cussions of this sort. If the field of generative grammar is to survive and reach a certain scientific maturity, it is absolutely essential that generative grammarians accept the fact that their contributions are part of a large enterprise. There is nothing wrong with presenting a new analysis A of some phenomena in language X, but the analysis simply cannot and may not evade the responsibility of incorporating the results reached for similar phenomena in language Y nor can it ignore the relevance it has for various parts of the theory. This makes being a generative grammarian a much more difficult job than it used to be - but that is what becoming a mature science is all about. It means that the experts on English syntax must take into account results from Italian, German, Chinese, etc. if they are relevant. It also means that if you come up with some alternative (part of the) theory you have the doubly difficult task of arguing your position while avoiding the danger of dissociating yourself both scientifically and socially from the field. Both the dangers and the positive effects of this development are illustrated in the articles as well as in the discussions.

Stepping down, now, from the exalted level of the sociology of science, the main question will always be whether we have gained new insights into the nature of human grammar. It seems to me quite incontrovertibly the case that we have -in this respect- the articles and discussions that will speak for themselves.

Correspondence Effects and the Empty Category Principle

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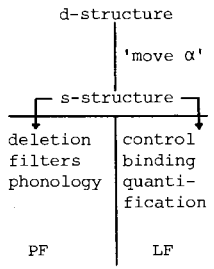
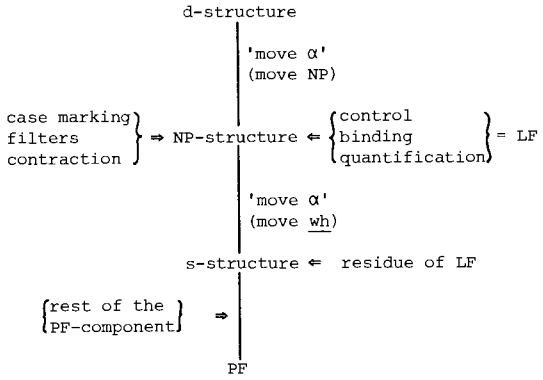
0. The idea that the core rules of syntax and those of the logical form (LF) component, while part of autonomous subsystems of the grammar, interact in many interesting ways is one of the major insights that have characterized generative grammar for the past fifteen years. Over this period of time something of a consensus has emerged as to the formal expression of this interaction in the model of grammar. S-structure, the output of the syntax and the input of logical form, is taken to be the sole point of contact between the two components. In this view the contributions of d-structure to LF are held to be present in s-structure as well by virtue of trace theory and ultimately the projection principle (cf. Chomsky (1981)).

This view has not been completely unchallenged. There have been proposals to the effect that semantic rules are part of the syntactic cycle.[1] There are also proposals to reinstate d-structure as the pivotal link with semantics.[2] In the early seventies, when both cyclic and post-cyclic transformations were held to exist, the level between the two, often called shallow structure, was taken to contribute its own share to semantic interpretation.[3] Finally, Williams and I have recently made a somewhat similar proposal.[4] Essentially, we propose that the T-model of Chomsky & Lasnik (1977) as given in (1) be replaced by a linear model of core grammar, the L-model as shown in (2).

(1) T-model:



(2) L-model:



According to this model, the autonomous system of formal grammar does not have a single output level of LF, characterizing its structural contribution to semantics. Instead, several derivational levels provide formal characterizations of notions that are taken to be ultimately interpretable in a full theory of semantics.[5] The main intuition leading to this alternative model is twofold. Fore one thing, it appears that those applications of move α which

correspond to wh-movement create output structures in which information that is crucial to the operation of later grammatical processes, both in phonology and in LF, is no longer locally available but must be reconstructed or retrieved. On the other hand, the study of the reconstruction problem led to the awareness that the contribution of wh-movement to LF is minimal.[6]

It is the latter realization which has, perhaps, shocked linguists even more than the former argument. For one of the main persuasions that have emerged in the course of recent work on quantification (such as May (1977)) is that wh-movement is, in some sense, a syntactic precursor of the LF-rules of scope assignment. To put it differently, wh-moved structures are thought to be already very close to their semantic interpretation and scope assignment rules are formulated so as to mimic wh-movement, creating similar operator-variable structures. At first sight, this view has much to recommend itself. In particular, it accounts for the fact that the scope of a wh-phrase which has been moved to a COMP is always the sentence of which that COMP is the COMP. In other words wh-movement actually moves a wh-phrase to the position where it takes scope.

In the L-model this cannot be so. Scope is assigned at NP-structure, before wh-phrases are moved. This means that we must guarantee that a wh-phrase will move exactly to the COMP which has previously been designated by the rules of quantification at NP-structure. To stipulate this in the movement rule[7] would mean sacrificing the full generality of move α. Instead Williams and I stipulated that there is a filter (the correspondence filter) which requires that a moved wh-phrase be right next to the index which marks its scope at s-structure.

Quite obviously, such a move is one of desperation which would lead immediately to the downfall of the L-model were it not for the fact that this filter can be defended reasonably well against the attacks of the staunch partisans of the T-model. Part of this defense, which will be summarized below, was presented in our original article. However, it appears that the defense can be strenghthened considerably because it turns out that the correspondence filter need not be stipulated at all but can by subsumed under a slight reformulation of Chomsky's (1981) empty category principle (ECP). To do this is the purpose of this paper.

1. To start with, let us briefly summarize some of the ingredients of the L-model. Scope is assigned by the rule of Quantifier Interpretation (QI). This rule assigns an index to a quantified phrase and adjoins a (phonologically null) copy of this index to some containing S-node. The rule can be formulated as in (3):

(3) QI: $[_S \ldots [QX] \ldots]_S \Rightarrow [_S\ i [_S \ldots [QX]_i \ldots]_S]_S$

In the output of QI, Q is a lexical quantifier element (some, every, who, which, ...), X is the restriction on the quantifier, $[QX]_i$ is the variable and i is the scope marker. That is, every type of information represented in a quantifier-variable structure of the more common type is contained in the output of (3).[8]

We can now make the correspondence problem more precise; consider (4).[9]

(4) a. You wonder $[_{\bar{S}}$ who$_i [_S i [_S$ Bill saw $t_i]]]$

b. *Who$_i$ do you wonder $[_{\bar{S}} [_S i [_S$ Bill saw $t_i]]]$

c. *$[_{\bar{S}} [_S i [_S$ do you wonder/think $[_{\bar{S}}$ who$_i [_S$ Bill saw $t_i]]]]]$

In (4b) the wh-phrase has moved beyond the S to which its scope index was adjoined by QI. In (4c) QI has assigned wide scope to the wh-phrase, but the latter has subsequently only moved to the lower COMP, i.e. not far enough. Only in (4a) have the scope index and the wh-phrase ended up in positions immediately adjacent to one another, as they should.

The question then is how to characterize the exact nature of this adjacency requirement. In 'NP-structure', Williams and I propose that the notion of government is central to this relation. However, there are a few slight complications that we will not go into here which lead to a somewhat modified formulation of government, one which we called q-government.[10]

(5) In the structure
$\ldots X \ldots [_\alpha \ldots . Y \ldots .$
X q-governs Y iff
(i) X c-commands Y, and
(ii) Y is an immediate constituent of α, and
(iii) for every φ, where φ dominates Y but does not dominate X, φ does not properly contain α (where γ properly contains δ in the structure

$[_\gamma\ x [_\delta \ldots .] \varphi\ ]$

iff x or φ are phonologically non-null)

On the basis of this definition, the correspondence filter can be formulated as follows:[11]

(6) Correspondence Filter:
A scope marker must q-govern its own index (or a complex index containing its own index)
where the set of scope markers includes wh-phrases immediately dominated by COMP.

This formulation will deal with cases like (4), in fact with all correspondence cases, in a satisfactory way. Nonetheless it might be pointed out that the correspondence filter is an artefact which is necessitated in the L-model solely as a function of the internal organization of that model. However, as was pointed out in 'NP-structure', the standard T-model incorporating something like May's (1977) system for quantification requires an artefact which is in some sense the converse of (6). In fact even though the literature has been less than explicit about this, it must be stipulated that wh-phrases in COMP may not undergo any further LF-movement. That is they may not be assigned a scope different from the S in whose COMP they are, despite the fact that wh-phrases that have not previously been moved to a COMP may, indeed must, undergo LF-movement in order to receive a scope. What this means, in essence, is that even in the T-model syntactic movement to COMP and LF-movement are independent of each other, and that to the extent that there is correspondence it must be stipulated.

2. There is, however, another objection which may be levelled against the correspondence filter (6). This has to do with the status of the adjoined index. Observe that formally speaking indices are part of a category but not categories themselves. Indeed, indices cannot be terminals. In that sense, representations like those in (4) are terribly misleading. For structures of the general type (7a) are really uninterpretable, and the best assimilation to something which is interpretable would be (7b).

(7) a. $[_{\bar{S}}$ COMP $[_{S}i[_{S}j[_{S}k[_{S}....]]]]]$

(7) b. $[_{\bar{S}}$ COMP $[_{S_i}[_{S_j}[_{S_k}[_{S}....]]]]]$

Of course there was an excellent reason why we wanted a structure like (7a) rather than (7b). The reason is simply that a structure like (7a) still represents scope in terms of c-command, while (7b) would require a redefinition of scope in terms of domination. The latter course of action, while not excluded on any principled grounds, seems undesirable. In particular it would ignore the fact that virtually all relational notions in the theory of grammar incorporate some version of c-command. This means that we must reinterpret (7a).

There are two essential properties which must be attributed to the scope bearing elements in (7a): they must be terminals and they must be phonologically null. What this suggests, quite clearly, is that these elements are empty categories. In other words, (7a) is to be interpreted, and henceforth written, as (8).

(8) $[_{\bar{S}}$ COMP $[_{S}[e]_i[_{S}[e]_j[_{S}[e]_k[_{S}....]]]]]$

Note that this amounts to a slight generalization of the notion of adjunction rule.[12] Adjunction can now be interpreted as the creation of a second coindexed node, not necessarily accompanied by the movement of the lexical content to the new node. Syntactic movements do involve the movement of the lexical content, LF-movements don't on this view.

3. Interestingly, this necessary clarification has the additional advantage of pointing the way to a more satifactory account of the correspondence filter. The reasoning starts with a completely obvious observation: once we have identified scope indices with empty categories, we must ask if these empty categories are subject to the Empty Category Principle (ECP) of Chomsky (1981). If we say that some are, we are in a position to let the ECP take over the task of the correspondence filter.

The intuition behind this move is straightforward. The most comparable cases that the ECP is taken to account for are those in which an empty category in the subject position is properly governed by a coindexed element in the adjacent COMP, as in (9).

(9) $[_{\bar{S}}[_{\text{COMP}}[\left\{\begin{matrix}\text{lex}\\ e\end{matrix}\right\}]_i][_{S}[e]_{NP_i}$ INFL VP]]

This case is formally almost indistinguishable from the standard case that the correspondence filter refers to:

(10) $[_{\bar{S}}[_{\text{COMP}}$ wh-phrase$_i][_{S}$ $[e]_i[_{S}$ NP INFL VP]]]

One obvious difference is that the empty category in (9) is in an A-position while that of (10) is formally characterized as an $\bar{A}$-position. It therefore seems promising to follow up on this lead and eliminate the correspondence filter altogether. We turn to a second difference in section 5 below.

4. If we analyze the situation more carefully, it turns out that there are two cases of the correspondence filter which remain problematic. Let us address these. In the first place, only those scope indices that belong to quantified elements which have been moved are subject to the correspondence filter and hence to the ECP. Take a sentence like (11).

(11) John saw someone

On the standard view of quantification theory, (11) would be represented as (12).

(12) $[_{\bar{S}}[_{\text{COMP}}$ $\emptyset][_{S}[e]_i[_{S}$ John$[_{VP}$ saw someone$_i]]]]$

Clearly, the empty category in (12) must be exempt from ECP.

There appear to be essentially two ways to solve the problem. One would be to treat the two types of quantifiers differently. In other words one could define scope for quantifiers in situ in a way which is quite different from the way scope is assigned to quantifiers in $\bar{A}$-positions.[13] The other would be to modify the definition of which categories are and which ones are not subject to the ECP. While there are some considerations which appear to make the former strategy a viable and worthwhile one, it would make it necessary to reshape the whole theory of quantification, a project which we are not prepared to undertake in the present context.[14] Let us investigate the second course of action then.

Recall, first of all, that not all empty categories are subject to the ECP. For one thing PRO is exempt, and on most accounts[15] traces in COMP are exempt as well. In fact, the classification of empty categories into two types, those which are and those which are not subject to the ECP is not exactly one of the more elegant aspects of the principle. This provides a certain amount of justification for introducting yet another distinction along these lines.

In order to draw the relevant distinctions, we introduce a somewhat modified concept of chain. Let us assume that at s-structure we define A-chains and $\bar{A}$-chains in the following manner.

(13) a. A-chain: $C = (\alpha_1,....,\alpha_n)$ is an A-chain iff
- (a) α_i is coindexed with α_{i+1}, $i \geq 1$
- (b) α_i is an A-position, $i \geq 1$
- (c) C is maximal

(13) b. $\bar{A}$-chain: $C = (\alpha_1,....,\alpha_n)$ is an $\bar{A}$-chain iff
- (a) α_i is coindexed with α_{i+1}, $i \geq 1$
- (b) α_i is an $\bar{A}$-position, $i \geq 1$
- (c) C is maximal
- (d) for some α_i, α_i is lexically (phonologically) realized

According to this definition the empty category in (12) is not part of a chain. This is a consequence of condition (d) in (13b). We can now reformulate the ECP as follows:

(14) ECP: An empty category (not PRO) which is part of an s-structure chain must be properly governed

This formulation will give the desired result.[16]

It might be objected that the addition of condition (d) in (13b) is a purely ad hoc device, designed specifically for the case at hand. While such an objection may be partly justified, the outcome is not wholly unnatural. The notion which is central both to the definition of chains and to the function of the ECP is the notion of identification. The ECP serves to identify certain empty categories at s-structure. Similarly, chains serve to keep track of empty elements. Notice, however, that there is a third device, and a very powerful device it is indeed, which fulfills the same function, viz. the projection principle, by virtue of which argument positions are directly identifiable in that they are projected from the lexical entry of the verb which heads the clause in question. Hence, identification of A-positions is much more strongly determined than that of $\bar{A}$-positions. From this perspective, it is only natural that the conditions on identifying $\bar{A}$-positions under ECP should be more restrictive. And the condition that the $\bar{A}$-chain contain a lexically filled link is a very obvious condition since it serves to increase identifiability in a straightforward manner.[17] This rationale is strengthened by the fact that it also plays a role in the second problematic case to which we turn below.

A second potential line of objection concerns the use of chains. Observe that the use of chains is restricted to the identifiability problem, since the binding theory, which applies at NP-structure, does not need to refer to chains in the L-model. This means on the one hand that we are free to define chains in such a way as to serve our purpose. It might be said, however, that the notion of chains as such is in conflict with the spirit of the L-model. There is again a certain measure of justification to such an objection, but it is fairly weak. Note, first, that it is exactly the notion of identifiability which we would expect to be statable in terms of chains. Note furthermore that no reconstruction problem of any sort arises in the present context. That is, there is no way in which the internal structure of a link in the chain is at all relevant to the proper functioning of ECP. Hence the two situations are radically distinct.

In conclusion it may rightly be claimed that despite a few problematic wrinkles the reformulation of ECP in terms of (13) and (14) provides a reasonable solution to the problem which sentences like (11) raise for our analysis.

5. Let us now turn to the second problematic case. It was stated above that (9) and (10) are "almost indistinguishable". Only one difference was mentioned there, viz. the A- vs. $\bar{A}$-status of the empty category. The second difference has to do with whether the proper binder in COMP may or may not be empty. In the standard case of ECP, given in (9), the proper binder may be a trace. This is shown in such cases as (15).

(15) Who$_i$ did you say [$_{\bar{S}}$[$_{COMP}$ e$_i$ (*that)][$_S$[e]$_i$ left]]

However, in the case of the proper binding of an empty $\bar{A}$-element we must require that the proper binder be lexical, otherwise we cannot exclude (4b), repeated here as (16).

(16) *Who$_i$ do you wonder [$_{\bar{S}}$[$_{COMP}$ e$_i$ (whether)][$_S$[e]$_i$[$_S$ Bill saw e$_i$]]]

In other words, the trace in COMP must be prevented from properly governing the scope index.[18]

More schematically, we have the following situation:

(17) a. [$_{\bar{S}}$[$_{COMP}$ wh$_i$][$_S$[e]$_{NP_i}$ VP]] — $\bar{A}$ … A, OK

b. [$_{\bar{S}}$[$_{COMP}$ e$_i$][$_S$[e]$_{NP_i}$ VP]] — $\bar{A}$ … A, OK

c. [$_{\bar{S}}$[$_{COMP}$ wh$_i$][$_S$[e]$_i$[$_S$ NP VP]]] — $\bar{A}$ … $\bar{A}$, OK

d. [$_{\bar{S}}$[$_{COMP}$ e$_i$][$_S$[e]$_i$[$_S$ NP VP]]] — $\bar{A}$ … $\bar{A}$, *

The crucial distinction is again one of lexical realization, and the tighter condition is again required for the identification of $\bar{A}$-positions. In view of this, let us adapt[19] the definition of proper government accordingly.

(18) Consider the structure [$_\beta$...γ...α...γ...], where
(a) 1. α = X° < but $\alpha \neq$ AGR>, or
2. α is coindexed with γ, and if γ is an $\bar{A}$-position, then α is lexical
(b) where φ is a maximal projection, if φ dominates γ then φ dominates α
(c) α c-commands γ
In this case α < properly > governs γ

The only new element in this definition is the underlined part in condition (a2). This addition is sufficient for our purposes under the following interpretation. In the cases (17 a/b), where an A-position is properly governed by an $\bar{A}$-position, we may say that the A-position is governed by an $\bar{A}$-chain. Now $\bar{A}$-chains must be lexical by virtue of definition (13b). Hence the additional requirement in (18 a 2) is trivially met, even if the link of the $\bar{A}$-chain which satisfies definition (18) is not itself lexical.

Turning now to the cases (17 c/d), where an $\bar{A}$-position must be properly governed by an $\bar{A}$-position, such an interpretation is excluded. If the two positions are coindexed, they are automatically part of the same chain, since chains have to be maximal. As a consequence, the proper governor can only be an individual link, but never a whole chain. And this in turn means that the requirement that α be lexical applies to this particular link. Hence (17d) is excluded as desired.

6. There is one further problem which we must attend to. Consider what happens under pied-piping:

(19) [$_{\bar{S}}$ [To whom$_i$]$_{PP_j}$ [$_S$[e]$_i$[$_S$ did John talk[e]$_j$]]]

In (19), whom$_i$ does not properly govern [e]$_i$ since it does not c-command the

empty category. This is somewhat ironical, since the NP-structure proposal was in part designed to facilitate the treatment of pied-piping. However, the solution is not overly complex.

Note first that any theory will have to contain an adequate characterization of the notion wh-phrase, where we take wh-phrase to mean a phrase which may be moved to COMP under wh-movement. For various reasons, some of which are discussed in Van Riemsdijk (1982b), the most promising solution would seem to be the one advocated in Chomsky (1973). According to Chomsky's suggestion the wh-feature of some wh-word may percolate upwards to some dominating phrasal node. In this view, conditions on pied-piping are not conditions on the application of wh-movement, but conditions on the percolation mechanism.[20] Wh-movement then applies blindly to any constituent characterized by the wh-feature.

Given this analysis, a simple assumption will yield the desired result:

(20) The (scope) index of a wh-word is a property of the wh-feature, and hence when the wh-feature percolates, the index percolates along with it.

We may represent this process as follows:

(21) [To whom $[+wh_i]$ $]_{PP_j}$ ⇒ [To whom $[+wh_i]$ $]_{PP_j}$ $[+wh_i]$

Given (21), the moved PP in (19) carries not only the wh-feature, but also the index i, and consequently the scope index in (19) is properly governed.

Observe the percolation mechanism must be assumed to apply after the binding theory, i.e. after NP-structure, for several reasons. First, percolation creates i-inside-i configurations which are not tolerated at the level where the binding theory applies. Second, if the index in question is a scope-index, percolation must follow the quantifier interpretation rule. Consequently the percolation approach cannot be extended to account for the reconstruction problems discussed in Van Riemsdijk & Williams (1981), a conclusion supported by the observation that reconstruction is also crucially implicated in the analysis of non-wh-words such as lexical NPs or verbs.

7. Our discussion so far rests on one premise: the correspondence effect exists. This assumption has taken the following form:

(22) The s-structure position of a moved wh-phrase corresponds to its scope

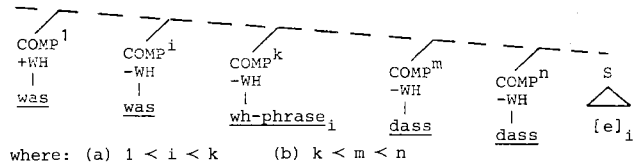
Without denying the existence of the correspondence effect per se, however, we must weaken (22) somewhat in order to accommodate some highly interesting facts from German. In German, as in English, movement of a wh-phrase into COMP is obligatory.[21] However, the wh-phrase need not move all the way up to the COMP which governs the scope index. When it doesn't, the distance up to that COMP is marked by a sequence of scope markers in the form of was. Every COMP on the path from the wh-phrase (in some COMP) up to the COMP which governs the scope index must be filled by was, in other words. As an example, consider (23)

(23) Was glaubst du , was Peter meint, mit wem
What think you what Peter believes with whom

Hans sagt, dass Klaus behauptet, dass Maria gesprochen hat
Hans says that Klaus claims that Maria spoken has

In (23) mit wem has the widest scope, but this is indicated not by the s-structure position but by the scope marker(s) was. The general structure of such sentences, then, is as given in (24).

(24)



where: (a) $1 < i < k$ (b) $k < m < n$

Accordingly, sentence (23) has four semantically equivalent variants:

(25) a. Was glaubst du, was Peter meint, was Hans sagt, was Klaus behauptet, mit wem Maria gesprochen hat
b. Was glaubst du, was Peter meint, was Hans sagt, mit wem Klaus behauptet, dass Maria gesprochen hat
c. Was glaubst du, was Peter meint, mit wem Hans sagt, dass Klaus behauptet, dass Maria gesprochen hat
d. Was glaubst du, mit wem Peter meint, dass Hans sagt, dass Klaus behauptet, dass Maria gesprochen hat
e. Mit wem glaubst du, dass Peter meint, dass Hans sagt, dass Klaus behauptet, dass Maria gesprochen hat.

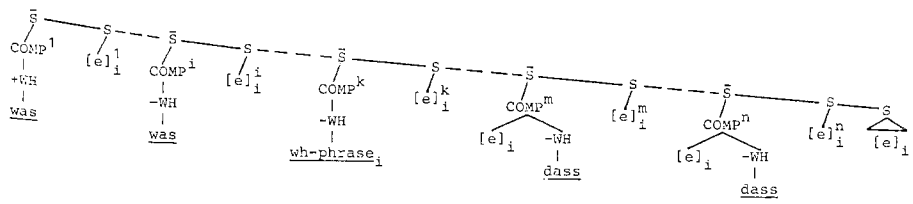
Semantically, all are equivalent to what in English would have to be expressed as (25e). Furthermore, note that in northern varieties of German, long wh-movement is not possible. Hence, in this variety (25a) is the only correct way of stating the question. Schematically, for northern German k = n in diagram (24). In fact, one might speculate that the existence of the scope marker was is related to the impossibility of long movement in wide varieties of German.[22]

Interestingly, this complex set of facts follows immediately, given our analysis, if we make two perfectly natural assumptions:

(26) a. Was is a scope marker for (6)
b. QI is successive cyclic, i.e. subject to the subjacency condition

(26a) is a straightforward extension of the discussion in Van Riemsdijk & Williams (1981), where scope markers other than wh-phrases in COMP are discussed. In particular, the negative scope markers ne in French and non in Italian are assumed to yield correspondence effects. In light of our discussion, ne, non, and was may be assumed to be proper governors for ECP. (26b) is an assumption that follows immediately from the earlier assumption that QI is an instance of 'move α' (cf. section 2). Given these assumptions (24) may be represented as (27).

(27)



The five scope indices, distinguished here by superscripts purely for ease of reference, are properly governed in the following way. $[e]^1_i$ and $[e]^1_i$ are properly governed by was, $[e]^k_i$ is properly governed by the wh-phrase, and $[e]^m_i$ and $[e]^n_i$ are properly governed by the trace of the wh-phrase in their respective COMPs ($COMP^m$ and $COMP^n$).[23] Only the latter case requires some further comment, since it necessitates a revision of definition (18) or of some of the other assumptions we have adopted so far.
The problem is that (27) presupposes that we do have proper government in a situation like (17d). The question is, then, what distinguishes a case like (16) from (27). There are, again, several options here. I will tentatively advance the following suggestion. Consider the definition of 'scope marker' which we are working with. Essentially we define a set of lexical elements, either wh-phrases in COMP or lexical elements taken from a given set, as scope markers. Suppose we require in addition that scope markers must always govern a scope index in order to qualify as scope markers. In other words, we assume a biuniqueness principle which may informally be stated as follows:

(28) a. Every scope marker (or its trace) must govern its own scope index
b. Every scope index must be governed by a scope marker (or its trace)

(28a) is part of the definition of scope markers and (28b) follows from ECP. We can then abandon the revision of (proper) government in (18) and restore Chomsky's original definition.

NOTES

* I would like to thank Riny Huybregts, Mamoru Saito and Ryuichi Washio for their useful comments on an earlier version of this paper.

1. Cf. Jackendoff (1972).
2. See Kerstens (forthcoming) for an intriguing recent proposal in this direction.
3. Cf. in particular Postal (1971).
4. See Van Riemsdijk & Williams (1981). Cf. also Van Riemsdijk (1982a).
5. See Hellan (1980) for an interesting discussion of the interaction between syntax and semantics along similar lines.
6. For detailed discussion of these lines of argument, see the references of footnote 4.
7. As was done in Baker (1970) to solve what was essentially the same problem.
8. See Van Riemsdijk & Williams (1981: pp. 192 ff) for illustrations of how the rule works and how the results of May's (1977) theory of quantification carry over to the mode of representation proposed here.
9. This is example (63) of Van Riemsdijk & Williams (1981).
10. See Aoun & Sportiche (1982) for a discussion of several variations on the theme of government.
11. For a discussion of the addition in parentheses, see Van Riemsdijk & Williams (1981). The complication is immaterial to the text issue.
12. We systematically ignore the fact that this type of adjunction violates the Principle of External Adjunction as formulated in Van Riemsdijk (1978: chapter 7). The same is true for all of the standard versions of LF-movement.

13. See Haïk (1982) for an attractive proposal along these lines. Note that Haïk presents a mechanism for assigning scope to all quantifiers including moved wh-phrases. However, it is the trace position of the moved wh-phrase which counts. This means that the correspondence problem is not addressed by her system, and it is not clear if she intends to deny that the correspondence problem exists or whether some second type of scope mechanism is assumed to account for the scope of wh-phrases under long movement. Under the latter assumption, her proposal would be consistent with the first option in the text. We will not pursue this alternative here, however, pending further details of Haïk's proposal.
14. There is a third alternative, pointed out to me by Mamoru Saito, which makes use of the functional definition of empty categories (cf. Chomsky (1982)). Essentially, on this view, the empty category in (12) would be interpretable as PRO, and hence exempt from the ECP. To get the desired result, we must assume a principle to the effect that an $\bar{A}$-chain cannot contain more than one operator, where operator is defined as lexical NP or PRO in $\bar{A}$-position.
15. For discussion of alternative views, see e.g. Kayne (1981) and Chomsky (1981: 5.5.2.).
16. Note that the definition given here subsumes traces in COMP under ECP. Cf. fn. 15. The consequences will not be pursued any further here. A further consequence is that it is not completely clear what the implications are for cases in which a quantified phrase undergoes heavy NP-shift. Presumably, heavy NP-shift creates an $\bar{A}$-chain, given (13b). Consequently, one would expect the scope to be narrow in all cases since heavy NP-shift is clause-bound. At first glance this does not appear to be the case, however. Consider, e.g. (i).

    (i) Every policeman wants to bring to a successful conclusion at least one criminal case which has eluded his superiors.

    If it generally turns out to be the case that heavy NP-shift does not affect the scopal properties of quantified NPs, then a reformulation of (13) must be envisaged. Such a reformulation will not be attempted here, however, pending further research into the matter.
    Note furthermore that the definition in (13b(d)) creates a problem for the analysis of purpose clauses (ii), as was pointed out to me by Riny Huybregts.

    (ii) He bought her a dog_i $[_{\bar{S}}\ e_i[\text{PRO to play with } e_i]]$

    More generally, it appears that vacuous operators (O) must be subject to the correspondence principle. One way to achieve this is to assume that O is essentially lexical (as it was in the Chomsky (1977) analysis). It must then properly govern its own scope index, which is no problem. The local nature of the relationship between O and the head may well be of a different nature anyway, cf. Van Riemsdijk (1982b).
17. It is tempting to speculate that intuitions concerning quantifiers in situ are generally rather shaky precisely because they are not subject to any identifiability condition.
18. An obvious way out in the present case would be to say that whether is obligatory and that hence this case is parallel to (15), which is excluded by the doubly filled COMP filter or the c-command condition, depending on the particular analysis. It is not clear, however, if this solution is viable in all cases and other languages.

19. From Chomsky (1981: p. 250).

20. In Dutch and German, for example, percolation is essentially restricted to left branches, cf. Van Riemsdijk (1982b).

21. In the case of multiple wh-questions, one of the wh-phrases must move.

22. On the other hand, a construction very much like the German one discussed in the text appears to exist in Hungarian, as was pointed out to me by É. Kiss Katalin and Szabolcsi Anna. However, Hungarian freely permits long wh-movement.

23. Observe that this means that the doubly filled COMP filter and/or the c-command condition must be circumvented in order to permit proper government in these cases. We will assume that this is done by some COMP indexing mechanism as proposed by Pesetsky (1982). This assumption ties in with the fact that German has no that-trace effects for the extraction of full subject noun phrases.

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