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Recent work in generative grammar has led to the conception of "core grammar" outlined in (1) (from CHOMSKY 1978).

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| (1) | <ol style="list-style-type: none"> 1. Base 2. Transformations <hr/> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">3a. Deletion rules</td> <td style="width: 50%;">3b. Construal rules</td> </tr> <tr> <td>4a. Filters</td> <td>4b. Interpretive rules</td> </tr> <tr> <td>5a. Phonology and Stylistic rules</td> <td>5b. Conditions on Binding</td> </tr> </table> | 3a. Deletion rules | 3b. Construal rules | 4a. Filters | 4b. Interpretive rules | 5a. Phonology and Stylistic rules | 5b. Conditions on Binding |
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| 5a. Phonology and Stylistic rules | 5b. Conditions on Binding | | | | | | |

The surface structures (SS) that are the output of 2. undergo interpretation by the rules 3b., etc.; this results in representations of "logical forms" (LF). Independently, the same surface structures are mapped onto "phonetic representations" (PR) by the rules 3a.-5a. In CHOMSKY 1976b, the rules that determine LF are called the system SI-1, i.e. semantic interpretation as far as this belongs to sentence grammar. There is also a system SI-2, the "pragmatics", relating LF to other cognitive representations. Chomsky claims that SI-1 contains a rule FOCUS, determining the focus-presupposition partitioning of sentences; he does not formulate it, however, but he indicates how it should work. Consider (2) and (3), with main stress indicated by capital letters.

(2) Bill likes JOHN

(3) BILL likes John

FOCUS replaces the focus-constituent of SS by a bound variable and creates cleft-like LF's such as (4) and (5) from (2) and (3) respectively.

(4) the x such that Bill likes x - is John

(5) the x such that x likes John - is Bill

In all probability, the background to the assumption that FOCUS belongs to SI-1 is at least partly that focus played a part in the Extension of the Standard Theory (cf. CHOMSKY 1972)¹. I want to argue, however, that assuming FOCUS to be within SI-1 is in fact in conflict with important principles of EST, especially as regards linguistic levels. Furthermore, I will argue from evidence about sentence adverbials in Dutch that descriptive adequacy also requires that focus interpretation belong to SI-2, and not to SI-1.

Consider the principle of the local application of grammatical rules. This means that rules of grammar apply to only one step in a derivation, the last

one so far constructed, and do not pay heed to the original source of the elements that a rule applies to, i.e. there are no global rules. This principle is important for the distinction of linguistic levels (and thus to their integrity) in that it implies the impossibility of "mixing up" levels; it follows from local rule application that no rule can mention elements from more than one level. Distinguishing linguistic levels is in turn an important conception - and also a fruitful research strategy - in so far as it embodies the idea that the complexity of natural languages is to be explained by, *inter alia*, the interaction of distinct levels, each of which is essentially simple. Now I think it is clear that CHOMSKY's (1972: 100) analysis of focus as "a phrase containing the intonation center", if taken as a rule of grammar, would not be a local but a global rule; its structural description would involve both SS and PR. Thus the question arises how to avoid this consequence.

Jackendoff does try to give an explicit statement of the focus-rule. Here I am only concerned with the descriptive devices it requires. Jackendoff states that his proposal

... does minimal violence to the theory as a whole. One artificial construct is required: a syntactic marker F which can be associated with any node in the surface structure. (JACKENDOFF 1972: 240)

A semantic rule will interpret the phrase dominated by F as the focus, a phonetic one will assign it main stress. In my opinion, this is not only ad hoc - as Jackendoff admits - but also a threat to the integrity of linguistic levels. Note that under this system, we can maintain that there are only local rules, referring to the syntactic structure. But this result is reached by incorporating in the syntactic structure information that is in fact not syntactic by means of an otherwise unmotivated marker. Aspects of different levels are - misleadingly - represented as aspects of one, which threatens the distinction, despite the technical preservation of locality. So far, I see no way of avoiding consequences like these; anyway the burden of proof is on those who maintain that FOCUS is in sentence grammar.

A similar situation arises with respect to sentence adverbials in Dutch. At first sight, the positioning of sentence adverbs in Dutch seems to be very free; as illustrated in (6)², they can occupy any position between the complementizer and the verbs.

- (6a) dat waarschijnlijk de leraar zijn auto verkocht heeft
 that probably the teacher his car sold has
 "that the teacher probably sold his car"

- (6b) dat de leraar waarschijnlijk zijn auto verkocht heeft
 that the teacher probably his car sold has
- (6c) dat de leraar zijn auto waarschijnlijk verkocht heeft
 that the teacher his car probably sold has

Suppose that sentence adverbs are generated immediately under S, in the position shown in (6a); then we could have a rather simple rule of Adv-movement to account for the other positions³. However, the picture is not always as uncomplicated as in (6). Consider (7) and (8). It seems that a personal pronoun cannot occur to the right of the sentence adverb, as in (7a); but we have precisely the opposite in (8): the indefinite NP cannot occur to the left of the adverb.

- (7a)??Jan heeft vermoedelijk hem gezien
 John has presumably him seen
 "John presumably saw him"
- (7b) Jan heeft hem vermoedelijk gezien
 John has him presumably seen
- (8a) Jan heeft helaas een auto verkocht
 John has unfortunately a car sold
 "John unfortunately sold a car"
- (8b)??Jan heeft een auto helaas verkocht
 John has a car unfortunately sold

As a further complication, note that sequences as (7a) and (8b) are not always bad; (9), with main stress on the pronoun, is completely acceptable and so is (10), with future aspect and another verb than (8), namely turn down.

- (9) Jan heeft vermoedelijk HEM gezien
 John has presumably HIM seen
 "John presumably saw HIM"
- (10) Jan zal een auto helaas weigeren
 John will a car unfortunately turn down
 "A car, John will turn down, unfortunately"

But it is true that (9) and (10) exhibit a certain "contrast". Moreover, the direct object ("a car") in (10) has a special interpretation, namely a generic one; (10) has to be understood as meaning that John will turn down any car (e.g. if he wins one in a lottery), or rather: John will turn it down because of its belonging to the class of cars (cf. NUNBERG/PAN 1975). Given an appropriate context we can in fact also have the word order of (10), with this same interpretation, if the verb is sell; see (11).

- (11) (ik heb besloten om Jan maar een boekenbon te geven,
 omdat hij een auto waarschijnlijk weer zal verkopen
 because he a car probably again will sell
 (I decided to give John a book-token,
 because a car, he would probably sell again

It is also possible to have the generic interpretation if the NP is to the

right of the adverb, as in (12), which is ambiguous.

- (12) Hij zal waarschijnlijk een auto weigeren
 He will probably a car turn down
 { "He will turn down a car, probably" }
 { "A car, he will turn down, probably" }

However, it is necessary for genericness in (12) to have main stress⁴ on the verb weigeren ("turn down"); but this accords with the fact that main stress in (10) and (11) cannot be on other phrases than the verbs, immediately to the right of the adverbs in those sentences. Thus we have the following fact to account for: in order for a NP to be interpretable as generic, it must not contain main stress.

There is a proposal for a description of the facts about indefinites in KERSTENS 1975. It consists, essentially⁵, of the following informally presented rules.

rule 1: NP-placement (optional transformation)

$$X \left[\text{VP NP Y} \right] Z \implies X \text{ NP } \left[\text{VP } \emptyset \text{ Y} \right] Z$$

This rule takes a (object) NP out of the VP and makes it a daughter of S, without actually changing the word order.

rule 2: Q-shift (optional transformation)

$$X \text{ Adv NP Y} \implies X \text{ NP Adv Y}$$

condition: Adv and NP are immediately dominated by S

The condition on this rule has the effect that an object NP can only get to the left of a sentence adverb if it is first taken out of the VP by rule 1.

rule 3: Q-assignment (obligatory semantic rule)

$$\text{NP}[\alpha\text{Q}] \longrightarrow \text{NP}[+\text{Q}]$$

condition: NP is immediately dominated by S

Indefinite NP's are $[\alpha\text{Q}]$, while definite ones are inherently $[+\text{Q}]$. Because of the fact that the conditions on rules 2 and 3 overlap, a relation is specified between the interpretation of indefinite NP's and the positions it may occur in with respect to a sentence adverb; in particular, an indefinite object to the left of a sentence adverb must be $[+\text{Q}]$, as it is immediately dominated by S in that case.

Finally, there is also a relation with stress, according to the following rule, which assigns sentence stress to the leftmost stressed vowel in the VP.

rule 4: Stress-assignment (obligatory phonetic rule)

$$\overset{1}{\vee} \longrightarrow \text{1-stress} / W \left[\text{VP } X \text{ } _ \text{ Y} \right] Z$$

condition: X does not contain $\overset{1}{\vee}$

As a consequence, a $[+\text{Q}]$ indefinite object will never get main stress, as it

must have undergone NP-placement to become [+Q], and is thus no longer in the VP. If [-Q] has not become [+Q], it finally becomes [-Q] by convention.

If one constructs the possible derivations of the above examples according to this analysis, it is easy to see that it accounts correctly for the different interpretations related to word order and intonation. For instance, (12) has two derivations: one where rule 1 has applied (but not rule 2, though it could have), so that the object is [+Q] and stress is on the verb; and a second one, where rule 1 has not applied, so that the object cannot become [+Q] and main stress will be on the object. But (10) has only one derivation, in which both the rules 1 and 2 have applied, the object is unambiguously [+Q] and stress is on the main verb. So it seems that we have accounted for the relation noted above between genericness and the position of stress (taking genericness as an interpretation of [+Q]; see also note 9).

Nevertheless, I think that Kerstens' proposal suffers fundamentally from the same mistakes as Jackendoff's concerning focus interpretation. Thus, there are several problems in formalizing the rules: e.g. conditions involving "immediate dominance" cannot be formulated as Boolean conditions. The main problems, however, are with rule 1, NP-placement. Note that it violates a constraint proposed by CHOMSKY (1973) forbidding string vacuous operations. Though it is likely that Chomsky's formulation is incorrect, counter-examples such as those cited by VAN RIEMSDIJK (1978: 130, fn.43) do seem to fall within a fairly restricted class; these "reanalysis rules" share the following properties: firstly, they are local in the sense of EMONDS (1976); secondly, they are also structure preserving in some sense, in that their output could have been independently generated by the base (including the lexicon) of the grammar. Thus we might say that only "natural" reanalysis rules are allowed, and not arbitrary ones involving only phrase nodes, not being structure preserving, etc. Then it is still true that NP-placement is not allowed for, as it is an arbitrary reanalysis rule in precisely this sense.

This problem is related to the main objection to the rule, namely that it is without really independent syntactic motivation. It provides two structural descriptions for sentences with identical word order, but different interpretations and intonation contours. Thus, just as with Jackendoff's F, a relation holding between interpretation and intonation is again represented as one that is mediated by the syntax, without independent support. In my opinion, this kind of analysis is typical of the integrated-linguistic-description strategy, known as the Katz-Postal hypothesis, according to which semantic information is important in deciding syntactic analyses. It is this

strategy that is the fundamental mistake⁶.

I will therefore now try to give an alternative analysis, which does not rest directly on the syntactic derivation of the sentences in question and thus allows for a syntactically optimal description of their structure⁷.

To start with, note that Kerstens' analysis suggests that there are no differences of interpretation among the sentences of (6), as there are only definite NP's, inherently [+Q], in (6). But such differences do exist. For example, take the difference between (6b) and (6c); (13) gives two possible paraphrases of (6b)⁸, (14) the only one of (6c).

(13a) what the teacher sold probably was his car

(13b) what the teacher did probably was to sell his car

(14) what the teacher did with his car probably was to sell it

The paraphrases (13) and (14) reflect the focus-presupposition partitioning of (6b) and (6c) respectively; apparently, then, sentence adverbs in Dutch undergo "association with focus" (cf. JACKENDOFF 1972), and in such a way that the focus is to the right of the adverb. It need not be immediately to the right of the adverb, because (6b) can also have the interpretation (14), provided that main stress is on verkocht ("sold"), though in that case there is a certain contrast (I return to this matter below).

The hypothesis I want to turn to now is that the analysis of sentence adverbs as associating with focus, necessary to account for the different interpretations in (6), can in fact also be used to account for the other phenomena noted before without resorting to unwanted syntactic complications, if we assume that certain general conversational principles enter into focus interpretation.

First, take the case of the indefinites. It has often been recognized that these are the standard device for the introduction of new entities into a conversation (a discourse), i.e. this is (one of) their unmarked function(s). Thus they naturally belong to focus, and as the focus must be to the right of a sentence adverb, indefinites must naturally also be to the right of such an adverb. If an indefinite is to the left, it cannot be taken as serving to introduce some new entity: it must be part of the presupposition, i.e. information that is known to the hearer; but it is not a referring expression, either. However, what is always known to the hearer is the meaning of the phrase itself, i.e. the "definition" of a certain class, e.g. of cars. Thus the generic interpretation of in (11), just as in (10), is necessary, as it is the only one possible⁹, the indefinite NP being part of the presupposition.

The fact that elements to the left of a sentence adverb necessarily belong

to the presupposition entails that the position of a sentence adverb is a means - alongside of the position of main stress - for the hearer to reconstruct the "informative intent" of the speaker. It is clear that, from the point of view of a speaker, greatest clarity with regard to information structure is reached where the adverb is adjacent to the focus. From general conversational principles, like those of GRICE 1975, to the effect that one should be relevant and as informative as required (the "maxim of quality"), we can then deduce that the unmarked order in information structure is the one where the adverb *i n t r o d u c e s* the focus. Now consider (7). In contrast to indefinite NP's, the unmarked use of personal pronouns, which have a minimum of lexical content, is to serve as "mere" indications of a referring intention on the speaker's part, i.e. they are used only if it is otherwise quite evident who or what the speaker is talking about. Thus they naturally belong to the presupposition. Therefore, (7a) is in conflict with the above mentioned unmarked order in information structure: a presuppositional element intervenes between the adverb and the focus. For the same reason, the interpretation (14) of (6b) is less natural than one of the interpretations (13), as noted above.

Several other consequences follow, too. I cannot pursue all of them here (I refer to my forthcoming paper on "focal modifiers and grammatical theory"), but I will mention one by way of illustration. GUÉRON (1976) argues that there is a condition on Extraposition from NP, namely that the NP head of an extraposed complement must be in focus. It follows that no Extraposition is possible from an object NP if it is to the left of a sentence adverb and therefore not in focus. As (15) shows, this is borne out.

(15a) Piet heeft gelukkig de auto gekocht die ik het mooist vond
 Peter has fortunately the car bought which I the most beautiful found
 "Peter fortunately bought the car which I liked best"

(15b)??Piet heeft de auto gelukkig gekocht die ik het mooist vond
 Peter has the car fortunately bought which I the most beautiful found

As both Guéron's condition and the analysis of sentence adverbs as associating with focus are independently motivated, nothing needs to be added to the theory to account for (15). Thus several seemingly disparate facts fall together, even more than under Kerstens' proposal, and moreover we can avoid unwanted complications in the theory of sentence grammar.

The main conclusions I want to draw here from the preceding discussion are the following.

It has been recognized in EST since CHOMSKY (1972) that two types of in-

formation enter into the determination of the focus of a sentence: syntactic, in that the focus must be a constituent of SS, and phonetic, as the focus must contain main stress. From the discussion of sentence adverbs in Dutch, it has emerged that at least two more factors are involved, namely lexical information (certain adverbs limit the choice of focus) and a pragmatic principle concerning relevance of word order. If we add this to the problems mentioned at the beginning of this paper about linguistic levels, it is all the more natural to assume that there is no rule of FOCUS in core grammar, but that focus interpretation is a pragmatic process for which the position of main stress, adverbial positions, etc., are limiting factors: SI-2, or the performance system a grammar is embedded in, is precisely the place where we expect grammatical structures to be related to "other cognitive representations". Then the "anomaly" that focus interpretation involves more than one linguistic level also disappears.

A final point I want to mention in this respect is that if FOCUS is not a rule of grammar, we expect it to violate conditions on rules of grammar. And in fact it seems that it does. Consider the Opacity Condition of CHOMSKY (1978) (the former Specified Subject Condition; cf. CHOMSKY 1973); this states that if α in (16) is in the domain of (i.e. c-commanded¹⁰ by) the subject of β , then α cannot be free in β .

(16) [β α ]

Consider next (17), with main stress on slang ("snake"), and the LF (18).

(17) Ik hou niet van Jan's foto's van die SLANG
 I like not John's pictures of that SNAKE
 "I don't like John's pictures of that SNAKE"

(18) the x such that I don't like [_{NP} John's pictures of x] -is that snake
 The LF (18) represents a valid interpretation of (17) - at least in Dutch - , so it should be derived by FOCUS. But the variable is free in the domain of the subject John('s) of the NP as indicated, because the operator that binds the variable is outside of this NP. So (18) is not a permitted LF according to the Opacity Condition; this means that FOCUS would violate Opacity. We have a principled explanation for this fact: focus interpretation is not a matter of sentence grammar, so it does not have to obey its constraints.

Thus there are many advantages, with regard to both descriptive and explanatory adequacy, in taking focus interpretation to be a pragmatic process rather than a grammatical one.

Footnotes

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- 1 There is an implicit argument in CHOMSKY 1976b in favor of FOCUS being in SI-1, namely that it should precede (pronominal) Anaphora. But as it is not quite clear whether Anaphora itself belongs to sentence grammar (cf. CHOMSKY 1976a: 241, fn.27; 1976b: 323-324) and as this argument does not bear directly on mine, I leave it aside here.
- 2 As I assume that Dutch is underlying SOV, I will sometimes give examples with subordinate clauses, which exhibit this order most clearly.
- 3 The fact that this would be a non-structure-preserving lowering rule does not constitute a particular problem (as is stated by de HAAN (forthcoming)), if we adopt the version of trace theory in CHOMSKY 1976a: 106-110 and if structure preservation only holds for NP's (cf. CHOMSKY 1978); see also VERHAGEN (forthcoming).
- 4 I define main stress as the final change of pitch in the intonation contour of a sentence; this does not imply that main stress is always near the end of a sentence. For arguments in favor of this definition and discussion, see BLOM/DAALDER 1977.
- 5 Mainly for ease of exposition, I have slightly adapted Kerstens' proposal. Nothing hinges on this adaptation.
- 6 The same comments apply to v.d. BERG 1978, though the details of his analysis differ from KERSTENS 1975.
- 7 I argue in VERHAGEN (forthcoming) that the consequences of the analysis to follow are really quite far-reaching, in that it allows for what is actually the syntactically most simple account of the distribution of adverbial phrases that is possible; it involves no transformational rules at all, i.e. neither movement of Adv, nor of NP, in either direction.
- 8 Main stress in (6b) is on the object NP (zijn auto, "his car") in the unmarked case (see also the comments in the text); in (6c) it must be on the main verb, verkocht ("sold").
- 9 With one extra proviso, namely that the NP must not contain indexical expressions, in which case it is interpreted as specific rather than as generic if *ir* is part of the presupposition; cf. NUNBERG/PAN 1975; VERHAGEN (forthcoming).
- 10 Node A c-commands node B if A does not contain B (therefore: $A \neq B$) and B is dominated by the first branching category dominating A.

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