammar (e.g. Perlmutter 1983, Perlmutter and Rosen 1984), an offshoot of generative grammar, it also played a central role in the accessibility hierarchy of Keenan and Comrie (1977), one of the central results of linguistic typology during the 1970's.

## 2. Basic linguistic theory

The factors I have discussed have contributed to a convergence over the past quarter century in the descriptive tools assumed in descriptive grammars, to the extent that it is fair to say that a single descriptive theoretical framework has emerged as the dominant theory assumed in descriptive grammars. One of the few linguists to recognize that this has happened is Bob Dixon (1997), who refers to this theoretical framework as “basic linguistic theory”<sup>5</sup>. Basic linguistic theory differs most sharply from other contemporary theoretical frameworks in what might be described as its conservativeness: unlike many theoretical frameworks that assume previous ideas only to a limited extent and freely assume many novel concepts, basic linguistic theory takes as much as possible from earlier traditions and only as much as necessary from new traditions. It can thus be roughly described as traditional grammar, minus its bad features (such as a tendency to describe all languages in terms of concepts motivated for European languages), plus necessary concepts absent from traditional grammar. It has supplemented traditional grammar with a variety of ideas from structuralism, generative grammar (especially pre-1975 generative grammar and relational grammar), and typology.

Basic linguistic theory differs from traditional grammar most strikingly in its attempt to describe each language in its own terms, rather than trying to force the language into a model based on European languages. Conversely, the attempt to describe each language in its own terms reflects the major contribution of structuralism to basic linguistic theory. Another example of a major contribution of structuralism to basic linguistic theory is the notion of the phoneme. Various concepts from generative grammar, such as secondary predication, have made their way into basic linguistic theory. But the primary influence of generative theory on basic linguistic theory has been indirect: generative theory influenced much work in typology in the 1970’s (since most typologists had training in generative grammar) and typology itself has been a major influence on basic linguistic theory. We can see this in the treatment of passive and passive-like constructions in various languages. The interest in passive constructions derives historically from their central role in early generative grammar, which in turn led to their being a matter of considerable attention in typology, and to an extensive literature discussing whether constructions in various languages really are or really are not passive constructions. Similarly, relative clauses have played a central role in typology, especially in light of the significance to typology of Keenan and Comrie (1977). This prominence in typology partly grew out of work in generative grammar stemming from Ross (1967) on extraction constraints. But in various other respects, work in typology has influenced basic linguistic theory in ways quite independent of generative grammar. Much of this involves substantive notions that have been recognized in a number of languages and which it is now common for descriptive grammars of languages exhibiting such phenomena to recognize. Such notions as ergativity, split intransitivity, internally-headed relative clauses, and evidentiality are notions that have become central to basic linguistic theory and which are referred to frequently in descriptive grammars. Recurrent phenomena that had not been explicitly observed before continue to come up in the literature, such as the notion of mirativity (DeLancey 1997), and thus become added to the substantive concepts of basic linguistic theory.

Most descriptive grammars written within the past ten or fifteen years can be described as employing basic linguistic theory as their theoretical framework. If one compares recent grammars to grammars written over twenty-five years ago, the commonalities among the recent grammars and the differences from earlier grammars are often quite striking. The commonalities shared by these grammars also contrast sharply with recent generative approaches. However, it is not widely recognized, even among functionalists and descriptive linguists, that these commonalities represent a distinct theoretical framework. It is far more common for authors of such grammars to describe their work as atheoretical or as theoretically eclectic.

The idea that description can be atheoretical is simply confused. The analytical assumptions and the concepts one assumes necessarily constitute a set of theoretical assumptions. If all work in the field shared the same set of assumptions, the notion of theory might be unnecessary, but it would still be the case that all such work would be assuming the same theoretical framework. And when one sees the contrast between recent descriptive work and work in early generative grammar, recent Chomskyan generative grammar, tagmemics, and American Structuralism, among others, it is clear

that what distinguishes the recent descriptive work from these other approaches is a very different set of theoretical assumptions.

The idea that such descriptive work is theoretically eclectic is also inaccurate, since the high degree of commonality among recent descriptive work means that this work by and large shares the same theoretical mix. But this theoretical mix simply reflects the historical eclecticism of basic linguistic theory: basic linguistic theory is traditional grammar modified in various ways by other theoretical traditions over the years.

### 3. The irrelevance of functional explanation to linguistic description

One reason why descriptive work is often viewed as atheoretical is that it is not explanatory. Both formal work and functionalist work in recent decades have focused on explanation, and the notion of theory has become entwined with that of explanation, so that for many linguists, a theoretical question is understood as one which involves explanation. The nature of functionalist explanation is such that it is external to the grammar, not only in the sense that the theoretical concepts appealed to in the explanation lie outside of grammar, but also (and perhaps more controversially) because there is no way to build these explanations into the grammar itself. Under the view of this paper, functional explanations - explanations for why languages are the way they are - apply primarily at the level of language change. Functional factors or motivations exert “force” on linguistic change, encouraging certain changes and discouraging others. Such functional factors sometimes work together and sometimes work at odds with each other, in which case we have competing motivations (Haiman 1983, 1985; Croft 1990). But this competition is resolved at the level of language change: once one motivation “wins”, then that is the way the language is, and when speakers learn the language, they learn the language that is the result of functional factors without any awareness of them, either conscious or unconscious. The grammatical knowledge that underlies their linguistic behaviour is the immediate explanation for their linguistic behaviour. There may be functional explanations for many features of the grammar, but these features are established before the speaker ever learns the language and long before they use it. Grammars are in this sense an emergent phenomenon, not in the sense of Hopper (1987), according to which grammars are always emerging, not crystalizing, but in the sense that the particular way these factors resolve themselves is not reducible to these explanatory factors (or a ranking of these factors), and in the sense that the grammar takes on a life of its own, so to speak, above and beyond the functional principles that have shaped it. A grammatical description of a language is thus not deficient or inadequate if it leaves out explanations for why the language is the way it is. In fact, in so far as grammars exist independently of explanation, there is a need for description independent of explanation.

The general point here is that functional explanation exists independently of grammars and of grammatical description. This point can be illustrated by reference to a number of examples of functional explanation. I first consider three alternative functional explanations for why languages have prepositions versus postpositions, then proceed to a briefer consideration of a functional explanation for why languages have zeroes in their systems of pronominal reference. No assumption is made here about whether these explanations are correct; all that is argued here is that if they are at least partially correct as explanations, then there is no reason to believe that these explanations are part of the description of the language, that they are part of the speaker’s representation of the grammar of the language.

#### 3.1. An example involving grammaticalization

Consider first the role of grammaticalization in explaining why languages with noun-genitive order tend to have prepositions while languages with genitive-noun order tend to have postpositions. One of the primary diachronic sources for adpositions, particularly spatial adpositions, is head nouns in genitive constructions. English has a number of complex prepositions that represent various intermediate stages in this grammaticalization process. For example, the complex prepositional expression *in front of* historically involves a noun *front* so that historically in *in front of the house*, *front* is a head noun with *the house* as a genitive modifier. However, there is good reason to

believe that the expression *in front of* now functions as a single lexical item, as a prepositional expression that takes *the house* as its object. The fact that the regular syntactic rules of English would require that it be *in the front of the house*, with a definite article, and the fact that it is often pronounced without the /t/ in *front*, as something like [ɪnfrʌnə], provide reason to believe that speakers are no longer treating *front* as a head noun. Other prepositions in English which are of similar origin but which have proceeded along this grammaticalization path further in that they do not require *of*, include *inside*, *beside*, and *behind*.

Crucially, the genitive construction from which *in front of* arose was one in which the head noun precedes its genitive modifier, so that the resultant adposition is a preposition rather than a postposition. In other words, the process of grammaticalization maintains the order of the two elements so that when a head noun in a genitive construction becomes an adposition, its position in the genitive construction relative to its genitive modifier will determine the order of the resulting adposition with respect to its object, simply because the relative order of the two elements will not change. In languages in which similar grammaticalization has taken place from constructions in which the head noun follows its genitive modifier, the resultant adposition will be a postposition. For example, in Ngiti, a Central Sudanic language of the Democratic Republic of the Congo, the noun *dzi* ‘back’ has grammaticalized along with the morpheme meaning ‘on’ to form a postposition *dzid̥* meaning ‘behind’, as in (1), reflecting the original genitive-noun word order .

- (1) *kā dzi-d̥*  
 3SG back-on  
 ‘behind him’ (Kutsch Lojenga 1994)

The effect of this type of explanation is that, ignoring other diachronic sources of adpositions, a language with noun-genitive order will end up with prepositions and one with genitive-noun order will end up with postpositions. Instances of deviations from this order might arise due to other sources of adpositions or from a change in the order of genitive and noun. For example, a language with noun-genitive order and postpositions would arise if the postpositions arose at a time when the language employed genitive-noun order but if the order has changed to be noun-genitive. This thus provides an explanation both for the general crosslinguistic correlation between noun-genitive order and prepositions and for specific instances of adpositions that have arisen in this way.

Assuming that this explanation is correct at least as part of the explanation for why the order of adposition and noun and the order of noun and genitive tend to correlate, let us ask what implications this has for the description of a particular language which has prepositions and noun-genitive order. The answer should be obvious: it has no implications whatsoever. The speaker of the language must learn that the language has prepositions and must learn the noun-genitive order in the genitive construction, but there is no plausible reason why the speaker should be aware that the fact that the prepositions are prepositions rather than postpositions is because they arose from head nouns in genitive constructions. It is especially clear that this is the case if the noun from which a particular preposition arose is no longer used, at least in a sense that is clearly related semantically to the preposition, as with the English noun *spite* and the grammaticalized preposition *in spite of*. If the noun from which a preposition arose is still used in a sense that is clearly related semantically to the preposition, it is perhaps less obvious that the historical relationship between the noun and the preposition is not part of the speaker’s knowledge of the language. Consider the case again of the English noun *front* and the preposition *in front of*. The noun *front* can certainly occur in constructions that resemble its use as part of the preposition *in front of*, as in *at the front of the house*. But the very fact that grammaticalization has taken place means that speakers are not treating the occurrence of *front* in *in front of* as a noun and means that they are learning the entire construction involving *in front of* independently of the noun. Thus at most speakers will be aware of the fact that there is something in common both in form and in meaning between the noun *front* and the preposition *in front of*, but like other nonproductive derivational relationships, there is no reason to believe that their knowledge includes any sort of rule. Furthermore, even if one wanted to claim that the two were related by some sort of rule, it seems unlikely that speakers would relate the preposition *in front of* to a noun phrase headed by *front* followed by a prepositional phrase with the preposition *of*. The orthographic word *of* in English has such a wide range of fossilized uses (e.g. *out of*, *off of*, *afraid of*, *know of*, *think of*, *ask a question of*, *a lot of* ) that it seems questionable

whether, if not for the influence of the writing system, speakers would ever think of *in front of* as containing the same *of* that occurs in *the front of the house*. Finally, even if speakers were to relate these, there would still be no reason to believe that speakers' grammars would represent the fact that *in front of* arose historically from a genitive construction with head noun *front*. The likelihood of speakers relating complex prepositions to genitive constructions becomes even less as one considers more grammaticalized examples, like *because of* and *in spite of*. In short, a grammatical description representing the results of grammaticalization is unlikely to say that these results are the results of grammaticalization. Grammaticalization is the explanation for the synchronic facts, but it is irrelevant to their description.

In fact, the primary reason why grammaticalization is of such paramount importance to linguistic theory is precisely because it is a type of explanation that undermines the principle central to Chomskyan generative grammar that explanation ought to be built into the description. It is a type of explanation that cannot be built into the description precisely because it explains synchronic facts in terms of diachrony. Unfortunately and ironically, some advocates of grammaticalization inadvertently downplay this theoretical significance by arguing that somehow the description itself ought to incorporate the grammaticalization explanation. Why would some advocates of grammaticalization claim this, when doing so would just make grammaticalization like other types of explanation that are claimed to be part of grammars? The explanation to this, I claim, is precisely the failure of many linguists to recognize the need for two types of theory, a descriptive theory and an explanatory theory. Many linguists who reject much of the underlying ideas of Chomskyan generative theory still cling to this one fundamental tenet of generative grammar: the idea that explanation can be built into description and hence descriptions of what languages are like can incorporate explanations for why they are that way. However, once one separates out questions of how to describe languages from questions of explanation, it becomes clear that grammaticalization explanations are perfect examples of explanatory principles that are independent of synchronic grammars.

Grammaticalization also offers an explanation for idiosyncrasies in synchronic grammar: often words or constructions exhibit idiosyncratic properties that reflect grammaticalization sources. For example, when nouns grammaticalize as adpositions, they often continue to exhibit properties that date from the time when they are nouns. The position of such adpositions, as discussed above, is one example of this. However, there are others as well. For example, the postposition *k'anik* 'under' in Lezgian, a Daghestanian language of the Caucasus region, governs the genitive case, as in (2), not because its meaning is such that the genitive case is appropriate, but rather because it derives from a head noun (meaning 'bottom') in a genitive construction, while what is now the object of that adposition was originally a genitive modifier of that noun.

- (2) *Vezuvija vulkan-di-n k'anik*  
 Vesuvio volcano-OBL-GEN under  
 'under the Vesuvio volcano' (Haspelmath 1993: 219)

Similarly, in Jakaltek, a Mayan language of Guatemala, adpositions occur with the same pronominal affixes that mark possessors, as illustrated by the first person singular prefix *w-* in (3).

- (3) a. *w-atut*  
 1SG-house  
 'my house' (Craig 1977: 109)
- b. *w-et*  
 1SG-to  
 'to me' (Craig 1977: 110)

One might capture this in the grammar by treating these words as a subclass of nouns, but it is probable that the actual explanation is that these adpositions came from head nouns in a genitive construction.

Often, the effect of grammaticalization is to leave certain features unchanged, while other features change, so that the overall array of features is somewhat messy. As far as the grammar is concerned,

these are simply messy complex arrays of facts that speakers presumably learn as such. Grammaticalization may explain the fact that the words exhibit properties intermediate between nouns and adpositions and may even in some cases explain why certain properties are retained while others are lost. But it would be a mistake to think that the speaker's representation of these aspects of their language somehow includes these explanations.

Grammaticalization not only provides a good illustration of a type of explanation that is best not built into the grammar, but also the need to distinguish explanatory theories from descriptive theories. Grammaticalization is relevant to explanatory theory, not to descriptive theory. We need a descriptive theory that will provide adequate descriptions of linguistic phenomena, including phenomena that are the result of grammaticalization, and basic linguistic theory seems adequate to that task. Grammaticalization is relevant to descriptive theory only in so far as it reminds us that an adequate description need not capture all the patterns in the data, since some of those patterns will be fossil remains whose description should be messy but which make sense only at the level of explanation.

It is perhaps worth distinguishing what is in a grammar (in the sense of what needs to be included in an adequate description of the language) from what a linguist might choose to include in a grammatical description. It is not uncommon for linguists to make allusions in a grammatical description to historical explanations for idiosyncratic phenomena in a language, and this might include explaining some idiosyncratic synchronic fact in terms of grammaticalization. The claim here is that it may be appropriate to include such historical mentions but they are in some sense parenthetical to the grammatical description per se, precisely because they are an explanation for a grammatical fact and not part of the grammar itself. The claim that historical explanations are not part of grammars does not mean that such parenthetical remarks are inappropriate in a grammatical description, though the author of a grammar ought not to confuse the description with such parenthetical historical explanations.<sup>6</sup>

### 3.2. An example involving sentence processing

The second type of functional explanation for whether a language has prepositions or postpositions that I will discuss is one in terms of sentence processing. As proposed in Dryer (1992) and in similar but much more detailed proposals by Hawkins (1994), the tendency for VO languages to have prepositions and OV languages postpositions is motivated by maximizing structures that are easy to process. In the proposals of Dryer (1992), a VO language with prepositions will be consistently right-branching while an OV language with postpositions will be consistently left-branching, while the mixed types will have a mixture of left and right-branching, which I argued more often lead to more complex structures from a processing point of view.

If this line of explanation for the distribution of prepositions and postpositions is correct, at least as one factor, then again this is a type of explanation which should not be built into the description of languages. The force of this sort of explanation is again that it influences language change, that a language with mixed word order is more likely to change in the direction of consistent word order and a language with consistent word order is likely to remain consistent. A speaker of a VO language with prepositions does not produce sentences with VO order and prepositions because such structures are easier to process; rather they produce sentences with VO order and prepositions because the rules of their grammar define VO order and prepositions for their language. Processing explanations may play a role in explaining why the speaker's grammar is the way it is, but that is not part of the speaker's mental representation of the grammar of their language.

### 3.3. An example involving iconicity

A third type of explanation for whether languages have prepositions or postpositions is primarily associated with proposals within the framework of Functional Grammar (Dik 1978, 1989, 1997). According to these proposals, adpositions occur between the noun phrase they combine with and the verb as a type of iconicity principle: they are indicating a relationship between a noun phrase and a verb so they tend to be placed between the noun phrase and the verb. This predicts that languages

which place adpositional phrases after verbs will tend to employ prepositions while those which place them before verbs will tend to employ postpositions.

Once again, there is no need to believe that any such iconicity principle is part of the grammar itself. Such a principle could be playing a major role in explaining why grammars are the way they are, but the most plausible locus for such a role would again be at the level of language change. But if true, this means that we need some sort of theory about what grammars are like, independent of such functional principles.

#### 3.4. A brief comparison with a generative explanation

It is worth comparing the above three functional explanations with what is the most common explanation in generative grammar for why languages which are VO and which employ noun-genitive order have prepositions rather than postpositions: all three orders are head-initial.<sup>7</sup> On this view, there is a single rule or parameter setting in the grammar which links the three orders. This explanation thus contrasts with the three functional explanations discussed above in that it assumes that the explanation resides in the grammar itself. But if one accepts one or more of the functional explanations discussed above, it is not necessary to posit general cross-categorial rules that refer to the position of heads independently of the particular category. There is, in fact, no reason to believe that speakers make such abstract generalizations. Part of the motivation for such crosscategorial generalizations in the work of generative linguists is to capture the sorts of generalizations reflected in languages with consistent word order. However, the fallacy of such work is that it ignores the possibility that there exist generalizations that have good explanations but that speakers do not form such generalizations as part of their grammars. In other words, the possibility of external or functional explanations obviates the need to express such generalizations as part of grammar. The existence of functional explanations of this sort make it possible to posit grammars that do not express such generalizations, and hence grammars that are less abstract than the sorts of grammars associated with generative grammar. It is not clear, in particular, that speakers make any generalizations across phrasal categories and hence it is not clear that there is any need for notions like ‘head’, ‘complement’, ‘adjunct’, or ‘specifier’. Again, the claim of this paper is that the sort of grammars that use basic linguistic theory as their theoretical framework express a reasonable level of generalization.

It is also worth pointing out the implications of this line of argument to the classic argument by Halle (1959) and Chomsky (1964: 88-89) against the phoneme, based on the parallels between the allophonic and morphophonemic rules in Russian that are required on an account assuming a classical level of phonemic representation. The argument was that these two rules could be collapsed into a single rule if such a level was abandoned. However, the alternative view is that the grammar of Russian does contain two separate rules, but their similarity is captured by an explanatory theory independent of the grammar.<sup>8</sup>

#### 3.5 An example involving economy

A final example of a type of functional explanation that is independent of the grammar itself is provided by markedness phenomena. Consider the fact that the verbal paradigm in Lakhota has a zero for third person singular, and non-zero forms for the other combinations of person and number, as in (4).

(4)	<i>wa-kaštaka</i>	‘I strike’	
	<i>ya-kaštaka</i>	‘you (singular) strike’	
	<i>kaštaka</i>	‘he strikes’	
	<i>uŋ-kaštaka-pi</i>	‘we strike’	
	<i>ya-kaštaka-pi</i>	‘you (plural) strike’	
	<i>kaštaka-pi</i>	‘they strike’	(Buechel 1939)



This pattern in Lakhota reflects two markedness patterns: it is common for singular to be unmarked relative to plural and it is common for third person to be zero relative to first and second person. Note that the longest forms are those that are marked both for number (plural) and for person (first or second). One hypothesis for these (and other) markedness patterns is that they reflect discourse frequency: the most frequent values are usually unmarked. With respect to the markedness feature of zero expression, the use of zero for high frequency values is motivated by the fact that hearers will tend to interpret utterances with information unspecified according to what is most frequently used. Overall, a system which uses zero expression for most frequent values will be most “economical” (cf. Haiman 1983, 1985; Croft 1990) and will conform to the principle of least effort (Zipf 1935).

But again, the fact that using zeroes in third person singular will be most efficient may explain an aspect of the grammar of Lakhota but will not itself be part of the grammar. When speakers of Lakhota produce zero forms to express clauses with a third person singular subject and nonzero forms to express clauses with other subjects, they do so, not because it is more efficient to do so, but because that is what the grammar of Lakhota specifies is the form for particular person-number combinations. Again, the locus of the functional explanation is primarily at the level of language change: a language is most likely to lose an overt morpheme in a paradigm if it is associated with third person singular, since in its absence, hearers are most likely to interpret utterances in terms of the most frequent category, something they do all the time in interpreting utterances. If a language were to start to use zero expression for some other person-number combination, there would be a greater probability of utterances being misunderstood.

Note, however, that as with other functional explanations, there may be a minority of languages which do not conform to the general pattern. The present tense in English employs an overt zero form in every form other than third person singular (*I walk, you walk, he/she walks, they walk*). At the level of grammar, English is no different from Lakhota; in both cases, the grammar spells out where zero is used and where it is not used. We need an explanatory theory independent of the grammar to spell out why languages like Lakhota are much more common than languages like English, but this has no bearing on the descriptions of the two languages. And basic linguistic theory is adequate to provide the relevant sorts of descriptions.

### 3.6. Theories of form versus formal theories

It is worth noting that arguments similar to those I have given here are given by Newmeyer (1998, 2002c) in arguing that functional explanations are outside of grammars and hence that functional explanations do not obviate the need for grammars. He points out for example (1998: 141-142) that certain properties of relative clauses in Swahili are plausibly explained by processing factors. However, the relevant processing explanation involves processing ease at an earlier stage of the language, when it was SOV, and that the processing explanation no longer applies now that the language is SVO.

From his arguments that functional explanations are outside of grammars, Newmeyer argues that even someone espousing functional explanations needs what he calls a “formal theory” of grammar (1998: 337). Newmeyer’s choice of the expression “formal theory” is unfortunate here because it is ambiguous. His arguments only show the need for a theory of linguistic form, or what is called here a descriptive theory (or theoretical framework); to that extent, his arguments are congruent with the arguments of this paper regarding the need for descriptive theories. However, the expression “formal theory” is generally interpreted in the field, not as a theory of form, but as a theory of a particular theoretical orientation, where “formal” contrasts with “functional”, or with “substantive”, or with “informal”. Newmeyer concludes, apparently playing unconsciously on the ambiguity of “formal theory”, that functionalists need some version of generative grammar as a theory of forms, to supplement their functional explanations. However, all that his arguments demonstrate is that functionalists need a theory of linguistic form, and he ignores the fact that functionalists already have a theory of linguistic form, namely basic linguistic theory. Basic linguistic theory is an *informal* theory of form, and none of Newmeyer’s arguments argue for a *formal* theory of form.

#### 4. Stipulative analyses

In much formal theoretical work, much of the effort expended in arguing for or against particular analyses is motivated by attempts to provide what are viewed as explanatory analyses. This often involves abstract principles or abstract analyses, the details of which are not motivated for each language but are posited on general theoretical grounds. The sorts of analyses posited in basic linguistic theory are viewed by many generative linguists as inadequate because they are seen as overly stipulative or ad hoc, requiring rules or aspects of rules that are motivated only for the phenomenon in question. Under a functionalist view, the fact that an analysis may be stipulative or ad hoc does not present a problem: the analysis can be stipulative and ad hoc without implying that there are not explanatory principles or motivations that underlie them. In fact, under a functionalist perspective, a highly stipulative analysis may in fact be a virtue, since the evidence often suggests that speakers learn complex sets of grammatical rules without any awareness, conscious or unconscious, of the underlying motivations that led to those rules being the way they are before the speaker ever started learning the language.

Another way to make the same point is to say that grammars are an emergent phenomenon and are not reducible to explanatory principles, whether they be parameter settings, rankings of universal constraints, or functional principles. They reflect underlying explanatory principles of various sorts which resolve themselves, as competing motivations, at the level of language change. But the grammar itself is a complex system with considerable idiosyncrasies of various sorts. The goal of a descriptive theory is to provide a set of tools and concepts for providing adequate descriptions of each language in all its complexity and idiosyncrasy. The reason why Chomskyan generative approaches have found basic linguistic theory inadequate is not in general that it fails to provide adequate descriptions, but that it fails to provide adequate explanations. But if the description of a language is independent of explanation, then this is not a problem for basic linguistic theory.

#### 5. Description as explanation

In describing the contrast between description and explanation here, I am following common parlance among functionalists in restricting the term explanation to explanations for why languages are the way they are. But there is a sense in which what I am calling descriptions are themselves explanatory at a different level. Namely, if the grammar is a representation of what is inside speakers' heads and hence what underlies linguistic behaviour, then the grammar itself can be viewed as part of the explanation for linguistic behaviour, and the grammar serves as an explanation for particular facts of the language. The reason that speakers of English do not say things like *\*My house is a house blue* rather than things like *My house is a blue house* is because the grammar of English states that attributive adjectives precede the noun, and there is a sense in which the grammar of English explains this fact about language use. A similar point is made by Greenberg (1968: 180):

In descriptive linguistics, even grammatical rules of the conventional sort are explanatory of particular phenomena ... . If, for example, a student who is just learning Turkish is told that the plural of *diş* (tooth) is *dişler* while that of *kuş* (bird) is *kuşlar*, he may ask why the first word forms its plural by adding *-ler* while the second does so by adding *-lar*. He may then be told that any word whose final vowel is *-i* takes *-ler*, while one in which the final vowel is *-u* takes *-lar*. This may be considered an explanation, insofar as further interrogation has to do with classes of words that have *-i* and *-u* as their final vowel rather than with the individual forms *diş* and *kuş*.

What I am describing in terms of description and explanation can thus be equally well described in terms of a distinction between explanations for linguistic behaviour or specific facts about a language and explanations for why languages are the way they are. My claim that we need both descriptive theories and explanatory theories can thus be equally well described in terms of a need for two different types of explanatory theories.

Part of the reason why functionalists tend to avoid applying the term explanation to grammatical descriptions is that they associate such talk with the sorts of analyses that formal linguists propose in which an analysis is described as explanatory, not only in the sense in which a grammar explains particular linguistic facts, but in the further sense in which the analysis is intended to be part of an explanatory theory of why languages are the way they are. Because Chomskyan generative linguists typically attempt both types of explanation in their analyses, they do not always distinguish the two types of explanation. However, once one distinguishes these two sorts of explanation, then there should be no problem with functionalists recognizing descriptions as explanations in the lower-level sense of explanations for particular linguistic facts.

## 6. Is basic linguistic theory a good descriptive theory?

In arguing here that basic linguistic theory is a theory, it does not follow that it must be a good theory. One might accept the notion of a descriptive theory, but claim that basic linguistic theory is inadequate as a descriptive theory. Unfortunately, the question of the adequacy of basic linguistic theory as a descriptive theory is rarely addressed. It is implicit in much Chomskyan generative work that basic linguistic theory is inadequate, but as discussed above, the implicit argument is that it is inadequate as an explanatory theory, which I have argued is irrelevant to the question of its adequacy as a descriptive theory. Another argument implicit in early generative grammar and in formal approaches like Head-Driven Phrase Structure Grammar (Pollard and Sag 1994) is that basic linguistic theory is inadequate in that it is too imprecise and too vague. There is little question that basic linguistic theory is an informal theory, and it is clear that some linguists demand a higher level of precision than one often finds in basic linguistic theory. It is worth emphasizing, however, that precision should not be confused with the use of formalism: a description in English can be quite precise if the meaning of the terms is clear, and it is easy to find much work that assumes basic linguistic theory that is fairly precise. Conversely, the use of formalism does not guarantee precision if the formalism is not precisely defined.<sup>9</sup>

A more important question for the purposes of this paper is whether basic linguistic theory is adequate as a descriptive theory for the purposes of functionalists. It is certainly possible that some functionalists view descriptions in basic linguistic theory as adequate as descriptions of the language, but inadequate as representations of what speakers of a language know, a distinction I have ignored here. Some functionalists have developed functionally-oriented theoretical frameworks (e.g. Functional Grammar (Dik 1978, 1989, 1997) and Role and Reference Grammar (Van Valin 1993, Van Valin and LaPolla 1997)), but they do not directly address the question of how their theoretical frameworks might be better than basic linguistic theory: in arguing for their theories, they contrast themselves with formal generative approaches rather than with basic linguistic theory. It is not clear what arguments might be given by practitioners of such theories against basic linguistic theory.

Furthermore, as with other theoretical approaches, basic linguistic theory is an overall theoretical framework encompassing different points of view, and criticisms of specific practices within basic linguistic theory can often be construed as theory-internal disagreements as easily as criticisms of basic linguistic theory itself. My view (Dryer 1997) that grammatical relations (and other grammatical notions) are ultimately language-particular and that crosslinguistic notions are no more than convenient fictions is clearly a minority view within basic linguistic theory. But I do not view this position as a criticism of basic linguistic theory, but rather as an issue within basic linguistic theory. There are various other respects in which I believe much descriptive work paints a distorted view of language. For example, grammatical descriptions tend to concentrate on regularities and to play down lexical idiosyncracies and lexicalized grammatical constructions. I believe that word classes in particular languages are often not as well-motivated as descriptions sometimes suggest, and that word class systems are often highly complex. But again, I view these not as criticisms of basic linguistic theory, but simply as criticisms within basic linguistic theory of applications of the theory.<sup>10</sup>

The improvements in basic linguistic theory over the past twenty-five years have not been prompted by specific attempts to improve it, since most linguists have failed to recognize its status as a theoretical framework. Developments have been the side effect of work in typology, and there is every reason to believe that further developments will continue in coming decades, both because of

work in typology and quite possibly from new ideas from some other quarter. However, further improvements might develop if more functional, typological, or descriptive linguists recognized the status of basic linguistic theory as a theory, and addressed the question: how could we make the descriptive grammars we are writing even better than they are now?

## 7. Conclusion

I have argued here that the emergence of basic linguistic theory as the dominant theoretical framework for describing languages is something that has happened despite the widespread failure of linguists to recognize its status as a theoretical framework. There are many ways, however, in which the field has suffered from this failure to recognize basic linguistic theory as a theoretical framework and to recognize the need for both descriptive theories and explanatory theories. As noted in the introduction to this paper, many functionalists seem to think that the question of what constitutes a good description of a language is theoretically unimportant and some even seem to question that there is anything to describe. Givón (2001: xv), in an apparent retreat from his position in some of his earlier work, emphasizes the need to recognize linguistic structure independent of function; if there are functional explanations for why languages are the way they are, we need to have some way of describing the things that are being explained. But elsewhere in the same work (p. 4), he describes the structuralist approach to language as “functionalism’s antithesis”. But here he confuses descriptive theory with explanatory theory. Structuralism is fully compatible with functionalism. Structuralism is a descriptive theory, while functionalism is an explanatory theory. There is no incompatibility in describing a language from a structuralist perspective and then explaining, in functionalist terms, the things described.

There is another negative consequence of the failure to distinguish descriptive theory from explanatory theory and to recognize basic linguistic theory as a theory. Because of the false contrast many linguists see between description and theory, and because of the higher prestige associated with what is called theory, work in basic linguistic theory is often dismissed as “merely” descriptive. Thus, if a linguist analyzes a set of data using some transient theory like Minimalism, or Optimality Theory, or Head-Driven Phrase Structure Grammar, the analysis will be characterized as “theoretical”, but if a linguist analyses a set of data using basic linguistic theory, the analysis will be characterized as “descriptive”. But this is simply confused. The analysis assuming basic linguistic theory is just as theoretical in the sense that it assumes a theoretical framework, just like the other analyses. And the analysis in the transient theory is also descriptive in that it provides a description of the data.

Now it is true that analyses in other theoretical frameworks often do more than describe the data, but make some additional theoretical point that the facts they are describing bear on. But this is usually because the transient theory is not only intended as a descriptive theory but as an explanatory theory as well, and the additional theoretical point being made is at least partly of significance to the explanatory goals of the theory. In addition, the theoretical point involves pointing to the need for some modification to the theory. But the analog happens with descriptions in basic linguistic theory: some theoretical significance is drawn from the facts being described. Sometimes, it points to some need to improve the tools we have for describing languages, in which it is analogous to issues arising from analyses in transient theories pointing to the need to change that theory. More commonly, however, it points to the existence of a phenomenon not previously attested. Since basic linguistic theory does not attempt to be a restrictive theory, new phenomena are often easy to describe in basic linguistic theory and do not point to a need to revise the theory, beyond the addition of new concepts. Such discoveries are of obvious theoretical significance to typological theory.

It must be admitted that it is often the case that the primary goal of work in basic linguistic theory is descriptive, without any intended theoretical significance, so that it is theoretical only in the sense that it employs a theoretical framework, namely basic linguistic theory. I would claim, however, that the same is often true for work in other theoretical frameworks: its primary goal is often to describe a set of facts, without any particular theoretical implications. Furthermore, even if much work in basic linguistic theory is primarily descriptive in its purpose, these descriptions

provide the major source of data for theoretical work in typology. In that sense, descriptive work in basic linguistic theory is always of theoretical significance.

## Notes

<sup>1</sup> I am indebted to Malcolm Ross, Edith Moravcsik, Jean-Pierre Koenig, Martin Haspelmath, Lea Brown, and two anonymous referees for comments on earlier drafts of this paper.

<sup>2</sup> I follow here the common practice in the field of linguistics in applying the term ‘theory’ to what are more accurately termed theoretical frameworks. To a large extent, different theoretical frameworks are not really different theories, but simply different metalanguages for describing languages. Analyses in one theoretical framework can often be translated into another theoretical framework, and theoretical differences really only exist when one cannot translate an analysis from one framework into another. See Dryer (to appear) for further discussion of this point.

<sup>3</sup> Many of the references to generative grammar in this paper will specifically refer to Chomskyan approaches, by which I intend the sequence of generative approaches associated with Chomsky from Chomsky (1957) through Minimalism. There are considerable differences within generative grammar with respect to many of the issues discussed in this paper, especially between such Chomskyan approaches and Head-Driven Phrase Structure Grammar (Pollard and Sag 1994). In particular, HPSG can be described as primarily a descriptive theory rather than an explanatory theory. Optimality Theory shares with Chomskyan approaches the idea that a single theory will serve both as a descriptive theory and as an explanatory theory; see footnote 8 below.

<sup>4</sup> In saying this, I run the risk of reinforcing the simplistic view that there is a clear dichotomy between functional and formal approaches to language. This is inaccurate in various respects. First, there is considerable variability among linguists who are functionalist in the broad sense I am using the term here. Second, as noted in footnote 3, there is also considerable variability among formal linguists, particularly with respect to some of the issues discussed in this paper. And there are approaches, such as Role and Reference Grammar (Van Valin 1993, Van Valin and LaPolla 1997), which involve a mixture of formal and functionalist traditions. My characterization of functionalist linguists as including “descriptive linguists” is also potentially misleading since there are many linguists who could be described as formal linguists and who do descriptive work. My impression, however, is that such linguists often see a clear distinction between what they see as their descriptive work and what they see as their theoretical work. From the perspective of this paper, their descriptive work presupposes the theoretical framework of basic linguistic theory.

<sup>5</sup> For a number of years, I employed the label “basic syntactic theory” for the theoretical approach assumed in descriptive work when describing this theoretical approach in syntax courses. I was delighted a few years ago to discover that Bob Dixon had also recognized the existence of such a theory, and I quickly realized that his label “basic linguistic theory” was more appropriate than mine, since the theoretical approach also makes relatively uniform assumptions about phonology and morphology.

<sup>6</sup> I should also say that while I have formulated my discussion in terms that most closely fit the idea of a grammar as the description of the grammar of a single speaker, I believe that most of what I say applies equally well to the description of a language within a community (or set of communities), including a description of variation within the community. The only caveat that is necessary is that some variation within a community may reflect grammaticalization in progress and hence a description of the language, including variation, might include some mention of grammaticalization in progress. Strictly speaking, however, one might argue that it is not necessary for an adequate description of such variation to describe it as grammaticalization. A description which described the variation without describing it as grammaticalization would be an adequate description of the facts, and the observation that the variation reflected grammaticalization could be construed as an explanation for why that sort of variation is natural.

<sup>7</sup> See Dryer (1992) for empirical problems with this line of explanation, where it is shown that if one examines the full range of pairs of elements whose order correlates with the order of verb and object, one cannot characterize those pairs in terms of the notions of head and dependent or head and complement.

<sup>8</sup> It is also worth mentioning an approach within Optimality Theory represented by Aissen (1999, in press) and Bresnan (2000) in which the constraints are functionally motivated and which could thus be characterized as attempting to build functional explanations directly into grammars. See also Newmeyer (2002a, 2002b) and Bresnan and Aissen (2002) for discussion. While adequate discussion of this approach is beyond the scope of this paper, a few brief comments are in order. First, strictly speaking, the grammar consists of rankings of constraints, and even if the constraints are functionally motivated, the functional motivations per se are not in the grammar. Second, the examples of explanations discussed in this paper apply at the level of language change and cannot be

accurately represented in terms of innate constraints. And third, there is no evidence that the entire grammar of any language can be reduced to a set of ordering of constraints, any more than it can be reduced to a set of parameter settings or a set of answers to a long list of typological questions (such as those in Comrie and Smith 1977). Rather, grammatical systems are complex systems of interacting rules and constructions.

<sup>9</sup> I would say that much work in basic linguistic theory is more precise than much recent work in the Chomskyan tradition.

<sup>10</sup> The proposals of Croft (2001) can be construed as criticisms of basic linguistic theory from a functionalist perspective, and they are sufficiently radical that they can be construed as criticisms of basic linguistic theory itself. Croft argues against the very possibility of distributionally-defined word classes. I see the phenomena he discusses as pointing only towards more complex theories of distributionally-defined word classes than are often assumed. However, further discussion of the issues he raises is beyond the scope of this paper.

## References

- Aissen, Judith.  
 1999 Markedness and subject choice in Optimality Theory. *Natural Language and Linguistic Theory* 17: 673-711. (Reprinted 2001, in *Optimality-Theoretic Syntax*, Geraldine Legendre, Jane Grimshaw, and Sten Vikner (eds.), 61-96. Cambridge: MIT Press.)
- Aissen, Judith.  
 In press Differential object marking: iconicity vs. economy. *To appear in Natural Language and Linguistic Theory*.
- Bresnan, Joan.  
 2000 Optimality in syntax. Presidential Address, annual Linguistic Society of America Meeting, Chicago.
- Bresnan, Joan, and Judith Aissen.  
 2002 Optimality and functionality: objections and refutations. *Natural Language and Linguistic Theory* 21: 81-95.
- Buechel, Eugene  
 1939 *A Grammar of Lakota*. Rosebud, South Dakota: Rosebud Educational Society.
- Chomsky, Noam  
 1957 *Syntactic Structures*. The Hague: Mouton.
- Chomsky, Noam  
 1964 *Current Issues in Linguistic Theory*. The Hague: Mouton.
- Chomsky, Noam  
 1965 *Aspects of the Theory of Syntax*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam  
 1973 Conditions on transformations. In *A Festschrift for Morris Halle*, Stephen Anderson and Paul Kiparsky (eds.), 232-286 New York: Holt, Rinehart and Winston.
- Chomsky, Noam  
 1981 *Lectures on Government and Binding*. Dordrecht: Foris.
- Comrie, Bernard, and Norval Smith  
 1977 Lingua Descriptive Studies: Questionnaire. *Lingua* 42: 1-72
- Craig, Collette  
 1977 *The Structure of Jacalteco*. Austin: University of Texas Press.
- Croft, William  
 1990 *Typology and Universals*. Cambridge University Press.
- Croft, William  
 2001 *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford University Press.
- DeLancey, Scott  
 1997 Mirativity: the grammatical marking of unexpected information. *Linguistic Typology* 1: 33-52.
- Dik, Simon C.  
 1978 *Functional Grammar*. Amsterdam: North-Holland.

- Dik, Simon C.  
1989 *The Theory of Functional Grammar, Part 1: The Structure of the Clause*. Dordrecht: Foris.
- Dik, Simon C.  
1997 *Theory of Functional Grammar*. Kees Hengeveld (ed.). Berlin: Mouton de Gruyter.
- Dixon, Robert M. W.  
1997 *The Rise and Fall of Languages*. Cambridge: Cambridge University Press.
- Dryer, Matthew S.  
1992 The Greenbergian word order correlations. *Language* 68: 81-138.
- Dryer, Matthew S.  
1997 Are grammatical relations universal? In Joan Bybee, John Haiman, and Sandra Thompson, eds., *Essays on Language Function and Language Type*, pp. 115-143. Amsterdam: John Benjamins.
- Dryer, Matthew S.  
To appear Functionalism and the theory-metalanguage confusion. To appear in a Festschrift.
- Givón, T.  
2001 *Syntax: An Introduction*. Amsterdam: John Benjamins.
- Greenberg, Joseph  
1968 *Anthropological Linguistics: An Introduction*. New York: Random House.
- Haiman, John  
1983 Iconic and economic motivation. *Language* 59: 781-819.
- Haiman, John  
1985 *Natural Syntax*. Cambridge University Press.
- Halle, Morris  
1959 *The Sound Pattern of Russian: A Linguistic and Acoustical Investigation*. The Hague: Mouton.
- Haspelmath, Martin  
1993 *A Grammar of Lezgian*. Berlin: Mouton de Gruyter.
- Hawkins, John A.  
1994 *A Performance Theory of Order and Constituency*. Cambridge: Cambridge University Press.
- Hopper, Paul  
1987 Emergent grammar. In *Proceedings from the Thirteenth Annual Meeting of the Berkeley Linguistics Society*, Jon Aske, Natasha Beery, Laura Michaelis, and Hana Filip (eds.), 139-157.
- Keenan, Edward L., and Bernard Comrie  
1977 Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8: 63-100.
- Kutsch Lojenga, Constance  
1994 *Ngiti: A Central-Sudanic Language of Zaire*. Cologne: Rüdiger Köppe Verlag.
- Newmeyer, Frederick J.  
1998 *Language Form and Language Function*. Cambridge, Mass.: MIT Press.



- Newmeyer, Frederick J.  
 2002a    Optimality and functionality: a critique of functionally-based optimality-theoretic syntax. *Natural Language and Linguistic Theory* 21: 43-80.
- Newmeyer, Frederick J.  
 2002b    A rejoinder to Bresnan and Aissen. *Natural Language and Linguistic Theory* 20: 97-99.
- Newmeyer, Frederick J.  
 2002c    Where is functional explanation? In *Papers from the Thirty-Seventh Meeting of the Chicago Linguistic Society*, Mary Andronis, Christopher Ball, Heidi Elston and Sylvain Neuvel (eds.), pp. 99-122. Chicago: Chicago Linguistic Society.
- Perlmutter, David (ed.)  
 1983. *Studies in Relational Grammar 1*. Chicago: University of Chicago Press.
- Perlmutter, David, and Carol Rosen (eds.)  
 1984    *Studies in Relational Grammar 2* Chicago: University of Chicago Press.
- Pollard, Carl, and Ivan Sag  
 1994    *Head-Driven Phrase Structure Grammar*. Chicago: University of Chicago Press.
- Ross, John R.  
 1967    *Constraints on Variables in Syntax*. MIT dissertation. Indiana University Linguistics Club.
- Van Valin, Robert D. (ed.)  
 1993    *Advances in Role and Reference Grammar*. Amsterdam: John Benjamins.
- Van Valin, Robert D., and Randy J. LaPolla  
 1997    *Syntax: Structure, Meaning, and Function*. Cambridge: Cambridge University Press.
- Zipf, G. K.  
 1935    *The Psychobiology of Language: An Introduction to Dynamic Philology*. Boston : Houghton Mifflin .