

Review: [untitled]

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George M. Horn, *Lexical-Functional Grammar*. Berlin etc.: Mouton, 1983. Pp. ix + 394.

What Horn calls 'Lexical-Functional Grammar' is his own invention, and not Bresnan's theory with the same name (see Bresnan, 1982). So this book is not the place to look for an explanation of Bresnan's theory, though there are close connections between the two. Horn's theory, which I shall refer to simply as LFG, is a compromise (in his own terms) between the ideas of Chomsky and of Bresnan, selecting what he saw as the best of each and synthesizing a new theory. I approve of the undertaking, as an intelligent reaction to a problem situation: what do you do when two linguists who you respect enormously start moving in opposite directions? Do you flip a coin and abandon your respect for one of them, or do you accept that they are probably both partly right and partly wrong, and set about selecting? The first course is easier, but surely the second is better for anyone who tries to preserve intellectual integrity.

The reader most likely to appreciate the book is thus likely to be someone who is keen on the ideas of either or both of Chomsky and Bresnan. I have serious reservations about both, so I am perhaps not a suitable person to review the book, especially since a good deal of sympathy (and enthusiasm) is needed to keep the reader going. I can't promise an easy read – there is plenty of repetition, and of mechanical 'cranking out' of examples through the generative sausage machine. Indeed, if I had been the editor responsible for this book, I should have pressed hard for a change in the order of the chapters, and I recommend readers to start with the part of the last chapter in which the theory and the rules are reviewed. I should also have insisted on an index. One wonders whether any publisher's editor looked at all at the manuscript.

Before explaining what LFG is, I should point out that the publishing date of the book (1983) is misleading, because the text seems to have been completed in 1980 (to judge by the references, none of which are later than this). Indeed, the most recent paper by Chomsky to which Horn refers is the manuscript of 'On binding', dated 1978. This delay in publication has the advantage of making the book more widely comprehensible than it would have been if it had presupposed the very latest ideas. However it also means that some of the criticisms of Bresnan's and Chomsky's work will have become irrelevant, and some of the issues addressed will seem dated – e.g. Horn's concern to show that there is no need for rules to apply cyclically. Those familiar with more recent work by either of these linguists will notice important shifts which Horn would no doubt have taken into account if he were writing now.

Outline of LFG. LFG is intended as a complete theory of language structure, but the book concentrates on just two parts of the general theory: the system of rules which map syntactic structures onto semantic ones, and the rules for relating lexical items to one another.

Like Bresnan and Chomsky (and most other linguists), Horn assumes that the SYNTACTIC STRUCTURE is a phrase-marker. One of the most-quoted papers is Wasow, 1977, which also contains the following passage: 'It is universally (*sic*) agreed that sentences should be represented at some level by means of labelled bracketings or trees.' This belief is in fact only about twice as old as transformational grammar itself, and by no means universally held (Hudson, 1984: 92-98). However, unlike both Chomsky and Bresnan (as of the 1970s) Horn recognizes only one syntactic level, 'surface structure', and no transformations. This is probably a step in the right direction, and no doubt it is partly due to the influence of Brame which Horn acknowledges.

In addition to the single syntactic structure, LFG provides for a SEMANTIC STRUCTURE called 'functional structure' (following Bresnan). Horn presents this as though it were a single representation, but he distinguishes at least three types of structure, and it is unclear to which of these his term 'functional structure' is meant to apply. One structure shows grammatical relations (e.g. 'subject') as well as semantic relations (e.g. 'theme', in the Gruber sense); another is similar but without the grammatical relations; and a third is similar but also contains decomposed word-meanings. It is a great pity that Horn makes no attempt to distinguish these different levels from one another, because he makes various important claims about the role of 'functional structure' in the grammar (e.g. 'the notions of grammaticality, ambiguity and synonymy can be defined on this level', 265), and such claims cannot be evaluated unless we know what they are about.

The relations between the surface syntactic structure and the functional structure are handled by means of a set of rules called OPERATIONS ON FUNCTIONAL STRUCTURES which are remarkably similar to transformations (an impression which is in fact encouraged by the notation that Horn uses). Each operation takes a functional structure as input, and outputs a different functional structure, so the number of 'functional structures' produced in the generation of a single sentence may be much larger than the three which I mentioned above.

The starting structure is due to lexical insertion, which puts complete lexical entries into the surface syntactic structures (making them much less 'surface' than one might think). Each lexical entry contains a bit of functional structure which may fit into those of other lexical entries around it. Then various operations distribute referential indices and labels for semantic roles, and even delete various kinds of information which have been produced by the sausage-machine as a by-product of its operations. The output is subject to a couple of well-formedness conditions (one of which is similar to the 'Theta-criterion' of Chomsky, 1981).

As suggested by this summary, the LEXICON is treated as a separate component of the grammar, in which there are not only lexical items but also lexical processes for dealing with morphology and lexical changes to the subcategorization of these items. These lexical processes are distinguished

sharply from the non-lexical operations on functional structure, following the model of Wasow's distinction between lexical and transformational passives.

Horn puts the system through its paces in various parts of English grammar, with regular excursions to Polish (and one to Italian). He deals in some detail with passives, *wh*-movement, the missing subjects and objects of adjectives like *easy* and *eager*, and other kinds of missing subjects (due to 'Equi' or 'subject-raising', which he merges into 'raqui'). If you accept his analyses and his theoretical assumptions, and make due allowance for careless mistakes and patchable gaps, then I think the judgment on LFG is favourable.

He compares LFG with Bresnan's and Chomsky's work, and stresses the similarities to the former and the differences from the latter. The main difference that he notes in relation to Bresnan is that LFG distinguishes between lexical and non-lexical processes, as just explained. Another point on which he improves on Bresnan (1978) (and anticipates her later work) is that he includes semantic relations in his semantic structures.

In contrast with Chomsky, Horn recognizes no transformations, and invokes a rather different set of constraints on rules which make no use of such notions as 'c-command' and 'subjacency'. For those who are familiar with Chomskyan linguistic theory this book presents a challenge and a source of interesting ideas for alternative analyses.

The analyses. One problem with the book is that the analyses can't be trusted. The so-called surface structures are often clearly wrong. One example is the analysis for *It was John (who) kissed Mary* on page 336: *It was (John kissed Mary)*. It is easy to show that *John kissed Mary* is not a constituent – for example *John* could be front-shifted (giving *John it was who kissed Mary*) but this is not possible for *John who kissed Mary* (**John who kissed Mary it was*). Another example: on page 8 the following is claimed to be the surface (*sic*) structure of *Who did John see?: (Who (John (see [e])))*.

Some of the suspect analyses are discussed with an attempt at justification, but on the whole the attempts are unconvincing. For example, Horn says (242–254) that sentences like *What did John eat a loaf of?* are possible because the prepositional phrase is not a sister of the noun or NP, but of a VP containing the verb plus the NP, minus its PP: (*eat (a loaf) (of bread)*). This is crucial, because such examples otherwise infringe the 'Noun-Phrase constraint' which Horn invented back in the early 1970s, and which he puts to work in LFG. But if the prepositional phrase and the NP do not form a constituent, why can't the NP follow the PP by virtue of Heavy NP shift (giving e.g. **John ate of bread a very large loaf indeed?*) And why can't the object be picked out by clefting, leaving the prepositional phrase behind (e.g. **What John ate of bread was a large loaf?*) Similar objections apply to similar analyses of idiomatic expressions like *take advantage of NP*. Horn's analysis saves his constraint, but he doesn't consider the cost in terms of new problems which it creates.

Semantic relations. Horn assumes, correctly, that semantic structure needs

to include some indication of the different semantic relations between arguments and predicates. One can hardly blame him for being non-committal on the particular categories to be used, but the way in which he uses semantic relations is often quite unsatisfactory.

For instance, he gives an analysis of sentences like *John tried to do his assignments on time* (88) in which the semantic relation of John to the meaning of *tried* is (and has to be) the same as that which it has to the meaning of the infinitive. According to Horn, John must be the agent of the trying, so he can't be, say, the theme in relation to the other verb; but this is precisely what it would be in a sentence like *John tried not to be frightened by the ghost*, according to Horn's own analysis (28). (Horn tells me that this was not the intention of his analyses, but it certainly seems to be their effect.)

The reason why this curious analysis of verbs like *try* is necessary is that Horn uses semantic relations in order to fix referential indices. Thus the lexical entry for *try* requires the subject of the infinitive to have the same semantic relation as the subject of *try* itself, and then a very general rule (called 'Coindexing' (305)) assigns the same referential index to them both because they have the same semantic relation. But surely this is a complete misuse of semantic relations. One thing that is absolutely clear about semantics is that semantic relations between arguments and predicates have nothing at all to do with coreference. I don't see anything in the theory of LFG which would prevent us from using referential indices themselves in order to show that the subject of *try* and that of its infinitive must be coreferential. Horn should have considered this alternative, even if only to give reasons for rejecting it.

The lexical and the non-lexical. One of the main differences between LFG and Bresnan's theory, and the one on which Horn lays most stress, is that he reintroduces the distinction between lexical and non-lexical processes which she had called into question. This is in fact one of the weakest parts of LFG, in my opinion, because the discussion rests heavily on Wasow (1977) but without the clarity of Wasow's discussion.

The result is that one is never sure what criteria are being used to decide what is lexical and what isn't. For example, the English passive is claimed to have a non-lexical source as well as a lexical one, and part of the reason for this seems to be that sentences like *The door was locked* are ambiguous (32). However, Horn claims too that Polish only has one kind of passive, a lexical one, in spite of the existence of precisely analogous ambiguous sentences, whose ambiguity Horn locates in the auxiliary verb rather than in the passive participle (65)!

My opinion is that the distinction between lexical and non-lexical is an artifact of our literate tradition in which grammars and dictionaries are published separately, for purely practical reasons. It is easy to see that some linguistic facts are more general than others, but much harder to find principles to guide one in the search for the boundary between 'the general' and 'the particular' (see Hudson, 1984). Wasow's paper is exceptional as an

attempt even to find such principles, and as Anderson's (1977) critique shows we still have a long way to go. For instance, Wasow puts a lot of faith in the principle that lexical rules are expressed in terms of grammatical relations, whereas Anderson (and Horn) claim that they are expressed in terms of semantic relations. Where there is such disagreement scepticism about the distinction being made is in order.

The status of functional structure. Horn describes his functional structure as 'analogous' to Chomsky's level of 'logical form' (3). I think this comparison is probably accurate, but Chomsky says logical form is a level of syntax (1981: 29), while Horn says it is not, but a level of semantics (204). I have already complained about the problem of deciding quite what Horn means by 'functional structure', but it seems to contain much the same kinds of information as Chomsky's logical form, so how can we reconcile this difference? It is easy to see both points of view – the level concerned does seem to contain some syntactic information, and also some semantic. It seems then that the difference between Horn and Chomsky on this point may be nothing but a matter of terminology.

However, there is a more serious question: do we need this level at all? If we assumed that a complete analysis would contain a PURELY semantic analysis (such as Horn actually seems to envisage), how do we justify postulating an intermediate level, between syntax and semantics? This is a problem which (to my knowledge) is not addressed by either Chomsky or Horn, and I think it is easy to see why not: because the level is needed for purely theory-internal reasons, as the output for whatever rules are currently to hand. I very much doubt whether it could be justified on independent grounds (in the way that, say, the level of syntax might be justified as the one needed for showing *inter alia* the number and order of words in a sentence). As it is, Horn's functional structures are an odd mixture of semantics and pure syntax (e.g. they show whether syntactic relations are marked by inflection or by word order; 235). In my view it would have been better to try to relate a purely semantic structure to a purely syntactic one, without intermediate stages.

In conclusion, the book is an interesting one, but also very frustrating because of the style, the structure and many of the analyses. By the time this review appears, Horn should have had time to develop his ideas and I hope another, shorter, book is in preparation.¹

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[1] I thank Horn for commenting on an earlier version of this review. The present version takes account of his comments.

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