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Introduction

Most of the contributions of this volume fall into the area of syntax and semantics. The papers "English Time and Place Adverbials" and "Two Theories of Action Sentences" by Michael L. Geis were presented during the 1973 winter and 1974 summer LSA meetings. The contribution by Sheila Geoghegan is a revision of her M.A. thesis. Jeanette K. Gundel's paper was extracted from her Ph.D. thesis done at the University of Texas. Ronald Neeld's contribution was drawn from his OSU Ph.D. thesis.

This volume also contains a paper by Arnold M. Zwicky and G. K. Pullum on phonology.

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English Time and Place Adverbials*

Michael L. Geis

Linguists of various theoretical persuasions have assumed that English time and place adverbials function alike in sentences. The traditional grammarian Sweet (1968), for instance, would say that the time and place adverbials of a sentence like (1) modify the main verb, an analysis that has also been given by the case grammarian Fillmore 1968, as well as by a number of more orthodox transformational linguists.

- (1) John will wake up in his own bed this morning.

Lyons 1968 has offered a strikingly different analysis of sentences like (1), but, again, one in which time and place adverbials are said to function alike. According to Lyons, in his own bed and this morning are sentence modifiers, each modifying John will wake up. The generative semanticists G. Lakoff and J. Geis 1970 would agree with Lyons that the time and place adverbials of (1) are sentence modifiers, and in this respect function alike, but would argue that in his own bed modifies John will wake up and that this morning modifies John will wake up in his own bed.

The view that time and place adverbials might function alike in sentences is sharply contradicted by properties of sentences like (2), sentences which predicate locations of concrete objects.

- (2) John was in Boston this morning.

In sentence (2), in Boston does not modify be, for a semantically empty constituent can participate in no semantic relationships. Even less plausible is the view that in Boston is a sentence modifier, for this would amount to claiming that it modifies the ungrammatical and uninterpretable string *John was. Thus, neither the Sweet-Fillmore nor the Lyons-Lakoff-Geis analysis of the location adverbial in (1) is at all appropriate for the one in (2). Instead we must say, I think, that the function of the place adverbial in (2) is to predicate a location of John.

The time adverbial of (2) also does not modify the semantically empty verb be. On the other hand, the view advanced by Lyons, G. Lakoff, and J. Geis that time adverbials are sentence modifiers is an eminently reasonable analysis of the function of the time adverbial of (2). More precisely what I think we want to say is that this morning and the past tense work together to temporally locate the state of affairs 'John be in a strange bed'. I shall justify this claim below. What I would like to draw your attention

to now is that the time and place adverbials of (2) do not function at all alike. The place adverbial of (2) serves to locate John in space, but, as the unacceptability of (3) suggests, time adverbials cannot locate concrete objects in time.

(3) *John was this morning.

We simply cannot predicate times of people though we can predicate locations of them.

In our brief discussion of (2), we have seen that time and place adverbials do not function alike in such sentences. We have further seen that location adverbials are neither verb modifiers nor sentence modifiers in sentences like (2). Thus, if we are to provide a univocal treatment of the place adverbials of data like (1) and (2), an eminently reasonable goal I would think, then we must either show that the place adverbial of (1) serves to predicate a location of John or we must reject the view that it serves this function in (2).

In this paper, I shall try to demonstrate the plausibility of the view that the function of place adverbials in English sentences is uniformly to locate concrete objects in space, and, thus, that all occurrences of place adverbials are traceable back to semantic sub-structures like that which underlies (2), i.e. to semantic sub-structures which predicate locations of concrete objects. Let us call this hypothesis A. I shall also argue that the function of time adverbials and the auxiliary system is to locate states of affairs and actions and the like in time. Let us call this hypothesis B.

In order to demonstrate the viability of A and B, it will be necessary to examine three classes of sentences, illustrated by (1), (2), and (4).

- (4) a. John was miserable in New York last year.
 b. In his garden last night, John ate a poisonous mushroom.

In what follows, I shall examine examples like (2) in greater detail and show that they are consistent with A and B. I shall then argue, following the lead of J. Geis 1970, that (4a) and (4b) are derived from the structures underlying (5a) and (5b), respectively, by a series of rules that delete during the time (obligatorily for some speakers and optionally for others), he was, and while.

- (5) a. ?John was miserable during the time while he was in New York last year.
 b. ?During the time while he was in his garden last night, John ate a poisonous mushroom.

The final section of this paper will be concerned with data like (1). I shall argue that J. Geis' analysis of data like (4) cannot be extended to cases like (1), but that a similar analysis should be given. I shall argue that (1) is derived from a semantic structure

something like that which underlies (6).

- (6) At the time when John wakes up this morning, he will be in his own bed.

Data (5) and (6) are somewhat unnatural--more natural paraphrases could have been constructed--but their surface structures bring out a crucial feature of the theory of time and place adverbials being advocated here. Observe that the sentences of (5) and (6) each consist of two propositions. One of these propositions is a dated state of affairs or action. The other--the underlined one--consists of a dated spatial prediction. Thus, data (1), (2), and (4) would appear to be consistent with A and B insofar as their semantic structures are concerned.

I. Let us turn now to consider data like (2) in some detail. I suggested above that the function of the place adverbial of this sentence is to predicate a location of John. That this is so is demonstrated among other things by the fact that in Boston restricts the class of subjects it can occur with. The data of (7) illustrate this fact.

- (7) a. *Christmas was in Boston.
 b. *My best idea was in Boston.
 c. *The fact that John left was in Boston.

The place preposition in also constrains the class of objects it can occur with, of course, and, as (8) and (9) illustrate, in defines a specific relationship between its subject and object, namely the thing its subject refers to must be smaller than the thing that its object refers to.

- (8) a. The pin is in the chest of drawers.
 b. ?The chest of drawers is in the pin.

- (9) a. Columbus is in Ohio.
 b. *Ohio is in Columbus.

In light of the above we must conclude that the place preposition in is a relational predicate. Let us therefore represent place prepositions as two place predicates in subsequent semantic representations of sentences of the sort we are considering. Similar arguments could, of course, be given for the other place prepositions in English.

As we have seen, sentences like (2) are consistent with hypothesis A. Let us turn now to investigate the appropriateness of hypothesis B to such sentences. Since B applies to a much broader class of sentences than that illustrated by (2), we shall concern ourselves with a broader range of examples.

In my statement of B, time adverbials and the auxiliary system are said to serve together to date states of affairs and actions.

That there is a close connection between time adverbials and the auxiliary has, of course, been noted by numerous linguists. Therefore, let me just briefly review some of the facts that support such a point of view.

As is well known, the distribution of time adverbs like now and then and of time adverbs like yesterday, today, and tomorrow is a function in part of the character of the auxiliary--of the tense marker and modals in particular. Moreover, as (10) and (11) show, Adverb Preposing cannot move a time adverbial through an auxiliary that conflicts with it in temporal reference.

- (10) a. I expect to have time to work on causatives tomorrow.
b. Tomorrow, I expect to have time to work on causatives.

- (11) a. I expected to have time to work on causatives tomorrow.
b. *Tomorrow, I expected to have time to work on causatives.

Since (10a) and (11a) differ only in regard to the tense associated with the highest verb, it is necessary to appeal to this difference in tense in order to account for the fact that (10b) is acceptable and (11b) is not.

A third fact which supports the view that tense and modals are closely related to time adverbials was discussed in my thesis, where I argued that in order to account for the phenomenon of tense harmony illustrated by (12) one must assume (a) that time adverbials have temporal reference; (b) that the temporal reference of any time adverbial that occurs in a clause is consistent with the temporal reference of the auxiliary of that clause; and (c) that the identity condition associated with relativization must be sensitive to the temporal reference of time adverbials.

- (12) a. I will leave at the time when you leave.
b. *I will leave at the time when you left.

The data which are most crucial to an evaluation of the correctness of this account of the tense harmony phenomenon are (13) and (14).

- (13) I will leave at the time when you said you might leave.
(14) You said you might leave tomorrow.

In (13), when can be interpreted as modifying might leave but not said. But, as (14) shows, nonpast time adverbs can occur with might leave when might leave is in the complement of the past tense verb said, and, thus, if we assume that the constituent underlying when in (13) is somehow marked as nonpast in reference before it is moved to clause-initial position, we can account for the acceptability of (13) in a straightforward way. Thus, the phenomenon of tense

harmony clearly supports the view that time adverbials are closely connected with tense and modals.

Let us now turn to the question of the function of the time adverbials. In my view a convincing case for the claim that time adverbials are sentence modifiers, as opposed to verb modifiers, has been made by G. Lakoff and J. Geis, among others. Let me here simply present one line of argument in support of this analysis.

As we have already noted the statement of the distribution of adverbs like now and then and of adverbs like yesterday, today and tomorrow requires reference to tenses and modals and not just to main verbs. As (15) and (16) show, the presence or absence of other elements of the auxiliary is also relevant to the statement of the distribution of some time adverbials.

- (15) a. *I studied physics at noon.
b. I was studying physics at noon.

- (16) a. *I studied for four hours by noon.
b. I had studied for four hours by noon.

Moreover, as (17) and (18) show, properties of subjects and objects are also relevant to a statement of the distribution of time adverbials.

- (17) a. *The plane arrived all night.
b. The planes arrived all night.

- (18) a. *John had solved physics problems by midnight.
b. John had solved ten physics problems by midnight.

It is only reasonable to assume that all of the elements that govern the distribution of time adverbials are within their scope, and, thus, that time adverbials are sentence modifiers.

In order to account for the very close connection between the auxiliary system and time adverbials and for the fact that time adverbials are sentence modifiers, I shall assume that time prepositions are sentential operators mapping states of affairs and actions and the like into dated states of affairs and actions. Given such a representation, we might represent a sentence like (19) either as in (20) or in (21) where T represents the time preposition and L the place preposition.

- (19) John was at home at noon.
(20) PAST (T (L (John, home), noon))
(21) (Et) (T (L (John, home), t) & PAST (t) & IS (t, noon)).

According to (20), the past tense is a sentential operator; according to (21), it is a temporal predicate. The past tense could, of course, be treated as a two place predicate as in (22).

- (22) (Et) (T (L (John, home), t) & Earlier (t, now) IS (t, noon)).

This is not the place to go into the question of the relative virtues of (19), (20), and (21) in much detail. My preference is for (21) or (22), for they make an explicit connection between tenses and time adverbials while (20) does not. An analysis like (22) would, for example, allow us to account for the fact that a sentence like (23) is semantically deviant in a straightforward way.

(23) *John studied now.

According to the suggested analysis, (23) would have to be derived from the ill-formed semantic structure (24).

(24) ($\exists t$) (T (John studied, t) & Earlier (t, now) & IS (t, now)).

I would like, now, to turn to data like (4). During the 1969 Summer Meeting of the LSA, I argued that while-clauses are restrictive relative clauses whose antecedents have been deleted--obligatorily, for most people. Thus, according to this analysis, which was also presented in M. Geis (1970), (25) and (26) are derived from (27) and (28) respectively, by deleting during the time.

(25) John was miserable while he was in New York last year.

(26) While he was in his garden last night, John ate a poisonous mushroom.

(27) ?John was miserable during the time while he was in New York last year.

(28) ?During the time while he was in his garden last night, John ate a poisonous mushroom.

In what follows, I shall assume the correctness of this analysis.

J. Geis has shown that while-clauses are subject to further reduction. Deletion of he was from (25) and (28) gives rise to (29) and (30), respectively, and deletion of while from (29) and (30) gives rise to (31) and (32), respectively.

(29) John was miserable while in New York last year.

(30) While in his garden last night, John ate a poisonous mushroom.

(31) John was miserable in New York last year.

(32) In his garden last night, John ate a poisonous mushroom.

It should be clear that sentences (27) and (28) are consistent with hypothesis A. Thus, if we could show that (31) and (32) are derived from (27) and (28), respectively, then we could conclude that the place adverbials of (31) and (32) like those of sentences like (2) also serve to predicate locations of concrete objects.

The suggested analysis of (31) and (32) does have the virtue of being semantically correct, for (26), (27), (29), and (31) are semantically equivalent and (26), (28), (30), and (32) are semantically equivalent. Moreover, each step in the derivations of

(31) and (32) results from the application of a quite natural deletion rule. However, there are other reasons for adopting this analysis.

As (33) and (34) show, some occurrences of location adverbials can have then or at the time as their apparent pronominal reflexes.

- (33) John was miserable in New York and his wife was miserable then too.
 (34) In his garden, John ate a poisonous mushroom; at the time, he also ate a dead bug.

In (33), then means 'while he was in New York', in (35), at the time means 'while he was in his garden'. And, as (35) and (36) show, if the location adverbials of such sentences are accompanied by a time adverbial, both are pronominalized as a unit.

- (35) John was miserable in New York last year and his wife was miserable then too.
 (36) In his garden last night, John ate a poisonous mushroom; at the time, he also ate a dead bug.

The hypothesis that the locative adverbials of (33) and (34) are residues of while-clauses can account for the fact that they are pronominalized as if they were time adverbials. And, if we say that in New York last year in (35) and in his garden last night in (36) are residues of while-clauses; we can account for the fact that they too have then or at the time as their pronominal reflex, and for the fact that these phrases function as a constituent. The fact that in his garden last night is a constituent in (36) is further confirmed by the fact that this phrase preposes as a unit. In New York last year can also be preposed in (35), as (37) shows.

- (37) In New York last year, John was miserable.

The hypothesis that place adverbials are derived from semantic substructures that predicate locations of concrete objects amounts to saying, of course, that there is a semantic relationship between the subjects of the sentences we are considering and the location adverbials that occur in them. Data (38) and (39) provide direct evidence of the existence of this relationship.

- (38) a. John annoyed me.
 b. John annoyed me in the park.
 (39) a. That John left annoyed me.
 b. *That John left annoyed me in the park.

As (38a) and (39a) show, annoy can take concrete noun phrases or that-clauses in subject position. The while-clause analysis of the locatives of these data can account for these data as a comparison of (38b) with (40) and (39b) with (41) will reveal.

- (40) John annoyed me while he was in the park.
 (41) *That John left annoyed me while it was in the park.

The unacceptability of (41) is clearly due to the fact that that John left cannot be the subject of in the park. Thus, if we adopt a while-clause analysis of the locatives of (38b) and (39b), we can account for the unacceptability of (43b).

This analysis is further confirmed by data like (42) and (43).

- (42) a. John was in love with Mary in London.
 b. ?John loved Mary in London.
 (43) a. John was in love with Mary while in London.
 b. ?John loved Mary while in London.

As (42b) shows, love cannot happily occur with the locative in London, but as (43b) shows, neither can it occur with while-clauses. Thus, if we were to adopt the while-clause analysis of the locatives of (42), we could account for the deviance of (42b) and (43b) in the same way and thereby avoid the disjunctive statement that love cannot occur either with locatives or while-clauses. Now compare (43a) with (44). Sentences (43a) and (44) differ only in tense. But why should a difference in tense be relevant to the distribution of place adverbials? This mystery could be accounted for if we were to say that the locative of (44) is a while-clause locative, for (45) is also unacceptable

- (44) *John is in love with Mary in London.
 (45) *John is in love with Mary while he is in London.

Given this analysis, the place adverbial of (44) is a constituent of a time adverbial, and, thus tense could reasonably be expected to have a bearing on the distribution of such a locative.

I have shown, I think, that the locatives that occur in sentences that describe states of affairs, as in (31), and those that occur in some action sentences, as in (32), should be analyzed as residues of while-clauses. Thus these occurrences of place adverbials are consistent with hypothesis A, for these while-clauses consist of dated spatial predications. Let us now turn to consider occurrences of location adverbials in sentences for which the while-clause analysis is incorrect.

Although sentence (47) entails (46), these sentences do not have the same meaning.

- (46) John will wake up while he is in his own bed this morning.
 (47) John will wake up in his own bed this morning.

As a result, it would appear that the while-clause analysis of place adverbials should not be extended to a sentence like (47). There are other reasons to reject such an analysis.

We noted in connection with (33) and (34) that locatives that receive the while-clause analysis can have then or at the time as their apparent pronominal reflex. As (48) shows, the locative of this sentence cannot.

(48) *John will wake up in his own bed, even though he doesn't intend to take up then.

Moreover, we noted that the place and time adverbials of sentences like (35) and (36) function as a unit with respect to pronominalization and Adverb Preposing. As (49) shows, in his own bed this morning does not have then as its pronominal reflex.

(49) *John will wake up in his own bed this morning even though he doesn't intend to take up then.

That in his own bed this morning is not a constituent in (47) is further confirmed by the fact that if preposed together, the resultant sentence is somewhat strange, as (50) shows.

(50) *In his own bed this morning, John will wake up.

Thus, if we were to adopt the while-clause analysis of in a strange bed this morning we would falsely predict that (49) and (50) are acceptable.

In spite of the fact that a while-clause analysis of the locative of (47) would be incorrect, there is nevertheless good reason to believe that hypothesis A holds for such sentences, that is that the place adverbial of (47) does serve to predicate a location of John. Observe that (47) entails (50), a proposition that does predicate a location of John.

(51) John will be in his own bed.

If we were to say that the place adverbial of (47) modifies the main verb, as Sweet and Fillmore would have it, or that it modifies John will wake up, as Lyons, G. Lakoff, and J. Geis would have it, it would be necessary to postulate some novel rule of inference or some otherwise unmotivated nonlogical axiom in order to account for this entailment. Moreover, either analysis would require a disjunctive statement of the environments in which place adverbials occur, one statement covering the place adverbials of sentences like (51) and of while-clause locatives, and another for the place adverbials of sentences like (47).

Not only does (47) entail (51), it also entails (52).

(52) At the time that John wakes up this morning he will be in his own bed.

And, in (52), as in the case of sentences containing while-clause locatives, we have two dated propositions--(53a) and (53b)--one of which--(53b) predicates a location of a concrete object.

- (53) a. John will wake up at some time this morning.
 b. John will be in his own bed at that time.

Thus, if we were to say that (47) is derived from the structure underlying (52), we could account for the fact that (47) entails both (51) and (52), and do so in a way that is consistent with hypothesis A.

The proposed analysis can account for data (48)-(50). Since the phrases in his own bed and in his own bed this morning are not constituents of a time adverbial in (52) we would not expect them to have then as a possible pronominal reflex in (48) and (49). And, since the phrase in his own bed this morning is not a constituent in (52), we would not expect it to prepose as a constituent in (50). Thus, if we were to adopt the while-clause analysis for data like (31) and (32) and adopt the analysis just proposed for data like (47), we could account for the differential behavior of the time and place adverbials of these two classes of sentences with respect to the phenomena of Pronominalization and Adverb Preposing.

There is evidence from pronominalization which does support the proposed analysis of (47), as (54) shows.

- (54) John woke up in a strange bed; at the time he didn't know where he was.

In (54), at the time means 'at the time John woke up'. But John woke up is scarcely a time adverbial and, thus, should not have a time adverbial as a pronominal reflex. The proposed analysis can account for this apparent anomaly, for note that John woke up is a constituent of a time adverbial in (55).

- (55) At the time that John woke up, he was in a strange bed.

According to the proposed analysis of (47), John functions as the subject of both woke up and in his own bed. In this light, consider (56).

- (56) John will wake up in a match box.

For (56) to be true, John would have to be very small or the match box would have to be very large. I don't see how we can account for the strangeness of (46) unless we say that the function of in a match box in this sentence is to predicate a location of John. The proposed analysis does, of course, make just this claim.

I have argued that the locatives that occur in sentences that describe states of affairs and actions and the like serve the function of predicating locations of concrete objects. In a nutshell, what this amounts to saying is that states of affairs and actions and the like can be located in space only because their participants can be located in space. In the case of data like (4),

the suggested analysis is not only well motivated, but also poses no particular syntactic mystery, for the deletion rules required are motivated for other constructions, including, for example the derivations of adverbial subordinate clauses and prenominal adjective modifiers. On the other hand, the idea that (47) might have (52) as an intermediate stage in its derivation seems syntactically implausible, and I am presently unable to suggest a well-motivated alternative. Unfortunately, it is an increasingly common characteristic of research on syntax and semantics that the more we seem to learn about semantic structure the less we seem to know about syntax.

Note

*Paper read at the 1973 LSA annual meeting, San Diego, Calif.

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Two Theories of Action Sentences*

Michael L. Geis

The philosopher Anthony Kenny (1963: 151-70) has noted that two important semantic problems are presented by the fact that sentences can contain a variable number of adverbial modifiers. Sentences (1)-(3) illustrate this variability for sentences containing the action verb stumbled.

- (1) John stumbled.
- (2) John stumbled in the park.
- (3) John stumbled in the park at noon.

The first problem Kenny notes applies only if we treat the adverbials that occur in sentences like (2) and (3) as arguments of the main verb, as is the case, for example, in Case Grammar (Fillmore 1968). This problem is that we shall have to represent stumbled as a one-place predicate in (1), as a two-place predicate in (2), and as a three-place predicate in (3). But, as Kenny notes, this is tantamount to claiming that stumbled is a different relation in each of the above sentences.

The second problem posed by data like (1)-(3) derives from the fact that (3) entails (1) and (2) and (2) entails (1). As Kenny notes, if we treat the adverbials that occur in (2) and (3) as arguments of the main verbs we shall be unable to account for these entailments unless we appeal to some novel semantic device or devices (say axioms or rules of inference) that have the effect of stripping stumbled of its adverbial arguments.

There exists an alternative theory of the adverbials that occur in sentences like (2) and (3) that solves the first of Kenny's problems, but not the second. This theory is usually referred to as the "higher sentences" theory of adverbials. According to George Lakoff (1970) a sentence like (3) is derived from an underlying structure something like (4).

- (4) (_SAt (_SIn (_SStumbled John_S), the park_S), noon_S)

The "higher" sentences analysis of time and place adverbials clearly solves the first problem Kenny raises, for stumbled can uniformly be treated as a one-place predicate. On the other hand, this type of analysis cannot account for the entailment relations that we observed to obtain among the sentences (1)-(3) without appealing to some novel semantic device or devices that strip the

semantic representations underlying sentences like (2) and (3) of their higher sentences.

I would like to turn now to consider two alternative analyses of sentences containing time and place adverbials which are designed in part to solve both of Kenny's problems. The first is an analysis of action sentences advanced by Donald Davidson (1967, 1969) and recently defended by Gilbert Harman (1972). The second is a more general analysis of sentences containing time and place adverbials first advanced by me at the 1973 winter meeting of the LSA (M. Geis 1974a).

Davidson takes the position that action sentences refer to actions (which he takes to be a species of events) in something like the sense that ordinary concrete noun phrases refer to material objects. He further argues that time and place adverbs are not verb modifiers but are, instead, predicates of the actions that action verbs describe. As Davidson notes, action sentences do not contain a term in surface structure that makes reference to the actions described or which time and place adverbs could be construed as predicates of. His proposal is that we provide such a term in the logical forms of action sentences which, within the framework of a transformational grammar, could be said to be obligatorily deleted.¹

Returning to the examples with which we began, Davidson would provide (5) as the logical form for (3).

(5) $(\exists x) ((\text{Stumbled}(\text{John}, x) \ \& \ \text{In}(x, \text{park})) \ \& \ \text{At}(x, \text{noon}))$

It should be clear that Davidson's analysis solves both of the problems that Kenny has raised insofar as they concern time and place adverbials. The verb stumbled will be treated uniformly as a two-place predicate in the representations of (1)-(3), and the fact that (3) entails both (1) and (2) can be accounted for without appeal to novel semantic devices. As a result, Davidson's analysis has a clear semantic edge over both the verb-modifier and "higher sentence" analyses of time and place adverbials. The question must be asked, however, whether Davidson's analysis of action sentences can be motivated on syntactic grounds. Davidson has given one clear case of a syntactic argument for his analysis and Harman, who contends that Davidson's analysis is compatible with what is known of English syntax, has provided a sample transformational derivation. In what follows, I show that Davidson's syntactic argument is faulty, and that Harman's proposal concerning the derivation of action sentences is totally untenable. I shall then show that Davidson's analysis is semantically defective. Finally, I shall provide a sketch of an alternative analysis which, although not without problems of its own, seems to me to be more promising than the analysis proposed by Davidson.

As far as I can determine, Davidson (1967: 84) provides only one direct syntactic argument for his analysis of action sentences. This argument is based on an alleged parallel between data like (6) and (7).

- (6) I bought a house--it is downtown and it has four bedrooms.
- (7) John stumbled--he did it in the park and he did it at noon.

It is clear, I think, that the it that occurs in (6) not only refers back to the phrase a house but is also referential. Davidson holds the view that the two occurrences of it in (7) function similarly. According to this view, these two occurrences of it are referential, referring to what John did. If Davidson is right, we might take the two occurrences of it in (7) as providing direct evidence of the presence in underlying structure of the extra term Davidson would assign to the action verb stumbled. The difficulty with Davidson's argument is that there is every reason to believe that the two occurrences of it in (7) are neither anaphoric nor referential.

It is characteristic of genuine anaphoric pronouns that they are plural when their antecedents are plural or conjoined, as is true in the underlined occurrences of they in (8).

- (8) I bought a house and Mary bought a house--they are both downtown and they both have four bedrooms.

As the deviance of (9) shows, conjoined action sentences are not pronominalized by plural pronouns.

- (9) *John stumbled and Bill stumbled--they did them in the park and they did them at noon.

I am inclined to believe that the unacceptability of (9) is evidence that we are not dealing with an anaphoric pronoun in the case of the two occurrences of it of (7).

In Ross' (1972) analysis of action sentences, he formalized the rule that gives rise to the two occurrences of it that we find in (7) as a clause pronominalization rule, even though he refers to this rule as S Deletion. There are, it seems to me, two reasons to believe that this rule is in fact a clause deletion rule. The first reason is that if it were a pronominalization rule, it should be the case that (9), like (8), is well-formed, but it is not. The second reason is that if we treat this rule as a clause deletion rule and accept Ross' analysis of action sentences, then we can account for the occurrences of it in (7) and (10) with the same rule.

- (10) I hate it that Joe married Sue and Bill hates it too.

According to this hypothesis, (10) is derived from (11) and (7) from (12) by applications of the suggested rule of clause deletion.

- (11) I hate it that Joe married Sue and Bill hates it that Joe married Sue too.

- (12) John did (_{NP}it (_SJohn stumbled_S)_{NP})--he did
 (_{NP}it (_She stumbled_S)_{NP}) in the park and he
 did (_{NP}it (_She stumbled_S)_{NP}) at noon.

If this minor revision of Ross' analysis is correct then we have a second reason not to interpret the two occurrences of it in (7) as genuine anaphoric pronouns.

A third point that should be made, I think, is that even if the two occurrences of it in (7) are anaphoric pronouns, they are surely abstract ones, and, thus, would be like those that occur in (13) and (14).

- (13) My idea was rejected before it was even discussed.
 (14) The fact that Joe died was brought to my attention
 before it was mentioned to Bill.

The occurrences of it in (13) and (14) are clearly anaphoric. However, we surely do not want to say that they are referential. It is difficult to see how one could justify assuming that the two occurrences of the abstract pronoun it in (7) are referential.

As I noted earlier, Harman has suggested that Davidson's theory of action sentences is consistent with what is known of English syntax. In support of this contention, he suggests a possible derivation of the action sentence (15).

- (15) John walked in the street.

According to Harman, who, unlike Davidson, provides an analysis of tense, (15) is derived from (16) by a rule of "pre-cyclic relative clause formation" that maps (16) into (17).

- (16) (∃e) (past e & walk j e & in e s)
 (17) (∃e) (past e (walk j e (in e s))),

by a rule of "pre-cyclic deletion of existentially quantified variable" that maps (17) into (18).

- (18) past (walk_j (in s)),

by a rule of "cyclic subject raising" that maps (18) into (19),

- (19) j (past (walk (in s))),

and finally, by a rule of "tense incorporation" that maps (19) into (15). There are, so it seems to me, at least three flaws to Harman's proposed syntactic analysis. In the first place, note that the occurrence of e in the second conjunct of (16) plays the dual role of relative pronoun and head of a relative clause. That is, this occurrence of e is the relative pronoun of the clause modifying the occurrence of e in the first conjunct of (16) and is the head of the relative clause consisting of the third conjunct of (16). But a single

constituent simply cannot play this dual role. Suppose that we have an underlying structure something like that of (20).

- (20) John saw the boy and I saw the boy and the boy is happy.

Given this underlying structure, Harman's rule of "pre-cyclic relative clause formation" will allow us to derive (21).

- (21) *John saw the boy (who (who is happy) I saw).

In (21) the underlined occurrence of who is playing the dual role of relative pronoun and head of a relative clause. As the deviance of this sentence suggests, a constituent simply cannot play this dual role.

The second flaw to Harman's proposed derivation is that, as far as I can see, it will give the wrong surface structure to any sentence containing both a place and a time adverbial. Presumably, sentence (22) will be derived from an underlying structure something like (23).

- (22) John walked in the street at noon.
 (23) (∃e) (past e & walk j e & In e s & At e n)

If I understand Harman, the result of applying "pre-cyclic relative clause formation" and "pre-cyclic deletion of existentially quantified variable" to (23) would yield (24), but (24) is clearly not the correct surface structure for (22) for it falsely claims that at noon is subordinate to in the street in (22).

- (24) past (walk j (in s (at n)))

The third flaw to this analysis is that to the degree that Harman's "pre-cyclic relative clause formation" works at all it crucially depends on the conjuncts of a structure like (16) being in the order Harman gives or else it will generate word salad. This will require some very complicated deep structure constraints guaranteeing that the input to "pre-cyclic relative clause formation" be such that it will generate a possible surface structure order.

I would like to turn now to consider some semantic difficulties with Davidson's analysis. As we noted earlier, Davidson's analysis can account for the fact that (3) entails both (1) and (2). However, there are two important entailments of (3) that his analysis cannot account for. Note, for instance, that (3) entails both (25) and (26).

- (25) John was in the park.
 (26) John was in the park at noon.

The difficulty with Davidson's analysis is that the logical form of (3) imputes no relationship between the subject of stumbled and the place adverbial. As a result, if we adopt Davidson's analysis some novel semantic device must be postulated in order to account for the fact that (3) entails (25) and (26), or we must alter Davidson's

analysis of (3) along the lines suggested by (27).

- (27) $(\exists x)$ (Stumbled (John, x) & In (John, park) &
At (x, noon))

However, logical form (27) does not entail either (2) or (26). Thus, within the sort of framework Davidson presents, we appear to be unable to account for all of the entailments of sentence (3).

Davidson's analysis not only fails to account for some entailments of the action sentence (3), it provides for some rather dubious ones. Observe, for instance, that logical form (5) entails both (28) and (29).

- (28) $(\exists e)$ (In (e, park))
(29) $(\exists e)$ (At (e, noon))

It is not at all clear to me that (28) and (29) are semantically well formed. In any event, they certainly do not underlie any English sentences.

One of the more serious flaws with Davidson's analysis of action sentences is that it does not extend in any natural way to sentences that describe states of affairs. Yet, as Romane Clark (1970) has observed, such sentences exhibit the same two problems that Kenny found in connection with action sentences. As (30)-(32) show, the predicate miserable is superficially variable in its polyadicity.

- (30) John was miserable.
(31) John was miserable in New York.
(32) John was miserable in New York last year.

Moreover, (30)-(32) exhibit the same sort of entailment relations shown to obtain in connection with (1)-(3). Sentence (32) entails both (30) and (31) and (31) entails (30). And, just as (3) entails (25) and (26), (32) entails both (33) and (34).

- (33) John was in New York.
(34) John was in New York last year.

It should be clear that we could provide an analysis of sentences describing states of affairs analogous to that provided by Davidson for action sentences if we were willing to quantify over states of affairs. Such a move would give rise to an analysis something like (35) for sentence (32).

- (35) $(\exists s)$ (Mis (j, s) & In (s, N.Y.) & During (s,
last year))

This analysis would allow us to treat miserable as stable in its polyadicity and allow us to account for the fact that (32) entails (30) and (31) and that (31) entails (30). However, as with Davidson's analysis of action sentences, there are entailments of (32) that this analysis cannot capture (e.g. (33) and (34)) and some entailments

that are somewhat dubious (e.g. (36) and (37)).

- (36) (Es) (In (s, N.Y.))
 (37) (Es) (During (s, last year))

The fact that sentences describing states of affairs present essentially the same problems as action sentences insofar as adverbial modification is concerned suggests that a more general solution than has been offered by Davidson is in order. In what follows, I would like to present a sketch of an alternative analysis of the function of place and time adverbials in action sentences and in sentences that describe states of affairs that can account for a wider class of entailments than does Davidson's analysis and which does not run afoul of the problem of variable polyadicity.

In my Winter 1973 LSA paper (cf. M. Geis 1974a) I argued that

- (38) The function of place adverbials is to locate one or more of the participants of actions and states of affairs and the like in space.

According to this view, the place adverbials of sentences like (2), (3), (31), and (32) originate in semantic structure in propositions like those that underlie sentences like (25) and (33). I presented the arguments for this position in M. Geis (1974b) and will assume its correctness here. I also argued in the LSA paper cited that

- (39) The function of time adverbials and of some elements of the auxiliary is to locate actions and states of affairs and the like in time.

Jonnie Geis (1970) has provided an analysis of data like (31) and (32) which seems to me to be more promising than one based on quantification over states of affairs, and which is consistent with hypotheses (38) and (39). She has argued that (31) and (32) are derived from (40) and (41), respectively, by rules that delete he was and while.

- (40) John was miserable while he was in New York.
 (41) John was miserable while he was in New York last year.

And, in M. Geis (1970) it is argued that while-clauses are relative clauses whose antecedent has been deleted. According to this view, (40) and (41) are derived from something like (42) and (43), respectively, by a rule that deletes during the time (obligatorily for some speakers and optionally for others).

- (42) ?John was miserable during the time while he was in New York.
 (43) ?John was miserable during the time while he was in New York last year.

In the works cited, syntactic and semantic arguments are given for the suggested analyses of (31) and (32). Here I would like to point out that the proposed analyses of (31) and (32) are consistent with the entailment relations we observed in connection with these sentences. Sentences (41) and (43), like (32), entail (30), (31), (33), and (34). And, sentences (40) and (42), like (31), entail (30) and (33). Thus, the suggested analysis can account for a wider class of entailments than the analysis based on quantification over states of affairs. Moreover, the analysis is syntactically well motivated.

J. Geis' analysis of data like (31) and (32) can be extended to some action sentences. Observe, for instance, that (44) and (45) are paraphrased by and have the same entailments as (46) and (47), respectively.

- (44) John worked on time adverbials in his hotel room.
- (45) John worked on time adverbials in his hotel last night.
- (46) John worked on time adverbials (?during the time) while he was in his hotel room.
- (47) John worked on time adverbials (?during the time) while he was in his hotel room last night.

On the other hand, this analysis clearly cannot be extended to all action sentences. Sentence (48), for instance, is not only not a paraphrase of (3), it is in fact semantically deviant.

- (48) *John stumbled while he was in the park at noon.

Before suggesting an analysis of (3), let us note that J. Geis' analysis of the while-clause locatives of data like (31), (32), (44), and (45) is consistent with hypotheses (38) and (39), for the postulated remote structures consist of two clauses, one describing a dated action or state of affairs and the other describing a dated spatial predication, itself a dated state of affairs. Moreover, the postulated remote structures of (31), (32), (44), and (45) seem to have the same entailments that these sentences do. What we require is a theory of the logical forms of these sentences and of their remote structures which can account for these entailments without appeal to novel semantic devices (if possible). Moreover, we need an analysis of data like (3).

In what follows, I would like to present a more precise statement of hypothesis (39), show that data like (3) are consistent with it, and then suggest logical forms for sentences containing while-clause locatives. It will not be possible in the time remaining to provide a serious defense of the proposed theory. However, I hope it will have the virtue of being sufficiently precise to be testable.

I would like to suggest that the canonical form for any action sentence or sentence describing a state of affairs is as in (49),

where Q is a quantifier, capital T is a temporal sentential operator, one of whose lexical realizations is at, S is a "bare bones" description of a state of affairs or action, lower case t is a variable ranging over points in time, and T_n is one of the relations earlier than, later than, or equals.

(49) $(\exists t) (T (S, t) \& T_n (t, \text{now}))$

According to this view, a sentence like (1) will be represented as in (50).

(50) $(\exists t) (T (\text{Stumble } (j), t) \& \text{Earlier } (t, \text{now}))$

Logical form (50) also underlies sentence (51).

(51) John stumbled at some time.

That (1) and (51) should have the same logical form is supported by the fact that they are logically equivalent. Datum (52) also supports this view.

(52) John stumbled and the reason is that no one was holding him up at the time.

The adverbial at the time in (52) is clearly anaphoric, referring back to the time at which John stumbled. The proposal that (1) has the same underlying structure as (51) provides an anaphor in semantic structure for this anaphoric time adverbial.

Before giving analyses of (2) and (3), let me suggest that a sentence like (25) should be represented as in (53), where AT is a primitive locative relation, whose lexical realization is at, p is a variable ranging over points in space, \in , which is realized as in, is the relation "is a member of", and PARK is a name standing for a set of places.

(53) $(\exists t) (\exists p) (T (AT (j, p), t) \& \text{Earlier } (t, \text{now}) \& (p \in \text{PARK}))$

One of the virtues of such an analysis is that it enables us to account for the fact that (25) entails (54).

(54) John was at some place.

I would like now to suggest that (2) has logical form (55).

(55) $(\exists t) (\exists p) (T (\text{Stumble } (j), t) \& \text{Earlier } (t, \text{now}) \& T (AT (j, p), t) \& p \in \text{PARK})$

Observe, that given this representation for (2) we can account for the fact that (2) entails (1) and (25), the latter entailment being

impossible on Davidson's analysis. Moreover, we can account for the fact that (2) entails (56), something Davidson's analysis cannot do.

(56) At the time when John stumbled, he was in the park.

Turning to (3), I would suggest a logical form something like (57).

(57) $(\exists t) (\exists p) (T (\text{Stumble } (j), t) \ \& \ \text{Earlier } (t, \text{now}) \ \& \ (t = \text{noon}) \ \& \ T (\text{AT } (j, p), t) \ \& \ (p \in \text{PARK}))$

Given this representation for (3), we can account for the fact that (3) entails (1), (2), (25) and (26). As we noted earlier, Davidson's analysis cannot account for the latter two entailments of (3). Moreover, the suggested analysis can also account for the fact that (3) entails (58), something Davidson's analysis cannot do.

(58) John stumbled at noon and he was in the park then.

The proposed analysis of (2) and (3) would appear to be well motivated semantically. Data (59) and (60) provide a quasi-syntactic argument for these analyses.

(59) John stumbled in the park; at the time he was walking with his eyes closed.

(60) John stumbled in the park at noon; at the time he was walking with his eyes closed.

The adverbial at the time in (59) and (60) can be interpreted as meaning "at the time John stumbled". The proposed logical forms for (2) and (3) can account for how we interpret at the time in these sentences, for (55) and (57) provide anaphors for this anaphoric time adverbial. Although this quasi-syntactic argument supports the proposed logical forms for (2) and (3), I must confess that I have no very clear idea how to map (55) and (57) into (2) and (3).

Let us now turn to data like (31), (32), (44), and (45), i.e. to sentences containing while-clause locatives. In order to provide logical forms for these sentences we must, if their proposed remote structures are correct, provide analyses of adverbials like during the time and while. In M. Geis (1970), I argued that while is derived from a time adverbial something like throughout some time. Thus, if we are to account for while-clause locatives we must provide an analysis for the adverbials of sentences like (61) and (62).

(61) John was miserable during the winter quarter.

(62) John was in New York throughout the winter quarter.

What follows is a speculative treatment of the adverbials of (61) and (62), and of sentences containing while-clause locatives.

Adverbials like during the winter quarter are typically ambiguous. On one reading, during the winter quarter has a meaning something like

"during some part of the winter quarter" and on the other it has a meaning something like "all during the winter quarter". Let us call this latter interpretation the "durative" interpretation, and the former the "nondurative" interpretation.

It is worth pointing out, I think, that (31) and (32) are ambiguous in the same way that (61) is. This is one of the motivations for postulating (42) and (43) as the remote structures for (31) and (32), respectively. I would suggest (63a) and (63b) as analyses of the two interpretations of (61), where WQ is a name standing for the set of times that make up the winter quarter in question.

- (63) a. $(\exists t) [T(\text{Miserable}(j), t) \& \text{Earlier}(t, \text{now}) \& (t \in \text{WQ})]$
 b. $(\forall t) \{ (t \in \text{WQ}) \supset [T(\text{Miserable}(j), t) \& \text{Earlier}(t, \text{now})] \}$

The representation of the adverbial throughout the winter quarter clearly contains a universal quantifier. I suggest (64) as an analysis of the logical form for (62), where NYC is a name that stands for the set of places comprising New York City.

- (64) $(\exists p) \{ (p \in \text{NYC}) \& (\forall t) [(t \in \text{WQ}) \supset (\text{Earlier}(t, \text{now}) \& T(\text{At}(j, p), t))] \}$

As I noted earlier, these representations are quite speculative. However, in their defense I would point out that the two representations given in (63) allow us to account for the fact that (61) entails (65) on both of its readings, and representation (64) enables us to account for the fact that (62) entails (66).

- (65) There was a time at which John was miserable.
 (66) There was a time at which John was in New York.

With this background, let us return to sentences containing while-clause locatives. Sentences (32) and (41) were said to be derived from a remote structure something like (43). I would like to suggest that (43), and thus (32) and (41), has a logical form something like (67) on the durative interpretation of these sentences.

- (67) $(\exists r) \{ \text{Period}(r) \& (\forall t_i) [(t_i \in r) \supset (\text{Earlier}(t_i, \text{now}) \& T(\text{Miserable}(j), t_i))] \& (\exists p) [(p \in \text{NYC}) \& (r \subset \text{LY}) \& (\forall t_j) ((t_j \in r) \supset (\text{Earlier}(t_j, \text{now}) \& T(\text{AT}(j, p), t_j)))] \}$

In (67), r is a set of times and LY is a name standing for the set of times comprising the last year in question. The logical form for the nondurative interpretation of (32), (41), and (43), differs from (67) in that $\forall t_i$ is replaced by $\exists t_i$ and the first conditional operator is replaced by a conjunction operator.

The assignment of logical form (67) and its nondurative variant to (32), (41), and (43) enables us to account for the fact that these sentences entail (30), (31), (33), and (34). We arrive at (31), for example, by dropping the conjunct $r \subset LY$ from (61). We arrive at (30) by dropping the last two lines of (67). We arrive at (34) by dropping the second and third lines of (67), and we arrive at (42) by dropping the second and third lines of (67) and the conjunct $r \subset LY$.

Although the analyses of the action sentences (2) and (3) and of the state of affairs sentence (32) are speculative, the approach suggested here, which is based on quantification over times, as opposed to quantification over events, seems to me to be superior to Davidson's on several grounds. It accounts for adverbial modification in both action sentences and sentences describing states of affairs. It accounts for a wider class of entailments of sentences containing time and place adverbials than does Davidson's, and it does not involve postulating unmotivated entities such as Davidson's term referring to events in the logical forms of sentences.

Footnotes

*This paper is in essentially the same form as that read at the summer meeting of the LSA, July 1974, and represents a partial draft of a longer study of time and place adverbials which is in progress. I am indebted to Bill Lycan for his comments on a previous draft of this paper.

1. Two representative passages from Davidson:

Concerning the analysis of action verbs Davidson (1967: 92)

writes:

The basic idea is that verbs of action--verbs that say "what someone did"--should be construed as containing a place, for singular terms or variables, that they do not appear to. For example, we would normally suppose that "Shem kicked Shaun" consisted in two names and a two-place predicate. I suggest, though, that we think of "kicked" as a three-place predicate, and that the sentence be given in this form:

(17) (Ex) (Kicked (Shem, Shaun, x))

If we try for an English sentence that directly reflects this form, we run into difficulties. "There is an event x such that x is a kicking of Shaun by Shem" is about the best I can do....

Concerning the analysis of adverbs, Davidson (1969: 219f.)

writes:

Adverbial modification is...logically on a par with adjectival modification: what adverbial clauses (sic) modify is not verbs, but the events that certain verbs introduce. "Sebastian

strolled through the streets of Bologna at 2 a.m." then has this form: "There is an event x such that Sebastian strolled x, x took place in the streets of Bologna, and x was going on at 2 a.m."

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What Do Place Adverbials Modify?

Michael L. Geis

Several different theories of the function of the place adverbials of sentences like (1)-(3) can be found in the recent literature.

- (1) John was miserable in New York.
- (2) John bought a Fiat in Chicago.¹
- (3) John woke up in a saloon.

According to one theory (Fillmore 1968), the place adverbials of (1)-(3) modify the main verbs. According to a second theory (Chomsky 1965, 102f.), these place adverbials are verb phrase modifiers. According to a third (Lyons 1968, 345 and Lakoff 1970), they are sentence modifiers.

In semantic terms, these three analyses amount to the claim that the function of the place adverbials of sentences like (1)-(3)--henceforth Verb Phrase Place Adverbials (VPPA)--is to locate states of affairs and actions in space. Fillmore writes, for example, that the locative case is "the case which identifies the location or spatial orientation of the state or action identified by the verb" (1968, 35). Thus, according to Fillmore, in Chicago serves to identify the location of an act of buying in (2). On the other hand, advocates of the verb phrase modifier theory of VPPA would, I presume, say that in Chicago locates the buying of a Fiat in space, and advocates of the sentence modifier theory would presumably say that the VPPA in Chicago indicates the location of John's buying a Fiat.²

The idea that VPPA serve to locate states of affairs and actions is not, I think, a very plausible one. Imagine how we might go about indicating to someone the location of John's buying a Fiat. We could point at John or at the Fiat as John makes his purchase, or we could point at the cash or check he hands over, but we could not (except in the very loosest sense of the term) point at the act of buying per se. In short, we can point at the participants of some state of affairs or action, but not at the state of affairs or action simpliciter. And, or so it seems to me, what we cannot point at we cannot locate in space.

There is an alternative to the view that VPPA locate states of affairs and actions in space, namely that they serve to locate the participants of states of affairs and actions. In this light observe that (1)-(3) entail (4)-(6) respectively.

- (4) John was in New York.
- (5) John was in Chicago.
- (6) John was in a saloon.

And, in general, any sentence containing a VPPA will entail a proposition predicating a location of one or more of the participants of the state of affairs or action described by that sentence.³

The fact that (1)-(3) entail sentences predicating locations of the subjects of these sentences cannot be accounted for on the verb, verb phrase, and sentence modifier theories of VPPA, for according to none of these theories is there a postulated relationship between the place adverbials of (1)-(3) and the subjects of these sentences. A second difficulty with the view that VPPA serve to locate states of affairs and actions in space is that sentences that do predicate locations of states of affairs and actions are semantically deviant, as is shown by (7)-(9).⁴

- (7) *John's being miserable was in New York.
- (8) *John's buying a new car was in Chicago.
- (9) *John's waking up was in a saloon.

It is difficult to see why (7)-(9) should be deviant if the function of VPPA actually were to locate states of affairs and actions in space.

A third difficulty with the verb, verb phrase, and sentence modifier theories of VPPA is that none can be extended to account for the existence of data like (4)-(6). The place adverbials of these sentences are clearly not sentence modifiers, nor is it reasonable to say that they modify the semantically empty verb be, as the verb and verb phrase modifier theories would have it.

The fact that (1)-(3) entail (4)-(6) suggests that there is a semantic relationship between the place adverbials of (1)-(3) and their subjects. There is further evidence of this. As (10) and (11) suggest, the verb annoy can occur either with a concrete noun phrase or an action nominalization in subject position.

- (10) John annoyed Sue.
- (11) John's leaving town annoyed Sue.

However, only in the former case can a place adverbial occur.

- (12) John annoyed Sue in the park.
- (13) *John's leaving town annoyed Sue in the park.

Given the verb, verb phrase, and sentence modifier theories of VPPA, it is difficult to see why (13) should be unacceptable. The verb phrases are the same in both (12) and (13) and there is nothing inherent in the sentence modifier theory to the effect that variations in the subjects of the sentences containing VPPA should have any bearing on the possible presence or absence of a place adverbial. On the other hand, if we were to say that there is a

semantic relationship between the place adverbials of sentences like (12) and (13) and their subjects, pairs like (12) and (13) would present no mystery, for note that (14), like (12) is acceptable, while (15), like (13), is not.

- (14) John was in the park.
 (15) *John's leaving town was in the park.

The fact that there is a relationship between VPPA and the subjects of the sentences they occur in is further brought out by data like (16).

- (16) John woke up in a match box.

For (16) to be true, John would have to be very small or the match box would have to be unusually large. The same holds, of course, for (17), an entailment of (16).

- (17) John was in a match box.

It is difficult to see how the relative size of John and the match box should have any bearing on how we interpret (16) if there were no semantic relationship between the place adverbial and the subject of this sentence.

As we have seen, the verb, verb phrase, and sentence modifier theories of VPPA: (a) cannot provide a univocal analysis to sentences (1)-(3) and (4)-(6), (b) cannot account for the fact that (1)-(3) entail (4)-(6), (c) falsely predict that data like (7)-(9) should be acceptable, and (d) cannot account for the semantic relationships, noted in our discussion of (10)-(15) and (16)-(17), which obtain between VPPA and the subjects of the sentences they occur in. As a result, we must, I think, abandon the verb, verb phrase, and sentence modifier theories of these place adverbials.

In the case of data like (1) and (2), J. Geis (1970, 91-104) has given an analysis according to which the place adverbials originate in semantic structures like those that underlie (4)-(6). According to her analysis, (1) and (2) are derived from the structures that underlie (18) and (19).

- (18) John was miserable while he was in New York.
 (19) John bought a Fiat while he was in Chicago.

This analysis is thus consistent with the facts we noted above that establish a relationship between the VPPA of (1) and (2) and the subjects of these sentences. However, this analysis should not, I think, be extended to data like (3), for (3) is more naturally paraphrased by (20) than by (21).

- (20) When John woke up, he was in a saloon.
 (21) John woke up while he was in a saloon.

An even clearer example is (22).

(22) John woke up in a saloon at noon.

Sentence (22) is manifestly not derived from the structure underlying (23).

(23) *John woke up while he was in a saloon at noon.

Sentences like (3) and (22) present considerable analytic difficulties. I cannot myself believe that (20) represents an intermediate stage in the derivation of (3), for there is no natural way to simplify (20) to yield the correct surface structure for (3). Moreover, a paraphrase like (20) does not exist for (22), as is shown by (24).

(24) *When John woke up at noon, he was in a saloon.

In my view, propositions (25) and (26), if one ignores tense, represent reasonable analyses of the meanings of (3) and (22) respectively.

(25) (Et) (At (Woke up (John), t) & At (In (John, saloon), t))

(26) (Et) (At (Woke up (John, t) & At (In (John, saloon), t) & IS (t, noon))

However, it is by no means clear how to get from (25) and (26) to (3) and (22); the major difficulty is that there are no paraphrases of sentences (3) and (22) which shed light on what these derivations might be like. Although this difficulty clearly presents a problem to the Generative Semanticist, the nature of the mapping between (25) and (3) and (26) and (22) is just as obscure within an Interpretative Semantics approach.

Footnotes

1. Sentence (2) is ambiguous. On one interpretation, in Chicago is a reduced relative modifier of a Fiat; on the other, in Chicago is paraphrasable as 'while in Chicago'. The discussion that follows concerns the latter interpretation.

2. I don't mean to suggest that the advocates of the verb phrase and sentence modifier theories of VPPA must construe these theories as I have. I mean only to suggest that these are the most straightforward interpretations of the analyses.

3. In certain cases, a sentence containing a VPPA will entail a proposition predicating a location of the referent of the object of the main verb. Observe, for instance, that (i) entails (ii)

and that (iii) entails (iv).

- (i) John found Mary in his car.
- (ii) Mary was in John's car.
- (iii) John parked my car in the garage.
- (iv) My car was in the garage.

These data are thus consistent with the view that place adverbials locate participants of states of affairs and actions in space. These occurrences of place adverbials receive a different analysis than those in (1)-(3).

4. Data (7)-(9) are constructed with the sentence modifier theory of VPPA in mind. Parallel data for the verb and verb phrase modifier theories are even more strange, as is suggested by (i) and (ii).

- (i) *Buying was in Chicago.
- (ii) *The buying of a Fiat was in Chicago.

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Relative Clauses in Old, Middle, and New English*

Sheila Graves Geoghegan

1. Introduction.

It is not uncommon, in many older analyses of relative clauses, to find the word that treated as a relative pronoun in its occurrence as an alternative to who or which (e.g. see Onions (1971) and Pence (1947)). This is very probably because of its consistent position at the head of a relative clause, where who and which similarly appear, and because in New English there are few or no instances of that co-occurring with who or which on the surface.

I would like to propose, in accordance with analyses by Edward Klima (1964), Bruce Downing (1973a), and others, that in its occurrence at the head of a relative clause that is not a pronoun, but a mark of subordination which signals that the following clause in some way complements the main clause though not as a verbal complement. In other words, the that which appears in relative clauses and the that which appears in complement clauses are functionally equivalent. (I do not mean to imply that relative and complement clauses are themselves functionally equivalent.) I will show that an historical study of the patterns of relative clauses in Old and Middle English not only lends support to this analysis of that in New English, but incidentally elucidates and clarifies the structure of relative clauses in older stages of English.

In this historical study I will argue that not only are the traditional analyses of Old and Middle English relative clauses incorrect (in particular, that is neither a pronoun nor in any way the equivalent to who or which) but also that the transformational rules required to generate relative clauses in Old English were basically similar to the processes required for New English relative clauses. My main emphasis, however, is on historical explanation of the relationship between the relative clauses of Old English and Middle English.

In Section 2 I survey arguments presented by Klima (1964) and Downing (1973a) for the non-pronominal character of New English that, and cite further evidence for such a conclusion which I discovered in the course of writing this paper.¹ In Section 3 I give a brief but representative survey of the surface patterns of relative clauses in Old English. In addition there are discussions on both word order and the general means of indicating subordination in Old English. Section 4 is, again, a brief look at the surface patterns and word order of relative clauses in Middle English.

In Part A of Section 5 I explain a series of changes occurring relatively simultaneously in Late Old English which clearly show that Middle English that is not the reflex of the Old English demonstrative pronoun þæt, as stated in many traditional grammars of Old and Middle English, but the reflex of the coalescence in form and function of the Old English subordinating particle þe, and þæt, serving an entirely different function than the homonymous demonstrative pronoun. In Part B of this section I show that the analysis of relative clauses presented in this paper explains the relative clause patterns of Old and Middle English.

In Section 6 I discuss the ramifications of the analysis of that as a subordinating particle in several aspects of the synchronic analysis of relative clauses. In Part A I suggest evidence that the wh-word which is at the deepest level an adjective and not a pronoun; in Part B I argue and provide further evidence for the claim, originally made by Klima (1964), that all subordinate clauses, including restrictive relative clauses, are at some point in their derivation introduced by the subordinating particle that; and in part C I suggest that in a "Swooping" analysis of relative clauses the presence of that in restrictive, but not in non-restrictive clauses, can be explained by the analysis of the role of that which is presented in this paper.

2. The Non-Pronominal Character of that in Relative Clauses.

Bruce Downing (1973a) has pointed out several pieces of evidence for the non-pronominal character of that. The argument underlying all of his evidence seems to be that that cannot be a pronoun because unlike wh-words, it simply does not act like a pronoun. First, that² cannot be the object of a preposition. If a relative clause introduced by that also contains a preposition, the preposition cannot be fronted to the head of the clause, as is possible with wh-words, but must remain in its original position. The following sentences illustrate this (my examples):

- (1) The car in which I rode was black.
- (2) *The car in that I rode was black.
- (3) The car that I rode in was black.
- (4) The man on whom you depend is worthy of your trust.
- (5) *The man on that you depend is worthy of your trust.
- (6) The man that you depend on is worthy of your trust.

A possible reason for the difference is that prepositions cannot take particles as objects, but can co-occur with pronouns.

Second, Downing (1973a) points out that although in some dialects (7) is marginally acceptable, (8) is definitely not.³

- (7) That's the problem that I asked you to find out from Fred about it.
- (8) *That's the problem which I asked you to find out from Fred about it.

I have heard sentences similar to (7) in casual speech several times, and not necessarily in complex relative clauses.⁴

- (9) I got some seeds that I didn't know how tall they grew.
 (10) You can predict the vowel that it would appear.
 (11) They're those ants that they build these huge mounds.⁵

(8) would be unacceptable because it contains two 'pronominalizations' of a single occurrence of the same noun. (7) is marginally acceptable because, although it is unlike most relative clauses in New English, it does not contain two pronominalizations of a single noun, as in (8). Consequently, Downing (1973a) refers to that in relative clauses first as a complementizer and later as a subordinating particle.

There are, however, several other pieces of data which suggest that Downing's analysis is a correct one. First, unlike 'relative' pronouns that cannot be inflected. Since several pronouns in New English, not only who, exhibit the last traces of inflection, if that were indeed a pronoun it would seem irregular that it could not be inflected.

Second, although it is possible to say

- (12) What you've asked me to do will be difficult.

such a construction is not possible if that appears rather than what.

- (13) *That you've asked me to do will be difficult.

But notice that (14) is acceptable.

- (14) That which you've asked me to do will be difficult.

This is the case because that is recognized by speakers of English as being not a pronoun but a mark of subordination. Example (13) is therefore incomplete because it contains no subject noun phrase. Too, notice that it is possible to say whoever, whichever, or whatever, but never *thatever.⁶

Finally, in casual speech both the that which appears in verbal complements and the that which introduces relative clauses can be reduced to [ɒt], or [t]. This is not true of the that which is a demonstrative pronoun. To realize that this is the case it is only necessary to pronounce (15) in fast speech.

- (15) He said that he saw that boy that you were talking about.

The first and third occurrences of that are reduced much further than the second, which is a demonstrative pronoun.

In the remainder of this paper I will assume the arguments presented by Downing (1973a) and myself, and apparently Klima (1964),⁷ to be basically correct: New English that is not a pronoun but a subordinating particle, and has some relation to the subordinating particle of complement sentences.

3. Relative and Subordinate Clauses and Word Order in Old English.

In this section I will give a brief survey of three aspects of syntax in Old English. It is necessary, however, to first state that I am assuming the most valid source for data to be prose, since poetry must conform to certain externally imposed limitations on sentence structure, e.g. meter and alliteration. For, in prose, the only restrictions on structure would be those which normally operated in the language. Therefore, most of the examples are from prose writings. I am of course aware that even prose, because of its formality, does not entirely accurately reflect the spoken language. This is, however, an insurmountable problem when only written texts are available.

Also, a word about dates and translations: I take the OE period to be from approximately 500-1150 A.D., the ME period 1150-1500 A.D., and the NE period 1500-present (encompassing the period which is often called Early New English). Some of the translations of OE and ME passages were provided by the source. Others I have furnished. In several instances there are two translations, the first being fairly literal and the second more idiomatic.

3.A. Relative Clause Patterns in Old English.

The most common type of relative clause in OE was introduced by the indeclinable word þe, with the coreferential noun of the embedded sentence being deleted. Of the relative clauses introduced by þe most were cases in which the coreferential noun was the subject of the embedded sentence.

- (16) 'On oðre wisan sint to monigenne ða ðe^ð
wrohte sawað, on oðre ða gesibsuman'
In one way are to be admonished those who
sow strife, in another way the peaceful
(Gregory's Pastoral Care).
- (17) 'þonne ealra oþra kyninga þe in middangearde
æfre wæron ...'
Then all the kings who were ever on earth...
(Letter of Alexander the Great)
- (18) 'Giet scæl ic, cwæð Orosius...sprecan wiþ
þa þe secgan þæt þa ansealdas sien of wyrða
mægenum gewordene'
Yet shall I, said Orosius, speak with those who
say that empires have become of spoiled
strength.

þe alone also occurs fairly frequently when the coreferential noun is the object of the relative clause, though less frequently than when the noun is the subject.

- (19) 'her onginnað seo boc þe man Orosius nemnað'
 here begins the book which one calls Orosius
 (Alfred's Orosius)

Occasionally þe is used when the coreferential noun is in the genitive or dative.

- (20) 'of ðæm mere ðe Truso standeþ in stade'
 from the sea which Truso stands on the shores.
 from the sea on whose shores Truso stands
 (cited in Mitchell (1968)).
- (21) 'Leof, ic þē cȳðe hū hit wæs ymb þæt lond at
 Funtial, þā fīf hida þe delm Higa ymb spycð'
 Dear, I let you know how it was about that
 land at Funtial, the five hides which Edelm
 Higa spoke about. (Letter to King Edward
 the Elder)
- (22) 'Her on þysum geare for se micla here, þe
 wē gefyrn ymbe spræcon'
 Here in this year went out the large army
 which we spoke about formerly. (Anglo-
 Saxon Chronicle).

However, clauses of this type were rare because the fact that þe was indeclinable, in addition to the absence of any word in the relative clause which could be inflected, apparently obscured the relationships present in the embedded sentence and resulted in ambiguous or difficult sentences.

- (23) '...for mine soule ^P for mine louerde þat
ic under begeat...and for alle þe mannes
 soule þe ic forþingiae¹⁰
 ...for my soule and for my Lord who I acquired
 under...and for all the men's souls that I
 intercede.
 ...for my soul and for that of my Lord under
 whom I acquired it [land]...and for the
 souls of all the men for whom I intercede.
 (Anglo-Saxon Will).

Because of potential difficulties of this type, with cases in which þe was used where the coreferential noun was in the genitive or dative, there often appeared on the surface a form of the anaphoric pronoun inflected according to the case required by the relative clause.

- (24) 'Eaðig bið se wer, þe his tohopa bið to Drihtne'
 Blessed be the man that his hope is in the Lord.
 Blessed be the man whose hope is in the Lord
 (cited in Mitchell (1968)).

- (25) 'Þat se mon ne wat þe him on foldan fægrost
limpeð'
That the man doesn't know, that for him on
earth things go very pleasantly.
The man for whom things on earth go very
pleasantly doesn't know that. (cited in
Mitchell (1968)).

The occurrence of a þe plus anaphoric pronoun is not, however, restricted to cases which would be opaque without the pronoun. Such a pattern also occurs when the relative clause would require the coreferential noun to be in the nominative or accusative.

- (26) 'Ure ieldran, ða ðe ðas stowa ær holidan,
hīe lufodon wisdom'
Our ancestors, they who these places previously
occupied, they loved wisdom.
Our ancestors, who previously occupied these
places, loved wisdom. (Alfred's Preface to
Cura Pastoralis).
- (27) 'Ure fæder, þu þe eart on heofonum'
Our father, you that art in Heaven.
Our father, who art in Heaven.
- (28) 'hi sona comedon wið heora gewinnan, þe hi
oft ær norðan onhergedon'
and they at once took the field against the
foe, that they often before had overrun the
land from the north.
and they at once took the field against the
foe, who had often before overrun the land
from the north. (Orosius).
- (29) 'Nis nu cwicra nan þe ic him modsefan minne
durre sweotule ascegan'
There is no one alive that I to him dare reveal
my thoughts.
There is no one alive to whom I dare reveal
my thoughts. (cited in Mitchell (1968)).

Relative clauses also occur which are not introduced by þe but by an inflected form of the demonstrative pronoun only. In many, but by no means all of such cases, either the verb of the relative was haten 'to be called' or the clause in some way dealt with naming a person or an object.

- (30) 'Ða com of ðam watre an nædre, seo wæs
ungemetlice micel'
Then came out of the water another, who was
very immense. (Orosius).
- (31) 'fif Moyses boca, ðam seo godcunde awriten is'
five of Moses' books in which the divine law
is written. (Bede's Ecclesiastical History)
- (32) 'ond þone æðeling ofslōgon and þa men þe him
mid wæron alle būtan ānum, se wæs þæs
aldormonnes godsunnu'

In this type of relative clause there is no referential ambiguity, but it is not always clear whether the pronoun that introduces the clause is being used as a simple demonstrative or as a relative pronoun. A question of such functional ambiguity, though, could often be decided on the basis of word order (see Part B) since most relative clauses exhibited OV word order.

A third major type of relative clauses involves the 'combination' of the previous two, with the surface pattern: demonstrative pronoun plus þe. This pattern prevented the ambiguity of þe used alone because the demonstrative pronoun was inflected according to number and gender and the case prescribed by the relative clause. The presence of þe specifies the function of the demonstrative as a relative pronoun. The following constructions are different from those in (26)-(29) in that the latter are constructed with a form of the personal pronoun, whereas those below are formed with the demonstrative pronoun.

- (33) 'Hwæt se ðonne unryhtlice talað, se þe talað
ðæt he sie unscyldig'

He argues, therefore, wrongly, who argues that he is incorrect. (Gregory's Pastoral Care.)

- (34) 'þe we ær beforan sædon, þa þe be norþan
Caucasus, þe we ær beforan sædon, þa þe be
norþan India sindon'

That is then of the mountains which one calls Caucasus, which we said before, which are in the North of India (Orosius).

- (35) 'þa gegaderedon þa þe in Norþhymbran bugeaþ
ond on East Englum sum hund scipa'

Then gathered those that dwell in Northumbria and in East Anglia some hundred ships (Anglo-Saxon Chronicle)

- (36) 'On six dagum wæron geworhte heofonas and eorðan,
sunne and mone, sæ and fixas, and ealle þa þe
on him syndon'

The six days were made heaven and earth, the sun and the moon, the sea and the fishes, and all that was on it. (Wulfstan's Homilies)

Instances of this particular type of relative clause are infrequent in early Old English, but become increasingly common. Although word order will be discussed in greater detail in a later section, it is useful to point out here that the increased occurrence of the se þe (variously seþe) pattern was probably due, at least in part, to the progressive loss of a change in the position of the verb, which in earlier OE was used to indicate relative clauses or any non-main sentence.

A final type of relative clause pattern in OE was, again, the result of an overlapping of two previously mentioned patterns: demonstrative pronoun—þe—anaphoric pronoun.

(37) 'se bið leofast londbuendum, se þe him God
 styleð gumena rice' [comma mine]
 that one is most beloved by land dwellers,
 that one that to him God gives the Kingdom
 of men.

he is most beloved by land dwellers, who that
 to him God gives the Kingdom of men.

he is most beloved by land dwellers, to whom
 God gives the Kingdom of men. (cited in
 Mitchell (1968)).

As with þe plus anaphoric pronoun the purpose of such a pattern
 was almost surely to clarify the relationships within the
 relative clause.

Indefinite relative clauses in OE could be formed either
 with a form of the interrogative pronoun, or by one of the
 patterns discussed above (see also (33) above).

(38) 'swa hwa swa þe genyt þusend staþe, ga mid
 him oðre twa þusend'

Whoever compels thee to go one mile, go with
 him two miles. (cited in Mitchell (1968)).

(39) 'se þe þise cuide wille awenden be he amansid
 from God almichtin...'

He who wishes to alter this will, may he be
 excommunicated from Almighty God...(Anglo-
 Saxon Wills)

Like New English that, a preposition could not precede þe
 in a relative clause. Since, according to Traugott (1972),¹¹
 the demonstrative rarely occurred with a preposition, one would
 expect that in most cases involving a coreferential noun in a
 relative clause which was the object of a preposition, the
 clause would be introduced by þe and the preposition would
 appear later in the clause and probably at the end, as in many
 Old Norse relative clauses.

(40) (Old Norse) 'ok er þer standeþ í'
 but who stands therein

(41) (Old Norse) 'hefiande, þat er hann lá á'
 heaving, what he lay there

In fact, in most relative clauses containing a preposition, the
 preposition appears immediately before the verb, which is
 usually in final position.

(42) 'and þæt unstillle hweol ðe Ixion wæs to
 gebunden...'

and the ever-moving wheel to which Ixion was
 bound...(Alfred's Cura Pastoralis).

3.B. Word Order in Old English.

Contrary to many earlier statements in the literature word order in Old English was not free. For any language it is virtually impossible to make a statement regarding word order to which every sentence conforms. Old English was no exception. It is possible, though, to speak of tendencies and the predominance of the least marked order over others in a specific environment. Traugott (1972) divides the possible word orders into three main types.

- (I) In main clauses or the first of a set of coordinates, if the underlying sentence is a saying, promise or prediction, and if the proposition is affirmative, the order is:

Subject (Auxiliary) Verb (Object)

- (II) In main clauses if the underlying sentence is a command to answer (interrogative), or if the proposition is negative, or certain adverbs of time and place occur, the order is:

(X) { Verb } Subject...
 { Auxiliary }

- (III) In subordinate clauses or any coordinate clause except the first, the order is:

Subject (Object) ... Verb (Auxiliary)

All three types were subject to change for the purposes of emphasis. Of all the types of subordinate clauses which regularly exhibited Type III word order, relative clauses showed it the least often, although there is a definite tendency for relative clauses to have OV word order.¹²

This is not to say, however, that relative clauses in Old English were the only subordinate clauses to be inconsistent in the use of OV order (that relative clauses in OE were indeed subordinate is shown in Part C of this section). The frequency of Type III word order was decreasing in late Old English in all types of clauses and in fact represents the major syntactic change from OE to ME, i.e., the complete loss of OV word order and the extension of Type I word order in all but interrogative sentences. In later OE texts it is possible to find both Type III and Type I order in the same kind of subordinate clause and often in the same paragraph or even sentence.

- (43) 'Hu Ninius, Asiria cyning, ongon monna ærest
ricsian on þiosan middangearde'
How Ninius, King of Asyria, began to govern
the first men on this earth. (Orosius)
(No Type III word order; without surface
realization of pæt¹³)

- (44) 'Hu þæt heofenisce fyr forbærnde þæt lond on
þæm wæron þa twa byrig on getimbred'
How the Heavenly fire consumed the land on
which the two cities were built. (Orosius)
(No Type III word order; surface realization
of þæt)
- (45) 'Hu Thelesci 7 Ciarsethi þa leode him
betweenum wunnon'
How the people of Thelesci and Ciarsethi
fought between themselves. (Orosius)
(Type III word order; without þæt on the
surface)
- (46) 'ælc þære þe þas min word gehyrð and þa
wyrçð, bið gelic þam wisan were, se his hus
ofer stan getimbrode'
each of those who hears my words and then works is
equal to the wise man who built his house on
stone. (Matthew, cited in Mitchell (1968))
(Type III word order in both relative clauses;
the first clause introduced by þe, the second
by the demonstrative).
- (47) 'And ælc þære þe gehyrð þas min word, and þa ne
wyrçð, se bið gelic þam dysigan men, þe
getimbrode his hus ofer sandceosel.'
And each of those who hears my words and does
not work is equal to the foolish man, who
built his house on sand. (Matthew, cited in
Mitchell (1968))
(No Type III word order in either relative
clause; two introduced by þe and one by the
demonstrative)

3.C. Subordinate Clauses in Old English.

It is necessary here to take a brief look at subordinate clauses in general in Old English, and specifically at the surface marks of subordination. Earlier grammars of OE claimed that there was little subordination in the early stages of English and that most sentences were coordinate rather than complex in nature. Classen (1930) states that the relative significance of the clauses in a sentence was not indicated and seemed to attribute this to the fact that most OE literature was narrative. He concluded from this that there was an absence of abstract thought in OE literature and that this was in some way related to the lack of a definite article. More recent scholars of Old English, however, have reached an entirely different conclusion: although the conjunctions used in Old English to subordinate a clause may have been imprecise in meaning, and although there does not exist an exact parallel between structures which were subordinate in Old English and those which are in New English, there was certainly no lack of subordination even in the earliest of OE literature. Indeed, contrary to this, Andrew (1940) has argued that many principal (non-subordinate) sentences can in fact be shown to be subordinate.

The most common overt mark of subordination in OE was þæt, functionally different from the nominative singular neuter demonstrative pronoun þæt, although phonologically identical and almost surely related etymologically. That þæt as a subordinate clause introducer is functionally different from þæt as a demonstrative pronoun is made quite obvious (particularly in early Old English texts) by the fact that its presence is associated with verb-final position in the clause.

þæt could be used alone to indicate the subordinate status of the following sentence, as in complements, or in combination with conjunctions.

- (48) 'For ðon ic oft wiscte & wolde þæt hyra læs
wære swa gewinfulra'
Because I often wished and wanted that the
servant were less wearisome. (Letter of
Alexander the Great)
- (49) 'ac hie on þære geþylde mid me awunedon þæt
ic wæs nemned ealra Kyninga Kyning'
But in their patience with me they abided (the
fact) that I was called king of all kings
(Letter of Alexander the Great)
- (50) 'þa sendan hie to Philippuse, 7 bædon þæt
he hie ymb þæt rice gesemde'
Then they sent to Philippus and asked that he
reconcile them about the kingdom (Orosius)
- (51) 'æfter þam þe Iæcedominie hæfdon Perse oft
oferwunnon, þa gebudon him Perse þæt hie
hæfdon III winter sibbe wiþ hie, se þe þæt
wolde'
After the Persians had often overcome Lacedominie,
then the Persians asked them that they have
(= to have) three winters of peace with them,
whoever wanted that (Orosius)
- (52) 'Sende to him Lucius Bretone cyning ærengewrit;
bæd hine 7 halsada, þæt he þurh his bebod
Cristene gefremed wære'
To him Lucius, king of Britain, sent a letter
praying and entreating that under his
direction he might be converted to Christianity
(Bede's Ecclesiastical History)
- (53) 'þa gelamp æfter þon þætte Peahte ðeod com of
Scyððia lande on scipum 7 þa ymb ærndon eall
Breotone gemæro, þæt hi comon on Scotland'
Then it happened that the Picts came in ships
from Scythia, and passed round the whole
British coast, till (that) they landed in
Ireland. (Bede's Ecclesiastical History).
- (54) 'hio gelyf'ð to hire bearnon þæt hi willon
lyhton for hyre saulle'
she trusts to her children that they will free
them for her soul's sake. (Anglo-Saxon Wills)

- (55) ' 7for þon þe he on þa burgleode on ungearwe becom, he hie on lytlan firste mid hungre on his geweald geniedde, þæt him se cyning on land eode'

And because he came suddenly upon the citizens, he forced his strength upon them a little at first with hunger, so that the king himself went to him on land. (Orosius)

- (56) 'þa gegaderade Regulus ealle þa scyttan þe on þam færelte wæron, þæt hie mon mid fl anum ofercome'

Then Regulus gathered all the archers who were on the way (journey), so that he overcame them with arrows. (Orosius)

- (57) 'þæt is ðonne se medsceat wið his salle þæt þe him gilde god weorc for ðære gife ðe he him ær sælde'

That is, then, the price of his soul, that he pay God good works for the gift that he formerly granted him (Gregory's Pastoral Care)

- (58) 'buton þæt se wægnscilling ond se seampending gonge to ðæs cyninges handa, swa he ealning dyde æt Saltwic'

except that the tax on wagons and the toll of a penny go to the king's hand, as he always did at Saltwich. (Grant to Worcester Monastery).

- (59) ' 7forþan ðe ðis ealond under þam sylfum norðdæle middangeardes nyhst ligeþ, 7 leohte nihte on sumera hafað - swa þæt oft on middie nihte geflit cymeð þam behealdendum, hwæder hit si þe æfenglommung ðe on morgen deagung - is on ðon sweetol, ðæt ðis ealond hafað mycele lengram dagas on sumera'

As this island lies very close under the very north of the world and the nights here are light in summer - so that often at midnight a question arises among the spectators whether it is the evening gloaming or the morning dawn - by this it is clear that the days are much longer in this island in the summer. (Bede's Ecclesiastical History).

- (60) 'ic an þæt¹⁴ lond at Lauenham mine dohtor childe gif þæt god wille þæt heo ani haueð'

I grant that land at Lavenham to my daughter's child, if (that) God wills that she have any. (Anglo-Saxon Wills).

There also occurred subordinate clauses which were not introduced by þæt. It is probably the case that in such instances þæt was present at the head of the clause at some point in the derivation to trigger Type III (subordinate) word order, since the majority of such clauses exhibit OV order.

- (61) 'Swa ic wat he minne hige cuðe'
So I knew (that) he could perceive my intention
(cited in Mitchell (1968)).
- (62) 'and gif heonon ne habbe gange it into stoke'
and if she has no children (see ex. (60)) it is
to go to stoke (Anglo-Saxon Wills)

However, þæt was not the only trigger of subordinate word order in Old English. þe was also used (more frequently even than þæt in non-complement sentences), the result of its insertion being that a simple adverb or preposition became a subordinating conjunction. That this was true can be shown by the fact that þe, just as þæt, fairly consistently appeared in clauses where OV word order was also present.

- (63) 'And ic an þæt Æthelfled bruke þe lond þer
wile þe hire lef beth'
And I grant that Aethelfled use the land there
as long as it is agreeable to her (Anglo-
Saxon Wills).
- (64) 'Ða gemunde ic eac hu ic geseah ær þam þe hit
eall forhergod wære'
Then I also remembered how I saw, before it was
all plundered. (Alfred's Preface to Cura
Pastoralis).
- (65) ' 7 by syxtan monðe, þe he hider com, he eft
to Rome hwearf'
And six months after he had come, he returned
again to Rome. (Bede's Ecclesiastical History)
- (66) 'Be þam ðonne cuð is, þeah þe he mid wætere
fulluhtes bæþes aþwegen ne wære, þæt he wæs
hwæðere mid þy bæðe his blades geclænsed'
As to him it is certain, though he wasn't washed
with the water of baptism, that he nevertheless,
was cleansed by the washing of his blood.
(Bede's Ecclesiastical History).
- (67) 'Æfter þam þe he hie oferwunnon hæfde, he for
on Bretanie þæt iglond'
After he had overcome them, he went into the
island of Britain. (Orosius)

Also like þæt, þe could be deleted, so that for þam þe 'because' on the surface looked like for þam 'therefore'. This did not necessarily pose a problem for the speakers of Old English though because the accompanying change in word order in situations where for þam meant 'because' offers support for the presence of þe at some point in the derivation, deleted after it had triggered the change in word order. As with þæt, þe could be used without any preceding conjunction, e.g. in (65).

The specific functions of þe and þæt were very probably different, though the functions are hard to delimit in the available texts. The two words were in some environments interchangeable,

though definitely not in all. There are few, if any, instances of þe introducing a complement clause, although 'because' could be expressed either as for þam þe or for þon þæt.

- (68) 'for þan þæt he wolde Godes hyrde forlætan'
because he wished to desert God's flock.
(cited in Mitchell (1968))
- (69) 'Ond for þon þe ic þe wiste wel getyðne in
wisdom...'
And because I knew you well [to be] clever
in wisdom... (cited in Mitchell (1968)).

The translation of 'until' could be either oð, oð þe (oððe) or oð þæt. The use of þæt in environments in which þe originally is used becomes increasingly frequent in later Old English, and is even found in relative clauses as early as the middle of the tenth century.

- (70) '...and þat lond þat ic habbe at Dukeswrthe'
...and the estate which I have at Duxford
(Anglo-Saxon Wills)
- (71) 'And ic wille þat mine men ben alle free 7
Mann myne refe þat he sitte on þe fre lond
þat ichim to honde habbe leten'
And I will that my men all be free and to Mann
my reeve, [I will] that he sit on the free
land that I have given over to his hand.
(Anglo-Saxon Wills)

I will discuss the reasons for such a change in Section 5.

It seems to be obvious from the preceding discussion of relative and subordinate clauses in Old English that there existed a strong parallelism between them. Both types of clauses are frequently introduced by the word þe. Both show a predominantly OV word order, as opposed to the VO order of main clauses. I claim that this parallelism is more than coincidental; that rather it is the surface reflection of a deep syntactic and semantic relationship between relative clauses and all subordinate clauses in Old English; and finally that the word þe can in no way be considered a pronoun, just as New English that cannot. Further, I will present evidence in Section 5 and argue in Section 6 that this relationship has remained constant through Middle and New English despite the surface differences between those three stages of the language.

4. Relative Clauses and Subordinate Clauses in Middle English.

The earliest Middle English relative clauses were introduced by the word þat (later that), although there were a few sporadic occurrences of þe as a relative clause introducer (e.g. the Peterborough Chronicle). Like both OE þe and NE that, ME that was indeclineable and could not be preceded by a preposition. The use of that was increasingly generalized until it was by far the

most commonly used word in relative clauses, and could occur in all contexts, whether animate, inanimate, restrictive or non-restrictive.

- (72) 'Sest þou nat þan what þing folweþ alle þe þinges þat I haue seid.'
- Do not say, then, what thing follows all the things that I have said (Chaucer's Boethius)
- (73) 'Demest þou nat quod she þat al þing þat profiteþ is good?'
- Do you not think, she said, that all things that profit are good? (Chaucer's Boethius).
- (74) ' & in the Zodiak ben the signes þat han names of bestes'
- and in the zodiac are the signs that have names of beasts (Chaucer, Astrolabe).
- (75) 'Besechyng her that is the cause of this translation'
- Beseeching her who is the cause of this translation. (Caxon)
- (76) 'wheþer trowest þou þat men sholde tourment hym þat haþ don þe wronge or hym þat haþ suffered þe wronge'.
- whether you believe that men should torment him who has done the wrong or him who has suffered the wrong. (Chaucer's Boethius).

During the fourteenth century which was introduced in a relative function, followed later by whose and whom. These words were first used where the coreferential noun was in an oblique case, or the object of a preposition. Later the use of wh-words was extended to cases in which the coreferential noun was in the nominative and who also appeared in relative clauses, sporadically in the late fifteenth century and increasingly in the sixteenth century. At first which was used almost exclusively with prepositions and Traugott (1972) has suggested that this illustrated the need for a more precise relative word, i.e. one which could be used to express relationships more clearly than was possible with that alone. This claim is certainly supported by the order in which the wh-words were introduced, and their distribution, as noted above. The use of which was then extended and it became an optional variant of that in any relative construction.

All the newly introduced relative words noted above as well as whan and wher(e) co-occurred with that. There were even instances, though rare, of the use of who with that, which was not even introduced into relative clauses until after the use of that with wh-words had begun to decline.

- (77) 'Thy zodiak of thin Astralabie is shapen as a compass wich þat contenith a large brede'
- The zodiac of the Astrolabe is shaped like a compass which has a large breadth (Chaucer, Astrolabe)

- (78) 'Wh-fore I fynde in cronycles þat þer was som-tyme a worthy womman þe wiche þat hated dedely a pore womman more þan vij yere'
Therefore I find in Chronicles that once there was a worthy woman who hated very much a poor woman more than seven years (Middle English Sermons).
- (79) ' & eke to knowe by nyht or by day the degree of any signe þat assendith on the est Orisonte, which þat is cleped comunly the assendent' and also to know by night or by day the degree of any sign that assends on the east Orisonte, which is commonly called the ascendent (Chaucer, Astrolabe).
- (80) 'Hus endeth this boke which is named the boke of Consolacion of philosophie which that boecius made...'
Here ends this book which is called the book of Consolation of Philosophy, which Boecius wrote (Caxton).
- (81) 'men shall wel knowe who that I am'
men shall well know who I am. (Caxton).

As indicated in (78) there was also a form of the relative clause the which (Noun), extant until Shakespeare's time, whose particular origin is unknown.

- (82) 'Ouer-thwart this for-seide longe lyne, ther crosseth hym a-nother lyne of the same lengthe from est to west. Of the whiche lyne ...is ycleped the est lyne'
At right angles to this aforesaid long line, another line of the same length crosses from east to west which is called the East line. (Chaucer, Astrolabe).
- (83) ' & by that same proporcioun is every quarter of thin Astrolabie deuyded over the which degrees ther been nowmbres of augrym'
and by that same proportion is every quarter of the Astrolabe divided, over which degrees there are algorithmic numerals (Chaucer, Astrolabe).
- (84) '...by þe wiche lawe all þat shall come to hevene muste nedis be saued'
...by which law all who shall come to heaven must (needs) be saved. (Middle English Sermons).
- (85) 'Hir cloþes weren maked of ryt delye þredes and subtil crafte of perdurable matere. þe wyche cloþes sche hadde wouen wiþ hir owen handes'

Her clothes were made of very fine threads and subtle craft of lasting material which (clothes) she had woven with her own hands. (Chaucer's Boethius).

- (86) 'we ought to gyue a synguler laude unto that noble 7 grete philosopher Geoffrey chaucer the whiche for his ornate wrytyng in our tonge may wel haue the name of a laureate poet'

we ought to give a singular praise to that noble and great philosopher Geoffrey Chaucer who, for his ornate writing in our tongue may well have the name of poet laureat. (Caxton).

- (87) 'þan shewep it clerely þat þilke shrewednesse is wiþouten ende þe whiche is certeyne to ben perdurable'

then it shows clearly that the same shrewdness is without end which is certain to be lasting. (Chaucer's Boethius).

- (88) 'There are other Troyans that thou dreams't not of, the whiche for sport sake are content to do the profession some grace'

There are other Trojans, of whom you cannot dream, who do the profession some grace for the sake of sport. (Shakespeare, "Henry IV")

Mustanoja (1960) suggests two possible origins for such a pattern: (1) it might have been borrowed from the French 'lequel'; (2) it might have been an archaism from Old English where the demonstrative pronoun (which became the definite article) was used in combination with þe. Traugott (1972) considers the pattern to be a result of the fact that relative clauses are naturally definite, since the coreferential noun in the relative clause is the second occurrence of the noun and is thus already specified. None of these explanations seems sufficient in itself.

It is unlikely, as in Mustanoja's first suggestion, that a pattern like the whiche would be borrowed from the French unless Middle English already contained the tendency towards the development of such a pattern. It is, however, not unreasonable to suppose that the strong French influence on English during the Late Old English and Early Middle English periods encouraged the use of such a pattern once it had appeared. Mustanoja's second suggestion also presents difficulties, specifically with chronological concerns. By Early Middle English (c. 1250-1300) the relative clause patterns of OE had been almost completely replaced. The demonstrative pronoun had split into the invariable definite article the on the one hand, and the invariable demonstrative that on the other. The function of OE þe had been assumed by þat and become ME that (see section 5 for a complete explanation). In only a very few isolated cases was the demonstrative used with þe, both in a relative function. Therefore, an explanation such as Mustanoja's fails to account for two things: (1) why the

occurrence of the whiche was so widespread (which it was) if it was only an archaism; (2) why the use of this pattern extended from Chaucer's time (c. 1350-1400) through Shakespeare's day (c. 1600). The speakers of Chaucer's Middle English could certainly have had no feeling for the relative clause patterns of one hundred to two hundred years earlier. Finally, to call the pattern the whiche an archaism of (e.g.) se þe implies that there exists a lexical equivalency of the forms se/the and þe/which. While the first equivalency could be possible, the second could not. I will show in Section 5 that not only is þe not the lexical equivalent of which, but the functions of each were entirely different. Therefore, Mustanoja's two possible explanations are either insufficient, as in the case of the first one, or totally incorrect.

Traugott's suggestion, while more likely, still seems to fall short. In Part A of Section 6 I will present what I feel to be a more plausible, though controversial analysis.

There are in Middle English many instances of the relative clause pattern that...PRO or which...PRO much like the OE pattern þe...PRO. The pronoun is inflected according to the case prescribed by the relative clause. Such a pattern is particularly frequent when several clauses intervene.

- (89) 'A knight ther was, and that a worthy man,
that fro the time that he first bigan to
riden out, he loved chivalrie'
There was a knight, and he (= who) was
a worthy man who, from the time he first
rode out, loved chivalry. (Chaucer,
"Knight's Tale").
- (90) '...ever deseryng to her of your wurschupful
ustate, the whiche all myghte God mayntayne
hyt'
...ever desiring to hear of your worshipful
condition, which may Almighty God maintain.
(Paston Letters)
- (91) 'As a good friend of mine has frequent made
remark to me, which her name, my love, is
Harris'
As a good friend of mine, whose name my love
is Harris, has frequently remarked to me.
(Dickens, Martin Chuzzlewit, cited in
Traugott (1972)).
- (92) '[He] asked...what hee shoulde doe to a woman,
whome hee suspected that she hadde falsified
her fayth'
He asked what he should do to a woman whom he
suspected of having falsified her faith.
(cited in Traugott (1972)).

After the middle of the seventeenth century several of the above-mentioned patterns became increasingly infrequent and

eventually disappeared completely, while the occurrences of other patterns were restricted to specific environments. The most obvious change was the loss of that on the surface when some form of the relative wh-words was present. Which that, whom that, or who that would all be considered ungrammatical today, even in the most casual of speech. However, the use of that alone to introduce a relative clause, which had decreased with the introduction of wh-words, once again became frequent, and is now the most common relative clause introducer in some dialects, despite efforts on the part of prescriptive grammarians to discourage its use. The uses of who and which have become relatively restricted to animate and inanimate respectively and the occurrence of either which...PRO or that...PRO is restricted to only casual speech (see Part A of Section 6 and Introduction).

In Middle English, word order could no longer be used to determine the status of a particular clause, as was possible in Old English. Type III word order was almost lost by the middle of the ME period, though there are scattered instances of it.

- (93) '...bigat upon his wyf, that called was
Prudence, a doghter which that called was
Sophie'
...begat upon his wife, who was called
Prudence, a daughter who was called Sophie.
(Chaucer, Melibee, cited in Traugott (1972))

Subordinate clauses in ME were often introduced by that, just as in OE. þe no longer appeared in any type of subordinate clauses after very early Middle English, but the OE construction 'conjunction + þe' seems to be paralleled in the ME construction 'conjunction + that' (see the next section for a complete discussion).

- (94) 'Thenne I here recommede his soule unto your
prayers and also that we at our departyng
maye departe in suche wyse that it may
please our Lord'
Than I here recommend his soul to your prayers
and [I also recommend] that we at our
departure may leave in such a manner [i.e.
with your prayers] in order that it may
please our Lord. (Paston Letters).
- (95) 'But for an example to the people that they
may ther by the better use and foliwe vertue'
But for an example to the people so that they
might use and follow virtue better. (Ancrene
Riwle).
- (96) 'And she desyreth of hym that he schuld schewe
you the endentures mad betwen the knyght that
hath his dowter and hym: whethir that Skrop,
if he were married and fortunied to have
children, if the children schuld enheryte his
lond or his dowter the whiche is married'

And she desires of him that he should show you the indentures made between the knight who has his daughter and him: whether Skrop, if he were married and happened to have children, if the children should inherit his land or the daughter who is married. (Paston Letters).

- (97) 'In the mene while þat I stille recorded þise þinges wiþ my self...I saw stonyng aboue þe heyte of my heued a woman of ful gret reuerance' While I was still recording these things with myself...I saw standing above the height of my head a woman of very great reverence. (Chaucer's Boethius).

- (98) 'For þat þei sholden conferme þe vertues of corage by þe usage and exercitiacioun of pacience' Because they should confirm the virtues of courage by the use and exercise of patience. (Chaucer's Boethius).

- (99) 'With þe myt, wisdom, & grace of þe holy trynite, I write to you a tretice in Englisch breuely drawe out of þe book of quintis essencijs in latyn...þat þe wisdom and þe science of þis book schulde not perische' With the power, wisdom, and grace of the holy trinity, I write to you a treatise in English briefly drawn from the book of Quinte Essence in Latin...in order that the wisdom and the science of this book should not perish. (Quinte Essence).

- (100) 'For gif þat shrewednesse makipe wrecches þan not be nedes be most wrecched þat lengest is a shrewe'

For if shrewdness makes wretches, then he must be most wretched who has been a shrew the longest. (Chaucer's Boethius).

- (101) 'The þridde maner is, þat ye take a greet glas clepid amphora and seele it well'

The third manner is that you take a large glass called an amphora and seal it well. (Quinte Essence).

- (102) 'Whan I remembered that every man is bounden by the commandement 7 counceyll of the wyse man to eschewe slouthe'

When I remembered that every man is bound by the commandment and council of the wise man to eschew sloth. (Caxton).

- (103) 'And remeue thi rewle up and down til þat the stremes of the sonne shyne thorgh bothe holes of thi rewle'

And move the rules up and down til the rays of the sun shine through both holes of the rules. (Chaucer, Astrolabe).

- (104) 'But I suppose that som fayr lady hath desired
hym to leue it out of his book'
But I suppose that some fair lady wanted him
to leave it out of his book. (Caxton).
- (105) 'When þat good men ben at þer seruyce on þe
halydaye...'
When good men are at their service on the
holliday... (Middle English Sermons).
- (106) 'At þe laste hure goostely fadur called þis
worthy womman unto hym and seid þat she muste
foryeve pe pore womman'
At the end of her heavenly father called this
worthy woman to him and said that she must
forgive the poor woman. (Middle English
Sermons).
- (107) 'I took the altitude of my sonne, $\text{\textcircled{B}}$ fond þat
it was 25 degrees and 30 minutes of heyhte in
the bordure on the bak-side'
I took the altitude of the sun and found that
it was 25 degrees and 30 minutes of height in
the border of the backside. (Chaucer,
Astrolabe).
- (108) 'wip a lijfly colour and wip swiche vigoure and
strenkeþ þat it ne mihte not be emptid'
with a lively colour and with such vigour and
strength that it could not be exhausted.
(Chaucer's Boethius).

5. The Relationship of Old English þe and Middle English that.

5.A. History.

It is clear from Sections 3 and 4 that the words thought to be relative pronouns by many grammarians of Old and Middle English, þe and that, were in reality 'subordinating particles'. These particles syntactically marked the clauses which they introduced as being subordinate to the main sentence. Even to label these words 'relative particles', as other grammarians have done, is slightly misleading since þe, for instance, was not restricted to occurring with relative clauses alone, but was used regularly in a variety of non-relative contexts. The function of ME that was precisely the same.

There is disagreement, however, over both the origin and the function of ME that: whether it was identical in form and function to the OE declineable demonstrative pronoun þæt, or identical in form only. Mustanoja believes ME that to be the direct descendant of OE demonstrative þæt invested with a new and different function as 'the need for a relative pronoun arose'. (He fails to explain why such a need arose). But several questions must be answered. Why was this particular word and not any other chosen to be extended to the "new" meaning? Such a choice can certainly not be arbitrary. Why would the demonstrative þæt, and not the þæt which had long served as a mark of subordination, be the one

whose function was extended to relative clauses? Finally and most basic, why did the function of any word have to be extended? What had occurred in the system of English from the tenth to the twelfth centuries which created the need for a 'relative pronoun'? It is of course possible to say that ME that was a relative pronoun precisely because it was the reflex of the OE demonstrative pronoun þæt, but I think a much better explanation exists which can explicate the origin and function of ME that.

Traugott (1972) claims that because the functions of ME that and OE þæt (demonstrative) are different, one must attribute to them at least partially different origins. For instance þæt behaved as any other pronoun in that it could be declined and could follow a preposition. ME that, however, exhibited neither of these characteristics. This makes it likely that ME that originated, if not in an entirely different structure, then at least in the 'conflation' (Traugott's term) of the Old English demonstrative þæt with some other structure. A very possible candidate would have been the OE þæt which was used to subordinate complements and other types of clauses to the main proposition (as illustrated in Part C of Section 3). Although such a development would appear to be plausible it is possible to go much further in explaining Middle English that. Specifically, I suggest that ME that did indeed have an origin other than the OE demonstrative þæt, at least during the period of time between late Old English and Early Middle English when those changes that differentiated the two periods were taking place.¹⁵

I claim that the origin of Middle English that was the result of the falling together of both the functions and and forms of Old English þe and þæt (subordinator), and was not directly related in any way to the Old English demonstrative pronoun paradigm. That this is at least a plausible explanation was shown in Part C of Section 3 where there were examples given to show that the functions of þe and þæt overlapped and were in some cases interchangeable. Yet this cannot be the entire explanation. Elements of the syntactic system of a language do not coalesce spontaneously, or merely because they are partially redundant. That this is true becomes even more obvious when such elements are viewed not in isolation, which can produce a false picture of the system, but in relation to all other changes simultaneously occurring within the system. It is therefore necessary to take a look at some other changes in the Late Old English syntactic system which would have been contemporary with the postulated merging of þe and þæt.

During the period of time between Late Old English and Early Middle English, most of the nominal and pronominal inflections were lost. Already in the tenth century adjective endings had collapsed. This was due to the fact that in their unstressed word-final position most of the endings were reduced to schwa and could no longer be used to identify case, number or gender. Becoming, in effect, useless, they were eventually lost in both the spoken and the written language. The Scandinavian invasions

hastened this development and made it more complete. Mitchell (1968) suggests that the confusion of endings in Scandinavian and Old English, which were similar, added to the fixing of stress on a non-final syllable and probably led to a faster decay of the 'confusing elements'. The effect of this development on relative clauses was probably that a decreasing number of relative clauses were formed with an inflected form of the demonstrative pronoun, and be was used even more frequently than it had been before.

A second development, which cannot be separated from the loss of inflectional endings, was the recession of OV (Type III) word order in any clause, whether subordinate or not. It is probable that some 'fixing' of word order preceded the loss of inflection, since the use of Type III word order was not totally consistent even in the time of Alfred (c. 850-900). If word order had been variable inflections could not have been lost since either word order or inflection was needed to express the basic relationships of the sentence. Therefore, some growth in the analytic nature of English must have preceded the leveling of inflections. However, these two developments could not have been totally chronologically distinct, rather they probably exhibited, as Traugott (1972) says, a cyclical development in which the fixing of some word order patterns allowed the loss of some inflections which in turn caused the introduction of restrictions on word order in new environments. On the surface, this gave the appearance of inconsistency in both inflection and word order.

The most important change leading to the merger of be and bat, though, was the extension of b throughout the demonstrative paradigm due to a form of list contamination. Of the three least marked forms of that paradigm, two did not follow the rest of the paradigm in being b-initial, but instead were s-initial: se, seo. According to Prokosch (1939), analogy has had greater influence on pronominal systems in Indo-European languages than on any other part of speech. It is not implausible, then, for such a development to take place. The result would be the nominative singular series be, beo, bat, and it is immediately clear that the change se > be would produce the nominative singular masculine form be, phonologically identical to the subordinating particle be. If the use of the particle be was increasing due to the loss of inflection, and the use of the demonstrative se was increasing as it began to function as the invariable definite article,¹⁶ the above change would seriously interfere with the identification of a particular form be as the subordinating particle or the demonstrative (definite article). A resulting confusion was all the more probable since it was decreasingly possible to use Type III word order to distinguish the two forms of be. Only the context could be used, which might prove to be less than reliable and indeed often ambiguous. Such a situation would be intolerable for any extended period of time and would probably change. The following examples show just what the resulting and necessary change was. Both examples are from early Middle English.

(109) 'Bi him bat Judas sold and died upon be
rode'

By him that Judas sold and died upon the
tree. (Lazamon's Brut).

- (110) 'Nout one þe þæt hit speked, auch þe
þæt hit hercneð'
 (There is) not one who speaks it who doesn't
 also hearken unto it. (Ancrene Riwe).

According to Brooks, the two texts of Lazamon's Brut, from which the first example is taken, have many passages in which the earlier version uses þe to introduce relative clauses and the later version uses þæt (pat). This suggests that because þe could no longer be used unambiguously to signal a subordinate (including relative) clause, this function had to be assumed by some other element. What better choice of a form whose function was to be extended than a word whose function already partially overlapped that of the original þe? To exemplify this change more fully, below is a series of passages from the Laud manuscript of the Anglo-Saxon Chronicle, with their dates. It can be seen that as the use of þe as an article increases, the use of þe as a subordinating particle decreases and its function is taken over by þæt.

- (111) 'Ond se abbot of Baðon. Ond þe of Perscoren'
 (1086).
 And the abbot of Bath and that of Perscoren.
- (112) 'þurh þa mænig fealdlice gyld þe ealles
 ealles þises geares ne geswicon' (1118)
 Through the many rural offerings which for
 all of this year didn't fall short.
- (113) 'Ond wið hine accordedan þe æror mid heora
 castelan him togeanes wæron' (1119)
 And (they) made terms with him (they) who
 had formerly with their castles been against
 him.
- (114) 'Ðysra deað wæs heora freondan twyfeallice
 sár. An þet hi swa fearlice þises lifes
 losedan, oðer þet feawa heora lichaman ahwær
 syððan fundena wæron' (1120)
 This death was two fold grievous for their
 friends. One [reason was] that they lost
 their lives so fairly. The other that few
 of their bodies were found anywhere after-
 wards.
- (115) 'Ðises geare wurdon sehte seo cyng of
 Englalonde on se of France' (1120)
 This year were reconciled the King of England
 and the one of France.
- (116) '...þa hwile þe þa munecas sungen þære
 messe' (1122)
 ...while the monks sung the mass.
- (117) 'Ond þær æfter þe Tywesdæi æfter Palmes
 Sunendæi wæs swiðe micel wind on þæt dæi'
 (1122)
 And the Tuesday after Palm Sunday there was
 very much wind.

- (118) 'Ond se fir weax na þa ma up to þe heouene'
(1122)
And the fire grew no more up to the Heaven.
- (119) 'him wið cwæðen munecas and eorlas ond þeignes
ealle mest þe þær wæron' (1123)
The monks and the earls and almost all the
thanes that there were spoke with him.
- (120) 'Ða sone in þe lenten ferde se ærcebiscop
to Rome' (1123)
Then soon in the lent the archbishop
traveled to Rome.
- (121) 'Ða com se ærcebiscop of Cantwarabyrig...þa
munecas of þe mynstre' (1123)
Then the archbishop of Canterbury came [and]
the monks of the ministry.
- (122) 'Ond þæt wæs eall mid micel rihte forði þæt
hi hæfden fordon eall þæt lond' (1124)
And that was all with much correctness because
they had destroyed all that land.
- (123) 'ond mid him com se swen and his dohter þæt
he æror hæfde given þone Kasere Heanri of
Loherenge to wife' (1126)
And with him came the queen and his daughter
whom he had previously given as a wife to King
Henry of Loherenge.
- (124) 'þær wæs se Scotte King David, and ealle ða
heaued læred and læuured þæt wæs on Engleland'
(1127)
There was the Scottisch King David and all
the learned chiefs and sages that were in
England.
- (125) 'Ðes ilces geares com fram Ierusalem Hugo of
þe temple' (1128)
(In) the same year Hugo of the temple came from
Jerusalem.
- (126) 'And þurh Godes milce and þurh þe biscop of
Sereshire and te biscop of Lincoln and te
opre ricemen þe þer wæron' (1132)
And through God's might and through the
bishop of Sereshire and the bishop of Lincoln
and the other powerful men that there were.
- (127) 'and begeat thære privileges, an of alle þe
landes þe lien to þe circewican' (1137)
and sprinkled (handed out) the privileges,
one of all the lands of the abbey, and another
of the lands that belong to the church.
- (128) 'Ond him com togænes Willelm earl of Albamar
þe þe king adde beteht Eurrwice' (1138)
And William earl of Albamar came to meet him,
to whom the king had entrusted Eurowice.

- (129) 'On þis gær wærd þe King Stephne ded and bebyried þer. his wif and his sune wæron bebyried æt Fauresfeld. þæt minster hi makedan. þa þe king was ded þa was þe eorl beionde sæ...þat ilce dæi þat Martin arcebiscop of Burch sculde þider faren þa sæclede he and ward ded' (1154)

In this year the king Stephen died and [was] buried there. His wife and his son were buried at Fauresfeld, which the minister made. When the king was dead the earl was across the sea. The same day that Martin, archbishop of Burch should (was to) travel there he sickened and died.

The following examples are from "Seinte Marherete" and "Sawles Warde", two sections of a composite work called The Katherine Group, dated approximately 1210-1230 and considered to be Early Middle English.

- (130) 'Þe þridde suster. þat is meað. hire he makeð maister ouer his willefule hird þat we ear of speken'
The third sister who is moderation, her he makes master over his willfull flock, which we hear of.
- (131) 'ne nime we neauer zeme. for al þat is on eorðe'
We never take heed of all that is on the earth.
- (132) 'Mi þridde suster meað spekeð of þe middel wei betuhhe riht 7 lust þat lut cunnen'
My thud sister speaks of the middle way between right and lust which few know.
- (133) 'Mi suster strengðe is swiðe bald. and seið þat nawiht hardes ne mai hire offearen'
My sister strength is very bold and says that nothing difficult can frighten her.
- (134) 'Swa ich haue ofte isehen þe hali þrunnesse fader 7 sune 7 te hali gast'
So I have often seen the holy trinity Father and Son and the Holy Ghost.
- (135) '...for þe sorhful sar þat heo in hire isehen'
...for the sorrowful grief that she saw in her.
- (136) 'Hwil þat ha spec þus, me to-leac hire, swa þat te ueele reue for þe stronge rune of þat blodi stream...ne mahte for muchele grure lokin þidewardes'
While he spoke thus, one tore her apart, so that the evil reeve for the strong running of that bloody stream might not look there for much horror.

- (137) 'þe engles, as ha beren þe sawle in hare
bearmes, sihen towart heouene'
The angels, as they bore the soul in their
bosoms, ascended toward heaven.
- (138) 'Þis beoð þe wepnen þat me wurst wundeð'
These are the weapons that wounded me the
worst.

There are a few scattered instances of þe used in a relative clause, but much fewer than in the Anglo-Saxon Chronicle.

Clearly then, Middle English that is not the reflex of the Old English demonstrative pronoun þæt, which remained as the only demonstrative pronoun (besides this, which is from another paradigm), but of the coalescence of the two subordinating particles þe and þæt when morphological, phonological, and syntactic changes elsewhere in the system caused a surface confusion of the particle þe with the article þe (< se). It is also evident in the above data that this development was gradual, probably progressing at different rates in the different Old and Middle English dialects.

5.B. The Introduction of Wh-Words in Relative Clauses.

Another difficult question regarding Middle English relative clauses concerns the reason for the introduction of the set of interrogative pronouns for use in relative clauses. Mustanoja (1960) suggests that interrogatives became relative pronouns first by losing their force in indirect questions and then weakened further until they became a generalizing (indefinite) relative. Finally, interrogative words became full relative pronouns when they appeared with an antecedent. This is, however, not a sufficient answer. First, it must be noted that indefinite relative pronouns formed with the interrogative stem already existed in Old English.

- (139) 'Þa hi wæron þær ge gaderod, þa bed se cyng
heom þæt hi scoldan cesan hem ærce biscop
to Cant wara byrig swa hwam swa hi woldan'
Then they were gathered there, the king bade
them that they should choose as archbishop
of Canterbury whomsoever they wishes.
(Bede's Ecclesiastical History).

Second, Klima (1964) points out that there are several differences between the wh-words that are used in relative clauses and those used in interrogative sentences: (1) Relative clause wh-words don't occur with certain modifiers which do occur with interrogative wh-words.

who else came	vs.	the man who else
who was there of interest	vs.	the man who was there of interest

(2) Relative clause wh-words can take plural or singular verbs

whereas interrogative wh-words can only co-occur with singular verbs.¹⁷

A more complete explanation presents itself when one again takes the entire system of the language into account. Once the use of the demonstrative in relative clauses died out, the speakers of Middle English were left only with the uninflected particle that to signal relative clauses. Just as with Old English clauses with þe alone, this would have caused ambiguity in a number of cases as to the exact function of that and some other means of showing the relationship between the elements of the clause was needed. Since wh-words were already used in indefinite relative clauses, it is not particularly surprising that such words might be extended to fill the gap left by the loss of the declinable demonstrative. Soon after the OE period, the interrogative form hwilc was adopted as a relative (indefinite relative clauses) and later the use of whose, whom and finally who were extended to definite relative clauses. According to Traugott (1972) who was the last wh-word to be extended, possibly because its environment (i.e. the coreferential noun was in the nominative) was the least ambiguous. Indeed, it is possible that its extension was only due to a desire for consistency, since at some point it would have been the only interrogative indefinite word which was not also used in definite relative clauses.

5.C. Further Clarification of Old and Middle English Relative Clause Patterns.

With the above analysis of Old and Middle English relative clauses, some light can now be shed on surface patterns which had heretofore been regarded with at least some degree of puzzlement. For instance, the two patterns se þe and which that would appear to be redundant in the older view of þe and that as being relative pronouns. It is clear now, however, that each is the combination of a declinable relative word with a subordinating particle. They seem redundant to us merely because New English relative clauses appear with one or the other, but never with both. The second of the two words, either which or that, is superfluous. Notice that the se þe form was used frequently only in Late Old English, when the usual means of conveying the information that the following clause was a relative clause were no longer unambiguous. And the which that pattern had completely died out by the time of Shakespeare since by that time the use of wh-word alone to introduce a relative clause was probably quite familiar. That is, only when there was danger of a loss of information, or when unfamiliarity with new forms could cause ambiguity, were such "redundant" patterns widespread. The same reasoning can be used to explain the patterns þe...PRO and that...PRO. It appears that once the speakers of Middle English had become accustomed to the use of wh-words over a period of several generations (almost the same period of time that it took all the wh-forms to be extended to the new use) that was no longer needed to signal the subordinate status of the relative clause.¹⁸

It is necessary at this point to explain a transformation that would be needed for this partial analysis of relative clauses in Old and Middle English, namely that-insertion. The presence of such a transformation in the derivation of relative clauses is necessary if that is indeed a signal of subordination, because such a word could not be present in deep structure. In Old English this transformation would have to have applied before any transformation changing word order, since a clause would have to be marked as subordinate before the word order could be changed to that of non-main sentences, OV. Even in those Old English subordinate clauses in which þe or þæt did not appear overtly, it must have been present at some point in the derivation. Had this not been the case, relative clauses which were introduced by the demonstrative pronoun only, would never have exhibited OV word order since the presence of a clause-initial demonstrative pronoun was never accompanied by subordinate word order in main clauses. Once þe was inserted, it would have signaled that other transformations relevant to the derivation of relative clauses were possibly applicable, specified by the presence of two coreferential nouns. þe could then be optionally deleted.

The forms se þe and which that can now be seen as the result of failing to delete þe and that for the reasons specified above, i.e. when the se and which were insufficient by themselves to specify the relationships between the elements in the clause. Once clauses introduced by wh-words were unambiguously interpretable as relative and the whose and whom forms could be used, the deletion of that became obligatory if the wh-word itself was not deleted. It is obvious that since Early New English the deletion of either the wh-word or that has been obligatory, although the choice of which word is to be deleted to a large extent depends upon the dialect of the speaker and the situation.

It seems, then, that both the deep structures and the transformations necessary to derive a relative clause in Old English are strikingly similar to those necessary for New English relative clauses, most specifically with respect to the subordinating particle. To recapitulate, Old, Middle and New English relative clauses are all formed with an indeclinable particle that cannot be followed by a preposition. This particle can be accompanied in Old and Middle English by a declinable pronoun, but only rarely if ever in New English (see Section 4) because the use of both the pronoun and the particle appears to be redundant. In addition, the particle which introduces relative clauses in all three periods in the history of English show striking, and I think non-coincidental, similarities to the words used to signal subordination in each of those periods. In OE, the same þe that introduced relative clauses also changed a preposition into a subordinating conjunction. The ME word that which introduced relative clauses was the same particle that was used in complement sentences and after certain conjunctions like after, before and while: the reflex of þæt and þe which functioned as subordinating particles in Old English. I will argue below (see Section 6) that this is also the case in New English as well. When OE þe and ME and NE that do not appear, it is because

they have been deleted at some time after that-insertion, rather than never having been present at all in the derivation. A final similarity between these three periods is the sporadic but nonetheless noticeable occurrence of the pattern that (or be)...PRO in certain environments.

Most differences between Old and New English relative clauses consequently appear to be only superficial: the declinable relative pronoun in Old English was formed from the demonstrative stem, whereas Middle and New English use the interrogative/indefinite stem; the subordinating particle in Old English was be while Middle English used the particle that; restrictions on surface structure increased in the New English period, making the deletion of either the pronoun or the particle obligatory; and in Old English most relative clauses exhibited OV word order. However, the transformations necessary to derive relative clauses have not changed. In all three periods, once the sentence which forms the relative clause immediately follows the antecedent, that-insertion applies producing an intermediate structure like (140).

(140) 'I saw the boy that Sue likes the boy'

Then the rules which determine the form of the wh-word apply and finally the deletion rules which produce the surface structure.

6. Relative and Subordinate Clauses in New English.

In this section I would like to discuss some possible ramifications of the preceding analysis of relative clauses and the word that. These are meant to be suggestions as to possible alternative analyses to the present ones and not absolute statements. I will therefore be brief, but hopefully not so much as to obscure the line of reasoning.

6.A. Relative Which as an Adjective.

It may have become apparent that I have been rather vague about the exact transformations which apply after that-insertion. The reason for this is that I feel it is possible that the traditional analysis of the wh-word as being the result of wh-attachment to the noun in the clause and subsequent left-movement is at least partially incorrect. In discussing the relative clause pattern that (be)...PRO earlier I concluded that such a pattern could be explained as an effort to retain semantic information which the speaker or writer felt would be lost if only that (be) appeared on the surface. It was also pointed out and illustrated in Section 2 that such a pattern also appears in New English, arguing that that is not a pronoun but a particle, since it would be unlikely to have two surface pronouns referring to the same antecedent. This would mean that in the derivation of a that...PRO relative clause, no other transformational rules specific to relative clauses would apply. Rather, pronominalization would apply producing a clause whose structure was closer to the deep structure than would be the case were all the other transformations opted for.

Downing (1973a) says that such a pattern is not possible with a wh-word, so that while (141), (142) and (143) are possible (at least marginally acceptable), (144) and (145) are not.

- (141) 'That's the problem that I asked you to find out from Fred about it'
 (142) 'The man that I just reminded you of the fact that he was going to call this afternoon is on the phone'
 (143) 'There are many people that we can't talk about all of them'
 (144) *'That's the problem which I asked you to find out from Fred about it'
 (145) *'The man whom I just reminded you of the fact that he was going to call this afternoon is on the phone'

However, I have personally heard several people use relative clauses which contain both a wh-word and the appropriate pronoun; and although sentences like those in (146)-(153) and (171)-(182) below are always termed unacceptable to native speakers of English, not one of these sentences was met with any reaction, negative or otherwise, when uttered. In fact, sentence (148) actually appeared in writing, on a student exam in an introductory linguistics course.

- (146) '...which initially people might think it would have a limited appeal'
 (147) 'That's all part of the energy saving measures, unless someone's working on them, which that happens, too.' (that was used as a demonstrative pronoun here).
 (148) 'Syntactically synonymous sentences are ones in which their basic structure is the same'
 (149) 'May be that's from a full grown animal, which it would be tougher'
 (150) 'There are certain parts of a theory which they're small parts but crucial to the theory'
 (151) 'I almost don't want a desk door on that because it won't let me see the wood in there, which it wouldn't let me look at that'
 (152) 'I have to type the footnotes and the bibliography which I don't know how long they're going to be'
 (153) 'which being cool and being caves the people built homes on top of it'

If the pattern that...PRO is used to argue against attributing a pronominal function to the word that in relative clauses, it is possible that the pattern which...PRO is an argument against attributing a pronominal function to wh-words as well. However, if which isn't a pronoun, and one would certainly not want to call it a particle, what else might it be? I suggest that another

possibility is that which, at least at a deep structure level, is an adjective. There are three facts which might support such an analysis.

First, both demonstratives in Old English and which in Middle and New English can function as adjectives when they precede a noun.¹⁹ Second, it is possible to find relative clauses, at least in Middle English, in which which appears as well as the second occurrence of the noun.

- (154) 'The better part of valour is discretion, in
the which better part I have saved my life'
(Shakespeare, "Henry IV")
- (82) 'Of the which lyne...is ycleped the Est Lyne'
- (84) '...by þe wiche lawe all þat shall come to
hevene muste nedis be saued'

Third, there are many instances where the deletion of the noun after which (not necessarily in a relative clause) is optional.

- (155) 'How do you determine which features are
distinctive and which features aren't'?
- (156) 'How do you determine which features are
distinctive and which \emptyset aren't'?

This pair of sentences shows the adjectival function of which in (155) becoming pronominal in (156). Such a change in function is entirely parallel to what happens with the demonstrative, where the demonstrative adjective as in 'that thing' becomes a pronoun when the noun is deleted. Hence, the following pairs of sentences parallel to (155) and (156).

- (157) 'John's will and the will of his wife'
- (158) 'John's will and that of his wife'
- (159) 'That argument provided the motivation for his
quitting.'
- (160) 'That \emptyset provided the motivation for his quitting'

All of this suggests that a rule of wh-attachment does not apply to the noun in the relative clause thus changing the noun itself to the appropriate relative pronoun. Rather, there is very likely some kind of insertion rule that places the appropriate relative adjective before the noun in the relative clause and does not at that stage affect the noun. The derivation of a relative clause up to this point would then look like:

Remote Structure: I saw the boy I like the boy
That-insertion: I saw the boy that I like the boy
Wh-adjective insertion: I saw the boy that I like the
 which boy

The Middle English patterns the which (Noun) provide evidence for the placement of the inserted adjective, i.e. that it is inserted

directly before the noun and not the article. This is entirely parallel to the placement of all adjectives in English.

the yellow house	vs.	*yellow the house
the happy child	vs.	*happy the child
the sitting dog	vs.	*sitting the dog

What happens at this point is not clear. It is possible that the adjective alone is moved to left and placed at the head of the clause before that. A structure like (161) would then be produced.²⁰

(161) 'I saw the boy which that I like the boy'

It could not be the case that the entire phrase 'the which boy' undergoes left-movement at this point because it would then be impossible to derive the structure which...PRO. If the whole phrase is moved there would be no noun left in the original position to be pronominalized, and it is clear that the noun must be in its original position at the time of pronominalization in order to produce the which...PRO and that...PRO patterns. If pronominalization did not apply at this point, as is usually the case, there would be an obligatory deletion of the coreferential noun and either the which or that. The two possible surface structures would be as in (162) and (163).

(162) 'I saw the boy that I like'

(163) 'I saw the boy who(m) I like'

and optionally

(164) 'I saw the boy I like'

If pronominalization applies only the deletion of which or that is obligatory and (165) and (166) would result.

(165) 'I saw the boy which I like him'

(166) 'I saw the boy that I like him'

(These are of course oversimplified examples. Most occurrences of which...PRO and that...PRO appear in longer or more complex sentences.)

It is not impossible, though, that the relative adjective which is not moved to the head of the clause, but that the entire noun phrase—article, adjective and noun—is copied at the head of the clause with the subsequent deletion of the noun phrase in its original position. The noun phrase would have to be copied and not moved because, again, to move the noun phrase out of its original position would prevent the derivation of which...PRO. The plausibility of the copy and deletion analysis is shown by the existence of the pattern the which (Noun) in Middle English, as in (154).

- (154) 'The better part of valour is discretion,
in the which better part I have saved my
life'

How else could such a surface pattern be derived if not by left-movement (which doesn't seem to totally account for the facts as I pointed out above) or by copy and deletion? It might be argued that the existence of such a pattern in Middle English proves nothing about the situation in New English. This is very true, yet Middle English itself had both which...PRO and the which (Noun) which could only be accounted for by the copy and deletion analysis. Since which...PRO still appears sporadically in New English it is not impossible that (154) does also, as a remote structure.

In any case, the relative clause cannot be the result of the simple left movement of a noun to which wh-attachment has applied, since that noun appears on the surface as a pronoun in the exact position that it had in deep structure. The order of transformations relevant for all stages would be:²¹

- (1) That-insertion
- (2) Wh-adjective insertion²²
- (3) Copying of either the adjective alone, or the entire noun phrase including the adjective, at the head of the clause
- (4) Optional pronominalization of the noun
- (5) Deletion of the noun in its original position (if (4) has not applied)
- (6) Deletion of the noun at the head of the relative clause (if this rule is necessary)
- (7) Deletion of either that or which, or both, according to dialectal, stylistic and other considerations

If the relative adjective which is the only element moved to the left, a derivation would look like the following:

Deep Structure: I have seen the woman and John saw the woman.

Swooping: I have seen the woman John saw the woman.

That-insertion: I have seen the woman that John saw the woman.

Wh-adjective insertion: I have seen the woman that John saw the which²³ woman.

Left-movement of adjective: I have seen the woman who that John saw the woman.

Deletion of noun:²⁴ I have seen the woman who that John saw.

Deletion of Relative PRO: I have seen the woman that John saw.

or Deletion of That: I have seen the woman who(m) John saw.

or Deletion of both: I have seen the woman John saw.

If the entire noun phrase is copied at the head of the clause the derivation would be:

Deep Structure: I have seen the woman and John saw
the woman.

Swooping: I have seen the woman John saw
the woman.

That-insertion: I have seen the woman that John saw
the woman.

Copying of the NP: I have seen the woman the woman
that John saw the woman.

Wh-adjective insertion: I have seen the woman
the which woman that John saw the woman.

Deletion of original NP: I have seen the woman the
which woman that John saw.

Deletion of copied NP: I have seen the woman who that
John saw.

Wh-Adjective Deletion: I have the woman that John
saw.

or That-deletion: I have seen the woman who(m) John
saw.

or Deletion of both: I have seen the woman John saw.

It is possible that some of these transformations may be collapsed. Also, some of the structures seem intuitively doubtful, at least, in their unwieldiness and length. However, I must repeat that this Part (A) is only suggestive of what would seem to be a fairly natural outgrowth of the analysis of relative clauses presented in Section 5 and not necessarily the only manner in which to derive relative clauses.

Another possible analysis suggests itself if one looks at relative clauses in older Indo-European languages, such as Hittite, Old Persian, Greek and Latin. In these languages relative clauses precede the main clauses in most cases and thus are of the form (cited in Hahn (1965)):

(167) 'which utensils are therein, these he takes
up'

(168) 'which offering you protect, that indeed
goes to the gods'

(169) 'which room the soldier gave the concubine,
in that room I have bored through the wall'

(170) 'which slave was bringing this token, I
have tricked him'

The historical development of such constructions has always shown right-movement of the wh-element.²⁵ If structures similar to the ones above were still valid for the deepest structures of Old and Middle English (at least), a partial derivation would look like the following:

Deep Structure: I saw the boy and I like the boy.
 Swooping: I saw the boy I like the boy.
 That-insertion: I saw the boy that I like the boy.
 Wh-adjective insertion: I saw the which boy that I
 like the boy.
 Wh-right movement: I saw the boy which that I like
 the boy.

Old and Middle English relative clause patterns (specifically se be and the which (Noun)) can then be explained as a copying of the coreferential noun phrase at the head of its clause with subsequent deletion of either the noun, that or both. That...PRO patterns would result from failure to copy the noun at the head of its clause and pronominalizing it instead.

6.B. Relationship of Relative and Subordinate Clauses.

I have already argued that the subordinating particle that which appears in Middle English relative clauses is the result of the conflation of the two Old English subordinating particles be and bet, the second of which continues into New English as the that which occurs in complement clauses. This of course implies, and I wish to claim, as do Downing (1973a), Klima (1964), and others, that the that in New English relative clauses is the same word in both form and function as in complement clauses.²⁶ This is supported by certain facts mentioned in Section 2, namely that neither can follow a preposition (unless it is used to introduce an entire sentence, e.g. in that S), neither can be inflected and in fast speech both can be reduced further than the demonstrative that.

Robin Lakoff (1968) proposes that once the structure N-S has been generated by the Phrase Structure Rules (she says nothing about Swooping since she is concerned only with complement sentences), a rule applies which automatically inserts that before the embedded sentence. She calls the rule that-attachment or complementizer-placement. She suggests that that should be considered the basic "complementizing morpheme" because it has the least effect, of all the complementizers, on the structure of the embedded sentence.

I would like to claim that that is inserted before every subordinate clause, once it has been designated as being subordinate, and that this is true even of clauses where that almost never appears. I cannot say now exactly what specifies a clause as being subordinate to the main clause, but it seems to be a matter of semantic "triggering" rather than syntactic since that is inserted before types of subordinate clauses that have different syntactic structures. If the presence of that in the surface structure is superfluous, as it is in many cases, or if another complementizer, e.g. Poss-ing, is opted for, that is deleted.

That that is present at some stage of the derivation, even in structures in New English where it rarely appears, is obvious from the following examples, all of which I personally have heard spoken and by "educated people".

- (171) '...because that the assumptions of the theory didn't allow for that'
 (172) 'We were there three days before that you could rent the fishing equipment'
 (173) 'We hear from the news agencies long before that we're notified by the companies'

It is possible to interpret these three as being shortened versions of because (of the fact) that and before (the time) that, respectively. However, the following have no such interpretation.

- (174) '...even though that there are these assumptions in the scientific community'
 (175) 'That may be one reason why that Kohoutek is so faint'
 (176) '...unless that Geauga County changes its zoning laws'
 (177) 'That's why that those with malaria didn't get sickle cell anemia'
 (178) '...whether that sentences like these are simpler'
 (179) 'We were all kidding about how that she would get every job in Indo-European for the next fifty years'
 (180) 'It got to where that if I went to a dinner everyone would bring my favorite recipe'
 (181) 'They had just finished putting in the septic tank the day before that they decided to have sewers'
 (182) 'The reports did sound like that she was upset'

It is interesting to note that these examples are precisely parallel to many of the Old and Middle English subordinate clauses cited earlier.

It is of course necessary that there be some means of differentiating the types of subordinate clauses once that has been inserted, but as yet I do not know how that would be done, although it would certainly, at least in part, depend upon semantics.

6.C. The Subordinating Particle and Swooping.

Until now I have avoided distinguishing between restrictive and non-restrictive relative clauses. In Old and Middle English the particles þe and that, to which I have attributed some sort of subordinating force, appeared both in relative clauses that could be interpreted as restrictive and those which were non-restrictive. However, this is not the case in New English. One of the most obvious differences between these two types of clauses is that while restrictives may be introduced by the subordinating particle, non-restrictives may not.

- (183) 'The man that has a green shirt on is
Mary's husband'
(184) *'John,that has a green shirt on, is
Mary's husband'

I believe the explanation for this difference to be that the information conveyed by a non-restrictive relative clause is not semantically necessary to further identify the antecedent. It is not 'semantically subordinate'. This is reflected syntactically in the fact that the subordinating particle cannot occur in a non-restrictive relative clause where the clause is felt to be coordinate. That the subordinate particle does appear in restrictive relative clauses reflects the opposite: that the information in the clause is necessary to further identify the antecedent and is thus semantically subordinate to the main clause. A restrictive relative clause 'complements' the main clause, in a sense, by completing the identification of a particular object, the antecedent.

By saying that a restrictive relative clause 'complements' the main clause, I do not in any way mean to claim that restrictive clauses are closer to complement clauses than to non-restrictives. I feel that the reason given above for the presence or absence of that in a New English relative clause is entirely compatible with the analysis of "Swooping" for both types of relative clauses. The proponents of the transformation called "Swooping" claim that relative clauses are generated by the Phrase Structure Rules as a simple sentence conjoined to or at least coordinate with the main sentence. One of the two sentences is then swooped into the other and inserted immediately after the noun which is coreferential to the noun in the "swooped" sentence. The structure NP-S, according to the Swooping analysis, is only a remote structure rather than the deepest structure of relative clauses as is claimed by some opponents of the Swooping analysis.

Assuming the Swooping analysis to be correct then, once one of the coordinate sentences has been swooped into the other, certain semantic considerations must be taken into account to decide whether the relative clause is restrictive or non-restrictive. Neither Postal (1967) or Thompson (1971), two leading proponents of Swooping, has as yet arrived at a satisfactory means of signaling which clause is restrictive or non-restrictive (other than Postal's (1967) suggestion of marking the clauses [#Main]). However, I claim that once the clause has been designated as restrictive or non-restrictive, a rule of that-insertion applies to restrictive clauses, thus syntactically marking their semantically subordinate status. This rule is not allowed to apply to relative clauses which have been specified as non-restrictive since the presence of that would incorrectly mark them as subordinate, which they are not.

Footnotes

*This is a slightly revised version of my OSU M.A. thesis. I wish to express my sincere gratitude to Dr. Robert J. Jeffers who, as my adviser, has provided me with many helpful suggestions and shown continued interest in my work. I would also like to thank Dr. Arnold Zwicky and Dr. David Stampe for their comments on this paper. Finally, I would like to thank Dr. Michael Geis, who first asked me why I referred to that as a pronoun.

1. At the time that I wrote my thesis, Downing's (1973a) paper was not available to me, only the mimeographed notes from it. Consequently, Section II is more a surmising as to his arguments rather than an actual summary. Also, several points which he brings out in his paper, which I have since obtained, I had arrived at independently, e.g. that as a complementizer in relative clauses, and some although not all of the arguments pointing to that conclusion related to that in other subordinate clauses; differentiating restrictive and non-restrictive relative clauses on the basis of the insertion or non-insertion of that; the assumption of the function of OE þe by the OE complementizer þæt when þe was no longer unambiguous in function, as I explain in Section 5. Herbert Stahlke has also argued for the analysis of that presented here in the preliminary version of a paper entitled Which That (February 1975). Since I didn't see his paper until this issue of Working Papers was ready to go to press, his arguments are not incorporated here. It is interesting to point out, however, that what he considers to be one weak point in his presentation, the inability to explain diachronically why that should behave as it does synchronically, is no longer a weak point in view of the historical analysis of that which I present in Section 5.A.

2. I exclude from the discussion in this section all instances of the that which is a demonstrative pronoun. I am referring only to the occurrence of that as a relative clause introducer.

3. David Stampe has pointed out to me that there is a dialect in which (8) occurs as often as (7), but often as "That's the problem which I asked you to find out about it from Fred". I have also heard many sentences similar to (8). See Section 6.A for a discussion of such sentences.

4. Foss and Fay (1974) analyze similar sentences (e.g. "And when Indians chew cocoa, which they chew cocoa all day long, they...") as the result of failure to delete the coreferential noun. However, with the sentences below and those in Part A of Section 3 there is more going on than just a failure to delete, since the noun shows up as a pronoun. Perhaps failure to delete the noun allows it to be pronominalized.

5. I do not mean to say that such sentences are "correct" in the prescriptive sense of the word. However, I found sentences with this pattern to be very common, much more so than might be expected. And, like another type of sentence mentioned below which would be labeled "ungrammatical" in traditional terms, these sentences were never met by any negative reaction, on the part of linguists or non-linguists.

6. Pointed out by David Stampe.

7. Although Klima (1964) does not provide explicit evidence in his dissertation that that cannot be a pronoun, he does suggest a reason

for the presence of that in relative clauses which, by implication, argues against a pronominal function for that: since the presence of a wh-word in a particular set of sentences (those which become questions) triggers the inversion of the auxiliary, it is necessary in relative clauses, indirect questions and subordinate clauses to somehow block that inversion. Klima proposes that it is the presence of the subordinator that in these clauses which does just that, i.e. once a wh-marking is present at the head of the clause, that must be inserted to prevent inversion. He seems to have ignored the fact that that never appears in non-restrictive relative clauses to which, nevertheless, inversion does not apply.

8. 'ð' is an orthographic variant of 'þ' and did not necessarily indicate that the sound was voiced.

9. The symbol 7 was called a sigil and was the equivalent of 'and'.

10. In this example ignore the use of be as an article and bat where be normally appears in OE. These changes will be discussed in Section 5. This passage is probably from a dialect which preceded most others in the changes discussed in that section.

11. p. 105.

12. See, e.g. Brown (1970:89), where he does a statistical analysis of word order in Alfred's Cura Pastoralis: dependent clauses showing verb-final order by far outnumber those not showing verb-final order.

13. See Part C on subordinate clauses.

14. bat is only a variant spelling of bæt.

15. It seems fairly certain that OE bæt (demonstrative) and bæt (subordinator) ultimately derive from the same stem, during Pre-Old English or possibly Proto-Germanic.

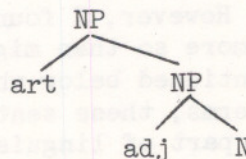
16. This development finds its parallel in Greek, Old High German and partially in Gothic.

17. This may be due only to the fact that non-indefinite relative clauses are always definite, i.e. have an antecedent that is marked for number, while interrogative sentences never do. Notice that in indefinite relative clauses, e.g. 'Whoever breaks that window will have to pay' the verb is also restricted to the singular.

18. See above where it was noted that by the time who was fully established as a relative word, the use of that with a wh-word has disappeared.

19. Notice that even in interrogatives such an analysis is possible: which ball = which (of all the possible balls) and who [is coming] = who (of all possible people) is coming.

20. Arnold Zwicky has pointed out to me that being able to move the adjective alone out of the construction



is unlikely. The same problem will arise in the alternative analysis suggested below. At this point I do not know how to avoid the situation,

since the facts do strongly suggest, at least to my mind, that which is indeed a deep structure adjective and thus embedded in a structure like the one above.

21. I assume the analysis called Swooping to be correct, though I have not indicated that it has applied in this derivation.

22. It is unlikely that this transformation is actually a substitution of which for the, since in all of ME and well into Early New English instances of the pattern the which (Noun) were common.

23. Possibly the relative adjective is only in wh-form (rather than a complete word) at deep structure level, and is specified later after lexical insertion.

24. At this point the adjective becomes a pronoun. Also at this point the optional pronominalization would apply.

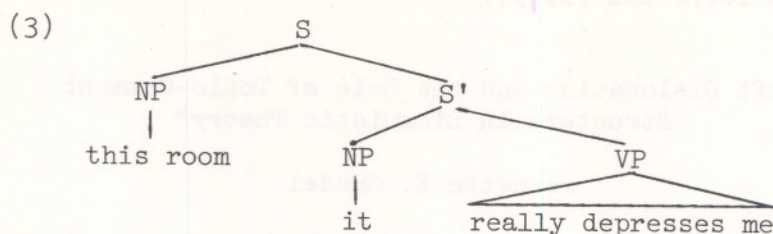
25. Pointed out to be by Robert Jeffers.

26. Jespersen (1949) approaches this claim when he says "the relative that is thus brought in close connexion with the use of that which was so extremely frequent in earlier periods, where it stood to our eyes redundant after other conjunctions, relative adverbs and relative pronouns..."

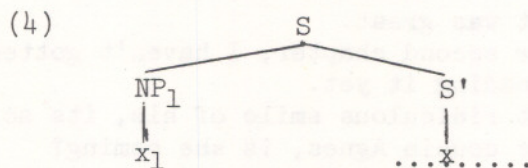
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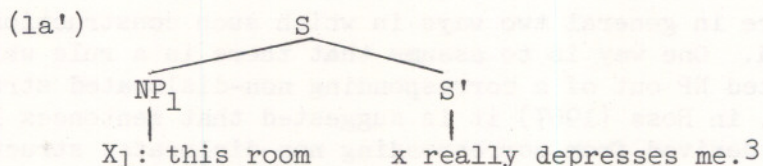
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The other possibility is that the dislocated NP exists as such, i.e., as an adjunct to the main sentence, in logical structure. For ease of reference I will henceforth refer to these two alternatives as the Extraction Hypothesis (EH) and the Logical Structure Hypothesis (LSH) respectively. It is my purpose in this paper to argue in favor of the latter alternative, i.e., in favor of LSH. More specifically, I will propose that left dislocated sentences are derived from logical structures roughly like (4), where NP_1 is the dislocated NP and x is a variable ranging over the set of objects (which may be only one)² designated by NP_1 .



The logical structure of (1a) would then be roughly (1a').



1.1. In Part I, I will discuss some general properties of left dislocated sentences and will point out those properties which provide support for LSH. It will be noted that there are apparently no properties of left dislocated sentences which provide strong support in favor of EH over LSH, though the reverse is true in a number of cases. The discussion will be restricted primarily to dislocation in the main clause. Some special problems connected with dislocation in subordinate clauses will be discussed in the last section of Part I. In Part II, I will argue that logical structures like (4) can be generalized to non-dislocated sentences as well. Deriving non-dislocated sentences from structures like (4) would require few rules that are not needed in the grammar anyway and would make it possible to account for various semantic, syntactic and phonological relationships between dislocated and non-dislocated sentences in a principled way. In particular, such an analysis offers a basis for integrating into the grammar a description of topic-comment structure and of the existential presuppositions associated with topic noun phrases.

PART I

2. Left Dislocation and Pronominalization.

In order to derive left dislocated sentences from structures like (4) it is necessary to incorporate into the grammar a rule of feature copying. This rule copies the features of NP₁ onto a corresponding variable in S'. A later rule then replaces these features by the appropriate pronominal form. An analysis which would incorporate such a process into the grammar has already been proposed on independent grounds as an alternative to the problematic view of pronominalization which would replace by a pronominal form the second of two identical noun phrases (see, for example, Bach (1968)).

2.1. Though the noun phrase in S' which corresponds to the dislocated noun phrase is generally a pronoun it seems to me that sentences like those in (5) are at least marginally acceptable, and most of them are quite acceptable with a preceding as for or about phrase.

- (5) a. (As for) that book I borrowed from you last week,
I haven't read that book yet.
b. (Concerning) that article on pronouns, Bill said
Mary told him the article wasn't worth reading.
c. ?(What about) your mother, is your mother coming?
d. ?(As for) beans, I don't like beans at all.
e. ??(Concerning) beans, beans make me sick.

The acceptability of these sentences seems to vary in proportion to the amount (and nature?) of the material which intervenes between the two noun phrases and the extent to which the noun phrases are exact copies of one another. It is analogous, I believe, to other sentences where morphologically and referentially identical noun phrases are repeated in discourse or in two conjoined sentences, e.g.,

- (6) I haven't read that book you gave me yet, but I
heard the book was very good.
(7) ?If beans make you sick, you shouldn't eat the beans.
(8) ??Mary walked into the room and then Mary sat down.

The sentences in (5)-(8) are not as clearly unacceptable, on the other hand, as examples like the following, where noun phrases with identical subscripts are understood to be coreferential.

- (9) *John₁ said that John₁ would stay.
*I told Harry₁ that Harry₁ couldn't go to the party.
*Mary₁ doesn't like Mary₁.

On the basis of these facts I propose that the grammar be allowed to generate sentences like those in (5) and that they be assigned various degrees of acceptability by the same surface structure well-formedness constraint that applies to sentences like (6)-(8). We will return to the derivation of sentences like those in (5) in Part II.

2.2. So far we have been considering only sentences in which the dislocated noun phrase is a full noun. It may, however, also be a

pronoun, as illustrated by the (a) sentences below.

- (10) a. Me/Myself, I never drink beer.
 b. *I, I never drink beer.
- (11) a. Him, he never does anything right.
 b. *He, he never does anything right.
- (12) a. You and me, we ought to get together some time.
 b. You and I, we ought to get together some time.
- (13) a. Them, I know they'll never believe me.
 b. *They, I know they'll never believe me.

As these examples show, a dislocated pronoun must be an objective form, even though the corresponding pronoun in the main sentence is in subject position. In an extraction analysis, a special lexical rule would be required to replace the non-objective pronouns by corresponding objective forms, since a left dislocation rule would produce the ungrammatical (b) sentences in (10)-(13).

If the pronoun in the main sentence is in object position, and hence the same form as the dislocated pronoun, the resulting sentence is awkward in the same way as the sentences in (5). Though here too the sentence becomes somewhat more acceptable with a preceding about phrase.

- (14) ?(As for) me, no one invited me.
 (15) ??(As for) him, I don't like him.
 (16) ?(Concerning) her, I don't think we should call her anymore.

Note also that these sentences sound better in fast speech, e.g. when the initial h in him and her is elided. Thus, the same surface structure well-formedness constraint that applies to sentences like those in (5) will assign various levels of acceptability to sentences like (14)-(16) where the dislocated pronoun and the pronoun in the matrix sentence are of the same form.

Notice that a condition against dislocation of object pronouns would clearly be too strong, not only because (14)-(16) are not totally unacceptable but because it would block acceptable sentences like

- (17) a. You and me, I don't think they'll be able to get along without us.
 b. You and her, no one will believe you anymore.

Note also that with the pronouns it and you which have only one form, there is no difference in acceptability between sentences in which the pronoun in the matrix sentence is in subject position and sentences in which it is in object position, another indication that it is the identity of the two forms and not the syntactic position of the pronoun that is responsible for the difference in acceptability between (10)-(13) and (14)-(16).

- (18) You, you can go tomorrow.
 (19) You, we'll let you go tomorrow.

- (20) It, I just can't understand it.
 (21) It, it never seems to work right anymore.

The unacceptability of (20) and (21) indicates that the pronoun it can not be left dislocated.⁴ In an extraction analysis (EH) an ad hoc restriction would thus have to be placed on the left dislocation rule in order to prevent it from applying to this pronoun. The facts would follow naturally, however, from LSH. The pronoun it cannot be generated in left dislocated position, since it is necessarily anaphoric. Compare, (20') and (21'), where it has been replaced by that.

- (20') ?That, I just can't understand it.
 (21') ?That, it never seems to work right anymore.

Note also that it is equally less acceptable than other pronouns in a what about or as for (concerning, etc.) phrase. Thus, compare

- (22) What about her?
 What about him?
 What about you?
 What about me?
 What about them?
 What about that?
 ??What about it?

- As for her...
 As for him...
 As for you...
 As for me...
 As for them...
 As for that...
 ??As for it...

3. On the Function of the Dislocated Noun Phrase and Its Relationship to the Rest of the Sentence.

There are a number of facts which suggest that the function of the left dislocated noun phrase is to state the theme of the following predicative sentence--to indicate what the sentence is about. Let us designate this function as that of topic and the predicative element, i.e., the remainder of the sentence, as comment.

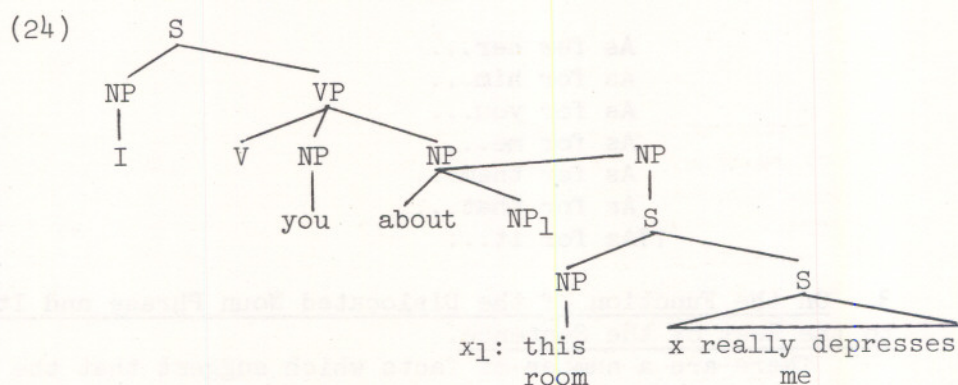
3.1. The dislocated noun phrase may be preceded by as for, concerning or about. Thus, the following sentences are paraphrases of (1a)-(13) respectively.

- (23) a. About this room, it really depresses me.
 b. As for women, I'll never be able to figure them out.
 c. Concerning this spot in the rug, you better get it out before the party on Saturday.
 d. Concerning the new Kubrick Movie, Bill said Marvin told him it was great.
 e. About your second chapter, I haven't gotten around to reading it yet.

A question with a dislocated noun phrase may be paraphrased by a sentence where the dislocated noun phrase is preceded by what about. Thus (23f) and (23g) are paraphrases of (1g) and (1h) respectively.

- (23) f. What about your cousin Agnes, is she coming.
g. What about those slacks I got you for your birthday, can you still fit into them.

In general a dislocated sentence without a preceding about⁵ element always has a corresponding paraphrase with such an element, though the reverse is not always true, i.e., in some cases a dislocated noun phrase must be preceded by about, concerning, or as for. These cases will be pointed out below. In order to account for the sentences where the dislocated noun phrase is preceded by an about element, we might propose a rule which optionally (in some cases obligatorily) places such an element in front of NP₁. Alternatively, it might be assumed that the about element (or some primitive term meaning roughly 'about') is already present in the logical structure. The latter alternative seems particularly attractive since the predicate about explicitly represents the function of the dislocated NP with respect to the rest of the sentence. An interesting possibility, it seems to me, is that an about phrase containing the dislocated NP is actually part of the performative clause,⁶ i.e., the logical structure of (1a) is roughly (24).



Unfortunately I am aware of no strong evidence in favor of such a hypothesis at present and I do not have time to investigate it any further here. One fact which may argue against such a hypothesis is that dislocation is sometimes possible in subordinate clauses (see section 8 below), though it will be noted that it is generally restricted to subordinate clauses that are objects of verbs which can take an about clause.

3.2. A left-dislocated sentence which is not itself a question always answers some implicit or explicit question: What about x?, where x is the dislocated NP. Thus, for example, (1a)-(1e) are appropriate responses to the respective questions: What about this room, women, this spot in the rug, the new Kubrick movie, and my second chapter.

3.3. I have argued in Gundel (1974) that the element which represents what the sentence is about (the topic) never carries the primary stress in the sentence. In English, and possibly in all natural languages, the constituent with primary stress always represents the new information in the sentence, that which is being predicated about the topic.⁷ That neither a dislocated noun phrase nor the corresponding pronoun in the matrix sentence can receive primary stress is witnessed by the ungrammaticality of the following sentences.

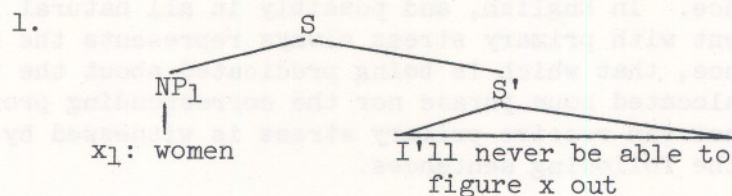
- (25) a. *This room, it really depresses me.
 b. *This room, it really depresses me.
- (26) a. *Women, I'll never be able to figure them out.
 b. *Women, I'll never be able to figure them out.
- (27) a. *Your second chapter, I haven't gotten around to reading it yet.
 b. *Your second chapter, I haven't gotten around to reading it yet.
- (28) a. *Your new haircut, I really like it.
 b. *Your new haircut, I really like it.
- (29) a. *Him he never does anything right.
 b. *Him, he never does anything right.

In order to account for these facts, I propose a rule of stress placement which may be stated informally as follows:

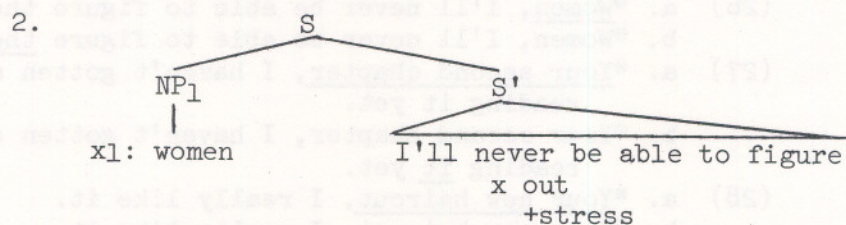
- (30) stress placement--assigns primary stress to the rightmost non-variable element in S.

(This rule naturally must apply before the rule that replaces the variable by a pronominal form.) At present the most widely accepted theory of sentence stress assumes that there are two separate rules of stress placement. The first of these--which assigns the 'normal' stress pattern--assigns primary stress to the rightmost element in S with special conditions that would prevent the rule from applying to pronominal forms and possibly other elements as well. A later rule of emphatic stress placement optionally assigns 'emphatic' stress to any element in the sentence. The inadequacy of such an analysis has recently been pointed out in works by Susan Schmerling (cf., for example, Schmerling (1974)). One of the problems is the sometimes counter-intuitive prediction as to what constitutes 'normal' as opposed to 'emphatic' stress. In EH it would be necessary depending on the order of rules to either (a) place a special condition on emphatic stress placement which would prevent it from applying to dislocated noun phrases and pronominal remnants of such phrases in the matrix sentence, or (b) place a special condition on left dislocation which would prevent it from applying to primary stressed elements. Either way, the relation between topic-comment structure and sentence stress is treated as an accident. I will argue in Part II that if topic-comment structure is explicitly represented in logical structure, namely by structures like (4), it will be possible to predict the stress pattern of all sentences by (30), thus eliminating the need for a special rule of emphatic stress placement. Such an analysis also captures more directly the relationship between sentence stress and the topic-comment structure of the sentence.

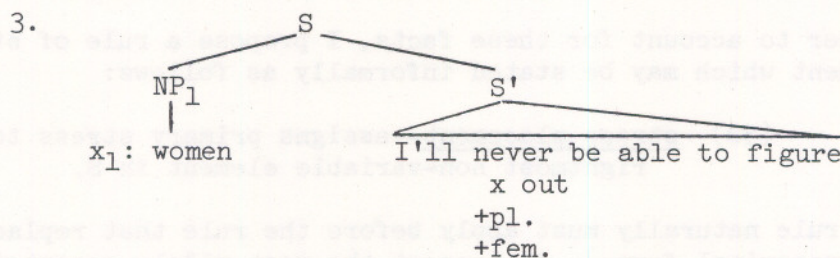
3.4. Summing up what has been proposed so far, the derivation of (1a), for example, is roughly as follows:



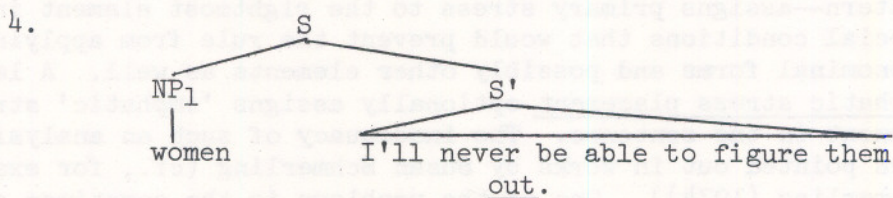
stress placement



feature copying



pronominalization



4. On the Nature of the Dislocated Noun Phrase.

The strongest argument in favor of LSH comes, I believe, from restrictions on the kinds of noun phrases which may be dislocated.

4.1. Left Dislocation and specificity. Consider the following sentences.

- (31) Gwendolyn would like to marry an honest politician.
 (32) He didn't charge me for a phone call.
 (33) The proofreader didn't see a misprint.

Sentences (31)-(33) are systematically ambiguous with respect to whether or not the speaker commits himself to a belief in the existence

of some specific individual or object designated by the indefinite noun phrase. This point is illustrated by the fact that (31)-(33) may be followed by either the (a) or the (b) sentences in (34)-(36) respectively.

- (34) a. His name is Percy Goodfellow.
 b. But she hasn't been able to find one.
- (35) a. It was the one I made to Beirut.
 b. He insisted on paying for them all himself.
- (36) a. It was the one on page ninety.
 b. Your typing must be pretty good.

The reading which may be followed by the (a) sentences can be paraphrased by (37)-(39) respectively, the reading which may be followed by the (b) sentences cannot.

- (37) There's an honest politician that Alice would like to marry.
- (38) There was a phone call that he didn't charge me for.
- (39) There was a misprint that the proofreader didn't see.

The left dislocated sentences which correspond to (31)-(33) have some interesting properties. Dislocation of the indefinite noun phrase results in ungrammaticality if the corresponding pronoun in the matrix sentence is definite.

- (40) *(As for) an honest politician, Gwendolyn wants to marry him.
- (41) *(Concerning) a phone call, he didn't charge me for it.
- (42) *(About) a misprint, the proofreader didn't see it.

The ungrammaticality of sentences like (40)-(42) has led some authors to claim the dislocation cannot apply to indefinite noun phrases.⁸ Note, however, that dislocation of the indefinite noun phrase is possible if the corresponding pronoun in the matrix sentence is one.

- (43) (As for) an honest politician, Gwendolyn would like to marry one.
- (44) (As for) a phone call, he didn't charge me for one.
- (45) (As for) a misprint, the proofreader didn't see one.

The pronoun one in these sentences, like the indefinite noun phrase in the non-dislocated counterpart, can have a specific as well as a non-specific reading, as can be seen by following (43)-(45) by either the (a) sentences or the (b) sentences in (34)-(36).

- (43) a. (As for) an honest politician, Gwendolyn would like to marry one. His name is Percy Goodfellow.
 b. (As for) an honest politician, Gwendolyn would like to marry one; but she hasn't been able to find one.

- (44) a. (As for) a phone call, he didn't charge me
for one; it was the one I made to Beirut.
b. (As for) a phone call, he didn't charge me
for one, he insisted on paying for them all
himself.
- (45) a. (As for) a misprint, the proofreader didn't
see one, it was the one on page ninety.
b. (As for) a misprint, the proofreader didn't
see one; your typing must be pretty good.

However, while the pronoun one may be interpreted either specifically or nonspecifically, the dislocated indefinite noun phrase cannot have a specific indefinite reading. This is indicated first of all by the fact that the corresponding pronoun in the matrix sentence cannot be definite, as witnessed by the ungrammaticality of (40)-(42). The antecedent of a singular definite pronoun can only have a singular specific reference. Thus, compare:

- (46) a. Henrietta would like to go out with a famous
 juggler; but he won't have anything to do
 with her.
b. Henrietta would like to go out with a famous
 juggler; but its hard to find one these days.

Specific noun phrases may be preceded by determiners like a certain, a particular, non-specific noun phrases may not, as witnessed by the following examples.

- (47) a. I can't find a certain bottle of Scotch. It's
 the one your cousin brought over last night.
b. *I can't find a certain bottle of Scotch; you must
 have forgotten to buy some.
- (48) a. Olga wants to marry a certain Norwegian; his
 name is Swen Swenson.
b. *Olga wants to marry a certain Norwegian; but
 she hasn't been able to find one.

A dislocated indefinite noun phrase can never be preceded by determiners like a certain, a particular, regardless of the interpretation of the pronoun one in the matrix sentence.

- (49) a. (As for) a bottle of Scotch, I haven't been
 able to find one; its the one your cousin
 brought over last night.
b. *(As for) a certain bottle of Scotch, I haven't
 been able to find one; its the one your cousin
 brought over last night.
- (50) a. (As for) a Norwegian, Alice would like to marry
 one; his name is Swen Swenson.
b. *(As for) a certain Norwegian, Alice would like to
 marry one; his name is Swen Swenson.

A specific indefinite noun phrase may be followed by a non-restrictive relative clause; a non-specific indefinite generally may not.⁹ Thus compare

- (51) a. Wanda would like to marry a Frenchman, whose name is Jacques, but he hasn't proposed to her yet.
 b. *Wanda would like to marry a Frenchman, whose name is Jacques; but she hasn't been able to find one.
- (52) a. I'm looking for a dress, which is pink with white stripes; it was hanging in the closet this morning.
 b. *I'm looking for a dress, which is pink with white stripes; but I haven't been able to find one that fits.

That a dislocated indefinite noun phrase cannot be followed by non-restrictive relative clause is illustrated by the following examples.

- (53) a. (As for) a Frenchman, Wanda would like to marry one; but he hasn't proposed to her yet.
 b. *(As for) a Frenchman, whose name is Jacques, Wanda would like to marry one; but he hasn't proposed to her yet.
- (54) a. (As for) a dress, I'm looking for one; it was hanging in the closet this morning.
 b. *(As for) a dress, which is pink with white stripes, I'm looking for one; it was hanging in the closet this morning.

Non-specific indefinite noun phrases share properties with generic plurals and in many instances the former may be replaced by the latter without any significant change in meaning.¹⁰ Compare, for example

- (55) a. A turtle makes a great pet.
 b. Turtles make great pets.
- (56) a. Henrietta refuses to date a linguist.
 b. Henrietta refuses to date linguists.
- (57) a. He didn't charge me for a drink.
 b. He didn't charge me for (any) drinks.

That this is not the case for specific indefinites¹¹ is demonstrated by the following examples.

- (58) a. He didn't charge us for a drink; it was the gin and tonic.
 b. *He didn't charge us for (any) drinks; it was the gin and tonic.
- (59) a. Henrietta refuses to date a linguist; his name is Bill Turner.
 b. *Henrietta refuses to date linguists; his name is Bill Turner.

Left dislocated noun phrases may be replaced by the corresponding generic regardless of whether the pronoun one in the matrix sentence is specific or non-specific. In most cases, the sentence sounds better if the dislocated noun phrase is preceded by as for (about, etc.).¹²

- (60) a. (Concerning) turtles, a turtle makes a great pet.
 b. (Concerning) turtles, Bill has one.
- (61) a. (As for) linguists, Henrietta refuses to date one because she thinks they are all degenerate.
 b. (As for) linguists, Henrietta refuses to date one; his name is Bill Turner.
- (62) a. (About) drinks, he didn't charge us for one; they were all on the house.
 b. (About) drinks, he didn't charge us for one; it was the gin and tonic.

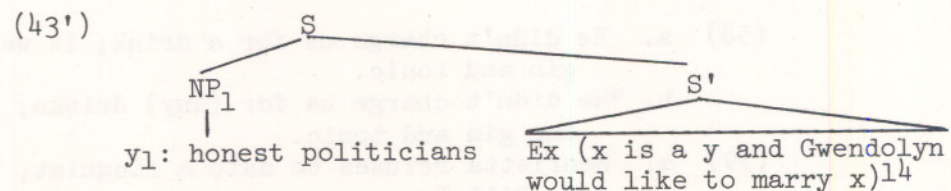
It has been suggested that the way to account for the ambiguity of sentences like (31)-(33) is by the position of the existential quantifier in the underlying (semantic) representation. Thus, the specific and non-specific readings of (31) would be distinguished by the fact that in the underlying representation of the former the whole sentence is in the scope of the existential quantifier, while in the latter it is not. The two representations would correspond roughly to (31') and (31'') respectively.

- (31') Ex (x is an honest politician and Gwendolyn would like to marry x)¹³
 (31'') Gwendolyn would like Ex (x is an honest politician and Gwendolyn marries x)

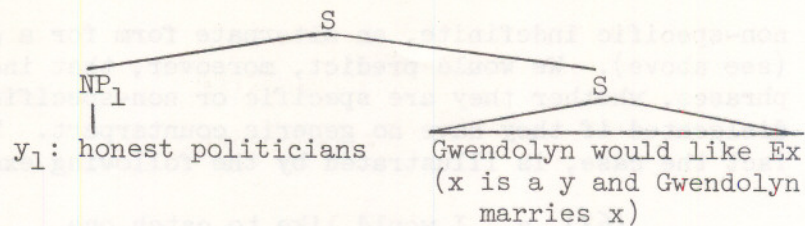
In (33) the distinction would lie in the fact that the negative is within the scope of the existential quantifier on the specific reading, but the existential quantifier is within the scope of the negative on the non-specific reading. Thus, the two interpretations would correspond roughly to (33') and (33'') respectively.

- (33') Ex (x is a misprint and the proofreader didn't see x)
 (33'') Not Ex (x is a misprint and the proofreader saw x)

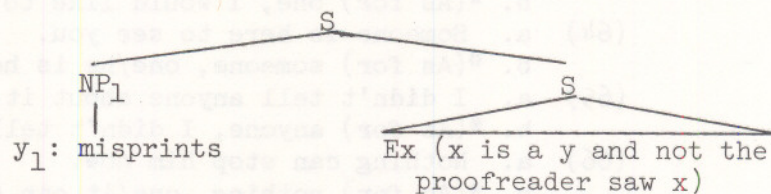
We may thus represent the logical structures of the two readings of (43) and (45) roughly as follows:



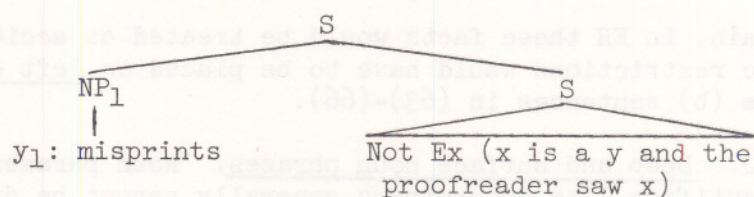
(43'')



(45')



(45'')



Whether or not this particular solution for distinguishing the specific and non-specific readings of indefinite noun phrases turns out to be correct,¹⁵ it is clear that on the specific reading the speaker asserts his belief in the existence of a particular object or individual referred to by the indefinite noun phrase while on the non-specific reading this is not the case; the speaker either explicitly denies the existence of a particular object or individual or makes no commitment one way or the other. Whatever the correct solution turns out to be the above facts concerning non-specificity of dislocated indefinites (more correctly they don't refer to a specific object-- they do of course refer to a specific class of objects) would require some ad hoc explanation under the extraction analysis. It would be necessary to place a condition on the left dislocation rule requiring that this rule cannot apply to a specific indefinite, assuming of course that this is even possible, i.e., it is not clear how such a condition could be stated unless specificity is considered a feature on the noun. Moreover, such a condition would be too strong. As was demonstrated above, though the dislocated noun phrase is non-specific, its pronominal remnant one may have a specific interpretation. On the other hand, these facts follow quite naturally from LSH. Assuming that specific indefinites can only be introduced into a proposition by an existential quantifier, they would automatically be excluded from the position of the dislocated noun phrase since this noun phrase originates outside the scope of any quantifier. Note also our earlier observation that the dislocated noun phrase is the topic of the sentence. Its function is to identify the object or set of objects that the sentence is about. Moreover, the existence of the topic noun phrase is not part of what is asserted in the sentence; it is presupposed.¹⁶ The dislocated noun phrase may, however, be generic, i.e., it may identify a particular class of individuals or objects; hence it may have the form of a

non-specific indefinite, an alternate form for a generic noun phrase (see above). We would predict, moreover, that indefinite noun phrases, whether they are specific or non-specific, cannot be dislocated if they have no generic counterpart. That this is in fact the case, is illustrated by the following examples:

- (63) a. I would like to catch one.
 b. *(As for) one, I would like to catch one/it.
- (64) a. Someone is here to see you.
 b. *(As for) someone, one/he is here to see you.
- (65) a. I didn't tell anyone about it.
 b. *(As for) anyone, I didn't tell one/him about it.
- (66) a. Nothing can stop him now.
 b. *(As for) nothing, one/it can stop him now.

Again, in EH these facts would be treated as accidental; special ad hoc restrictions would have to be placed on left dislocation to block the (b) sentences in (63)-(66).

4.2. Deep and surface noun phrases. Noun phrases which contain quantifier-like determiners generally cannot be dislocated, as witnessed by the following examples.

- (67) a. I like only John.
 b. *(As for) only John, I like him.
- (68) a. Even Bill wasn't wearing a hat.
 b. *(As for) even Bill, he wasn't wearing a hat.
- (69) a. We saw many monkeys at the zoo.
 b. *(As for) many monkeys, we saw them at the zoo.
- (70) a. Every child was eating a lollipop.
 b. *(As for) every child, he was eating a lollipop.
- (71) a. Few people will understand this thesis.
 b. *(As for) few people, they will understand this thesis.
- (72) a. Bill said that all anthropologists admire Dr. Mead.
 b. *(As for) all anthropologists, Bill said they admire Dr. Mead.
- (73) a. We interviewed three men yesterday.
 b. *(As for) three men, we interviewed them yesterday.
- (74) a. None of the doctors wanted the senator to become president.
 b. *(As for) none of the doctors, they wanted the senator to become president.
- (75) a. I must have eaten two pounds of candy last night.
 b. *(As for) two pounds of candy, I must have eaten it last night.

Note however that with the exception of only and even these noun phrases can be dislocated if the quantifier is left behind.¹⁷ Thus compare

- (76) (As for) monkeys, we saw many at the zoo.

- (77) (As for) the children, every one was eating a lollipop.
 (78) (As for) people (?) (cf. however chemists), few will understand this thesis.
 (79) (As for) anthropologists, Bill said all (of them)/ they all admire Dr. Mead.
 (80) (As for) men, we interviewed three yesterday.
 (81) (As for) the doctors, none (of them) wanted the senator to become president.
 (82) (As for) candy, I must have eaten two pounds (of it) last night.

Again, an extraction analysis would require an ad hoc condition to block dislocation of noun phrases which contain quantifiers. But the facts follow automatically from LSH. The quantifiers which cannot be dislocated are precisely those which are not part of the noun phrase in logical structure. Though the source of quantifiers is still a matter of considerable debate, it is fairly clear that the quantifiers in (67)-(75) are not part of the noun phrase in logical structure but are introduced into it at some later stage in the derivation. Note that a sentence like (73) becomes acceptable if the noun phrase containing the quantifier is definite.

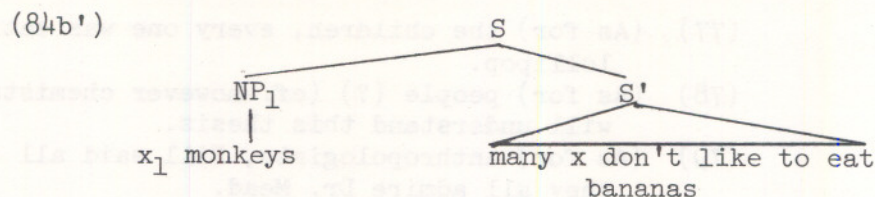
- (83) a. We interviewed those three men yesterday.
 b. (As for) those three men, we interviewed them yesterday.

In (83), the quantifier three is an identifying property of the noun phrase in which it is contained, in (73) it is not.

It should be mentioned, however, that the situation is not as clear cut as the above facts would indicate. Some quantifier noun phrases can be dislocated out of subject position. This is particularly true for the quantifier some, but also to some extent for many, all and most. Thus, compare

- (84) a. Some people can't do anything right.
 b. Some people, they can't do anything right.
 (85) a. Many monkeys refuse to eat bananas.
 b. ?Many monkeys, they refuse to eat bananas.
 (86) a. Most Italians eat spaghetti as an appetizer.
 b. ?Most Italians, they eat spaghetti as an appetizer.
 (87) a. All violators will be prosecuted.
 b. ??All violators, they will be prosecuted.

In order to account for the possible grammaticality of the (b) sentences in (84)-(86) I will assume for the present that there is a rule which optionally moves certain quantifiers from subject position into position before the dislocated noun phrase. Thus, for example, (85b) would be derived by such a rule from the structure in (85b').



where x in S' is realized as they if the quantifier movement rule applies, but the result is (85b'') if it does not.

(85) b''. (As for) monkeys, many of them refuse to eat bananas.

Note that (85b'') is a paraphrase of (85b).

Such an analysis, even if it turns out to be correct, is admittedly not a very satisfying explanation for the facts in (84)-(87), but I have no better solution to propose at present. In any case, the situation is equally as problematic for the extraction analysis; at least LSH is able to account for some of the facts in a principled way.

5. Left Dislocated Sentences with No Non-dislocated Counterpart.

We have seen that the left dislocated noun phrase need not be coreferential with the corresponding pronoun in S', since this pronoun may refer only to a subset of the object referred to by NP₁, as in the case where NP₁ is generic and the pronoun in the matrix sentence is one (specific or non-specific). Actually, it is possible that the dislocated noun phrase has no corresponding pronoun in the matrix sentence at all; as in the following examples:

- (88) a. As for fruit, Jim likes cantelopes best.
 b. As for the weather, I think it will rain tomorrow.
 c. As for the democratic nomination, I don't think Mayor Sensenbrenner has a chance.
 d. As for Paris, the Eiffel Tower is really spectacular.

Unless one is willing to accept completely different analyses for left dislocated sentences and sentences with prefixed about elements, thus ignoring obvious similarities between the two, sentences like those in (88) are crucial examples against the extraction analysis for left dislocated sentences since they have no non-dislocated counterpart out of which the noun phrase could have been moved.¹⁸

These facts provide no problem, however, for LSH. Since the dislocated NP does not originate in the main sentence, it is not necessary that this sentence contain a coreferent of the dislocated NP. However, given the dislocated NP's function in naming what the following clause is about, it is necessary that there be some meaningful connection between the two, i.e. that the clause be a meaningful predication about the dislocated NP. This principle, which I propose as a well-formedness condition on semantic (logical) structures may be stated roughly as in (89) (note that (89) is similar to one of the

rules of successful predication proposed in Searle (1969:126)).

- (89) In order for a comment, C, to be successfully predicated of a topic, T, T must be of a type or category such that it is logically possible for C to be true or false of T.

The principle stated in (89) would correctly predict the unacceptability of sentences like those in (90). (In fact, I will attempt to demonstrate in section 6.3 below that (89) has much wider application in the grammar that goes far beyond assuring the well formedness of left dislocated constructions).

- (90) a. *As for fruit, Jim likes red snapper best.
 b. *As for the weather, Pricilla loves Tom.
 c. *As for the Democratic nomination, the A's beat the Mets.
 d. *As for Cleveland, the Eiffel Tower is spectacular.

Note that in (88a) the matrix sentence does in fact contain a noun phrase (canelope) which is a subset of the set of objects referred to by the dislocated noun phrase (fruit). In all the examples in (88) it is possible to construct a sentence which relates NP₁ to S'; these are, respectively:

- (88) a'. Cantelope is a fruit.
 b'. Rain is a type of weather.
 c'. Mayor Sensenbrenner may be considered for the Democratic nomination.
 d'. The Eiffel Tower is in Paris.

This is not possible, however, for the examples in (90).

6. Left Dislocation and the Coordinate Structure Constraint.

Ross (1967) noticed that left dislocation does not obey his proposed constraints on movement transformations. That left dislocation does not obey the Complex Noun Phrase Constraint (CNPC),¹⁹ the Sentential Subject Constraint (SSC)²⁰ and the Left Branch Condition (LBC)²¹ is witnessed by the grammaticality of the (c) sentences in (91)-(93) respectively, as compared to the ungrammaticality of the corresponding (b) sentences where another alleged movement rule, topicalization, has applied.

- (91) a. The man who made that proposal must have been crazy.
 b. *That proposal the man who made must have been crazy.
 c. That proposal, the man who made it must have been crazy.
 (92) a. That Henry likes girls is obvious.
 b. *Girls that Henry likes is obvious.
 c. Girls, that Henry likes them is obvious.

- (93) a. Somebody stole my brother Jim's lawnmower
last night.
b. *My brother Jim's somebody stole lawnmower
last night.
c. My brother Jim, somebody stole his lawnmower
last night.

In order to maintain the generalization that the constraints he proposes are in fact constraints on movement, Ross suggests that the grammars of natural languages contain two types of reordering transformations--chopping transformations, which do not leave behind any copy of the element that has been moved, and copying transformations, which do leave behind a copy of this element. Only the latter are subject to his constraints.

6.1. However, with respect to one constraint, the Coordinate Structure Constraint (CSC), stated in (94) below, the claim that copying rules are not subject to the constraints appears to be too strong. While (95b) and (96b), examples of sentences that Ross cited to demonstrate that left dislocation does not obey CSC, are indeed acceptable, the (b) sentences in (97) and (98) are not. The ungrammaticality of (97b) and (98b) indicates that in some cases at least left dislocation must be subject to CSC.

- (94) Coordinate Structure Constraint. In a Coordinate Structure, no conjunct may be moved nor may any element contained in a conjunct be moved out of that conjunct.
- (95) a. I hardly ever see my father and my mother when they're not glaring at each other.
b. My father, I hardly ever see him and my mother when they're not glaring at each other.
- (96) a. I've sung folksongs and accompanied myself on this guitar all my life.
b. This guitar, I've sung folksongs and accompanied myself on it all my life.
- (97) a. Jim has red hair and plays the guitar.
b. *The guitar, Jim has red hair and plays it.
- (98) a. Jim likes my mother and hates my father.
b. *My father, Jim likes my mother and hates him.

6.2. The assumption that there are two types of movement rules is not the only possible solution to the facts in (91)-(93). At least two other hypotheses merit consideration.

- (I) Rules that chop constituents over variables²² in the sense of Ross (1967) do not exist. Rules that appear to be chopping rules are actually copying rules that leave behind a pronoun which is later deleted.

- (II) There are no unbounded movement rules at all; neither chopping rules nor copying rules. Constructions which appear to be derived by such rules already contain a noun phrase, x, adjoined to a sentence, S, in logical structure, where S dominates a noun phrase that corresponds to x and this noun phrase is later optionally--in some cases obligatorily--deleted.

Hypothesis I has been suggested by a number of authors,²³ most recently by Perlmutter (1972). Hypothesis II is the one which is being considered in this thesis, though our discussion is limited to only some of the rules in question.

Both Hypotheses I and II entail that Ross Constraints are constraints not on movement but on deletion, and both receive some support from the fact that constructions which appear to have been derived by a chopping transformation generally have corresponding 'copied' forms. Sentences which contain a pronominal remnant of the 'preposed' noun phrase are most common, moreover, in cases where deletion of the pronominal form would result in violation of one of the constraints, as illustrated by the following examples.

- (99) a. The girl who Harry believes the claim that she planted the bomb was arrested this morning.
 b. *The girl who Harry believes the claim that planted the bomb was arrested this morning.
- (100) a. The only one who I can ever remember her name is Buttons.
 b. *The only one who(se) I can ever remember name is Buttons.
- (101) a. Jones is the type of guy who you can't help but like him once you get to know him.
 b. ?Jones is the type of guy who you can't help but like once you get to know.
- (102) a. Which book did you say that you had just talked to the man who had ordered it.
 b. *Which book did you say that you had just talked to the man who had ordered.
- (103) a. ?It was the vodka that Bill rejected the claim that he had stolen it.
 b. *It was the vodka that Bill rejected the claim that he had stolen.
- (104) a. None of the students who the papers that they submitted had fewer than 25 footnotes will receive an A in the course.
 b. *None of the students who the papers that submitted had fewer than 25 footnotes will receive an A in the course.

If a pronominal remnant is left behind in a topicalized sentence like (105a), another construction allegedly derived by a chopping rule,

the result is a left dislocated sentence like (105b). In Part II I will argue that the former is in fact derived from the latter by deletion of the pronominal form.

- (105) a. That book, I don't think he'll be able to read.
 b. That book, I don't think he'll be able to read
 it.

In the present section, I hope to demonstrate that the Coordinate Structure Constraint is not a unitary phenomenon, but actually involves two separate phenomena. One of these is a constraint on deletion and the other is not a syntactic constraint at all, but a constraint on the semantic relationship between the 'preposed noun phrase' and the rest of the sentence, i.e., a generalization of the principle of successful predication, (89), proposed in the previous section.

6.3. Consider the following examples, where the (b) sentences all involve a violation of CSC.

- I (106) a. I never read The Godfather and Love Story.
 b. *The Godfather, I never read and Love Story.
 (107) a. I just saw your brother and his wife.
 b. *Your brother, I just saw and his wife.
 (108) a. John invited Mary and my friend Beatrice.
 b. *The girl who John invited Mary and is my
 friend Beatrice.
 (109) a. That vase and this one are both antiques.
 b. *It is that vase which and this one are both
 antiques.
- II (110) a. Pietro bought the Ferrari and Sofia adores him.
 b. *The Ferrari which Pietro bought and Sofia
 adores him was stolen.
 (111) a. Bill took the garbage out and Eleanor washed
 the windows.
 b. *The windows which Bill took the garbage out
 and Eleanor washed are still dirty.
 (112) a. Jim takes piano lessons and Tom plays the
 flute.
 b. *The flute, Jim takes piano lessons and Tom
 plays.
 (113) a. Knoblauch won the Democratic nomination and
 the Republicans are running Smith.
 b. *It is Smith that Knoblauch won the Democratic
 nomination and the Republicans are running.

As the formulation in (94) indicates, the examples handled by the Coordinate structure Constraint fall into two separate groups: (1) the reordered element is itself a conjunct, and (2) the reordered element is contained in a conjunct.

The first type is illustrated by (106) through (109), the second type by (110)-(113). It seems to me, moreover, that there is a clear distinction in manner and degree of acceptability between the

(b) sentences in the two sets of examples. The first set is much worse than the second. Further evidence for this distinction comes from the fact that while the sentences in the first group are somewhat--in some cases considerably--improved when a pronominal form of the 'preposed' noun phrase is left behind (at least they are brought to the level of acceptability of the second set), no appreciable difference in acceptability results in the second set; these sentences remain deviant in exactly the same way. Thus, compare

- (114)?*The Godfather, I never read it and Love Story.
 (115) Your brother, I just saw him and his wife.
 (116)?*The girl who John invited Mary and her is my friend Beatrice.
 (117) *It is that vase which it and this one are both antiques.
 (118) *The Ferrari which Pietro bought it and Sofia adores him was stolen.
 (119) *The windows which Bill took the garbage out and Eleanor washed them are still dirty.
 (120) *The flute, Jim takes piano lessons and Tom plays it.
 (121) *It is Smith that Knoblauch won the Democratic nomination and the Republicans are running him.

Some very convincing evidence in favor of distinguishing two separate coordinate structure constraints, corresponding to the two sets of sentences discussed above, is presented in Grosu (1973). Grosu notes that it is necessary in certain deletion rules to constrain the deletion of whole conjuncts but not of elements within conjuncts, for example, in the rule that deletes comparative elements.

- (122) a. *Leonid has more cars than Dick has cars.
 b. Leonid has more cars than Dick has.
 (123) a. Leonid has more cars than Dick has cars and TV sets.
 b. *Leonid has more cars than Dick has and TV sets.
 (124) a. Leonid has more cars than Dick has cars or than Mao has shirts.
 b. Leonid has more cars than Dick has or than Mao has shirts.

These sentences illustrate that the rule of Comparative Deletion which derives the (b) sentences from the (a) sentences in (122)-(124) must be prevented from applying to whole conjuncts as in (123b) but at the same time must be allowed to apply to elements within conjuncts, as in (124b).

What these facts suggest is that the data handled by Ross' Coordinate Structure Constraint actually involve two separate principles. The first (like CNPC, SSC and LBC) depends crucially on the total deletion of elements in certain environments, in this case the deletion of one of the members of a conjunction--more specifically one of the

conjuncts to the right or to the left of and. The second one does not involve deletion at all. Not only are deletion rules not subject to a constraint on deletion of elements within conjuncts, but the ungrammaticality of (97b) and (98b) and the ungrammatical sentences in (114)-(121) show that copying rules are subject to some constraint on elements within conjuncts.

The grammaticality of (115) and (95b) as opposed to the ungrammaticality of (107b) and (125), (I repeat the sentences here for convenience), shows that a sentence where the deleted noun phrase is a conjunct may become acceptable if a copy of the pronoun is left behind.

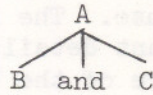
- (107) b. *Your brother, I just saw and his wife.
 (115) Your brother, I just saw him and his wife.
 (125) *My father I hardly ever see and my mother when
 they're not glaring at each other.
 (95) b. My father, I hardly ever see him and my
 mother when they're not drunk.

On the other hand, examples like the (b) sentences in (110)-(113) where the deleted element is inside a conjunct always remain unacceptable even when there is a pronominal remnant of the 'preposed' noun phrase inside the conjunct, as illustrated by (118)-(121). Moreover, deletion of a noun phrase inside a conjunction in cases where it appears that a chopping rule has applied does not necessarily result in ungrammaticality, and it is just in those cases when the corresponding 'copying' construction is acceptable as well. Compare for example (126) and (96b), one of the sentences that Ross cited to show that copying rules are not subject to CSC.

- (126) This guitar I've sung folksongs and accompanied
 myself on all my life.
 (96) b. This guitar, I've sung folksongs and accompanied
 myself on it all my life.

Note that the degree to which the presence of a pronoun form in sentences like (114)-(117) improves the sentence in relation to the corresponding construction where the pronoun has been deleted depends on whether or not the "preposed" noun phrase has some semantic connection with both conjuncts. Thus, (115) and (95b), where the conjunction and is interpreted in a joint sense, i.e., and is interpreted as with, are fully acceptable. Compare, however, (114), (116) and (117) where and cannot have a joint interpretation and where, consequently, the sentence remains unacceptable in spite of the presence of the pronoun form. Similarly, (126) and (96b) both conjuncts have some semantic connection with the preposed noun phrase; but in (118)-(121) one of the conjuncts has nothing to do with the 'preposed' noun phrase at all.

On the basis of the above facts, I propose that the Coordinate Structure Constraint has reformulated as two separate principles--one a surface structure constraint and the other a semantic well-formedness condition. They may be stated roughly as follows:

(127) Conjunct Deletion Constraint (CDC). Surface Structures of the type

where either B or C is null are ill-formed

- (128) A noun phrase, x, that is adjoined to a sentence, S, must be semantically relevant to any sentence, S', that is immediately dominated by S, i.e., S' must be a meaningful predication about x.

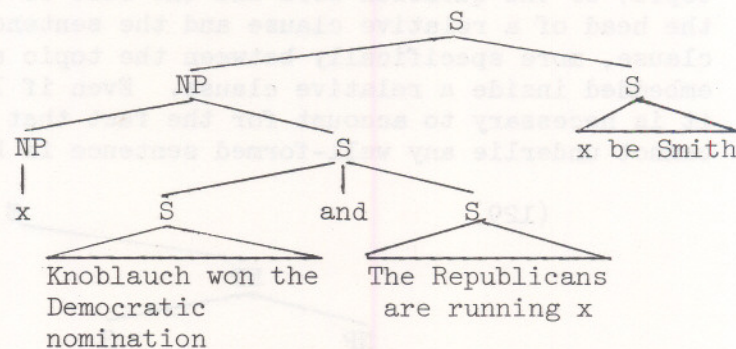
Notice that (128) is just a more general statement of (89), the well-formedness condition on the relationship between the topic and the comment in logical structure that was stated at the end of the last section.

6.4. Specific proposals in this part have been restricted to the derivation of left dislocated sentences. To show that in other constructions subject to CSC, namely questions, cleft sentences and relative clauses, (128) is a condition on the topic-comment relationship in logical structure, it is necessary to make a number of assumptions, most of which I am not prepared to justify here. These may be briefly summarized as follows.

- (I) Cleft sentences (as well as corresponding pseudo-cleft sentences) are derived from underlying equative structures where the topic is a descriptive noun phrase. The underlying structure of (113b) is thus roughly (113b'). I repeat (113b) here for convenience.

(113) b. It is Smith that Knoblauch won the Democratic nomination and the Republicans are running.

(113) b'.

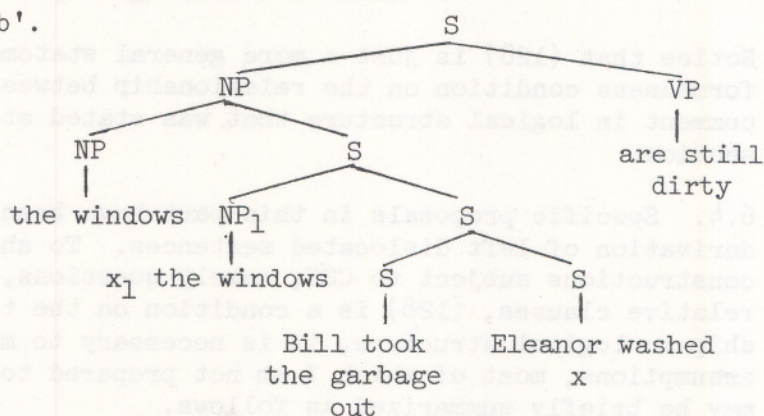


- (II) The derivation of wh-questions is similar to that of cleft and pseudo-cleft sentences, i.e., these too are derived from equative structures like (113b').

- (III) The sentence embedded inside a relative clause has a topic-comment structure where, moreover, the topic is necessarily coreferential with the head of the clause. The logical structure of (111b), irrelevant details (including topic-comment structure of the highest sentence) omitted, is thus roughly (111b'). (111b) is repeated here for convenience.

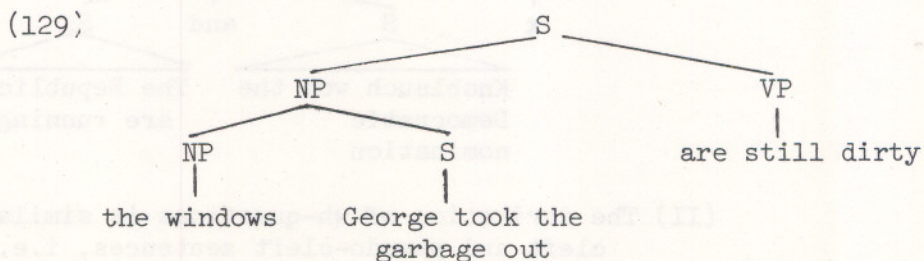
(111) b. The windows which Bill took the garbage out and Eleanor washed are still dirty.

(111) b'.



If such a hypothesis turns out to be correct, it eliminates the need for a rule that moves relative pronouns to the front of the sentence, since the noun phrase that is relativized, the topic, is already in its surface structure position. This analysis also accounts for the fact that a pronoun copy of the relative pronoun may (and in some languages must) be present in the embedded sentence.

If assumptions I and II are accepted, then the semantic relationship in question in cleft sentences and questions is not between the clefted noun phrase (which I argued in Gundel (1974) is never the topic) or the question word and the rest of the sentence but between the head of a relative clause and the sentence embedded inside that clause, more specifically between the topic and comment of the sentence embedded inside a relative clause. Even if III cannot be maintained it is necessary to account for the fact that a structure like (129) cannot underlie any well-formed sentence in English.



The analysis which I am proposing here makes the claim that (111b) and (129) are ill-formed for the same reason. A theory that accounts for the ungrammaticality of (111b) by CSC, i.e., by the constraint

formulated in (94) treats these two facts as being completely unrelated.

6.5. If CSC is reformulated as the two separate constraints in (127) and (128) we would predict that constructions that appear to have been derived by a chopping rule where the preposed noun phrase originates inside a conjunct but is in some way relevant to both members of the conjunction will not be ungrammatical. This was already illustrated by the grammaticality of (126) above. It is the case also with so-called asymmetric conjunctions like (130)-(133), which pose a problem for Ross' theory.

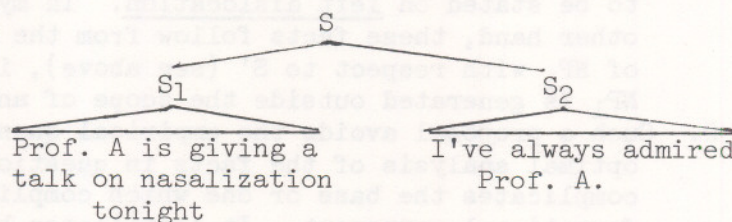
- (130) It was the bread which Jim went to the store and picked up.
 (131) What did Mary go to Paris and take several pictures of.
 (132) The guitar which Jim saved \$50 and bought was a Yamaha.
 (133) The arm which Mary went skiing and broke has healed remarkably well.

These sentences are acceptable because Jim's going to the store, Mary's going to Paris, Jim's saving \$50, and Mary's going skiing are interpreted as having something to do with the bread, something that Mary took pictures of, the guitar and Mary's arm respectively.

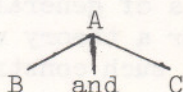
At the end of Chapter 6, Ross (1967) notes some facts which pose a problem for CSC. It is generally assumed that the correct analysis of appositive clauses (restrictive relative clauses) is that they are derived from conjoined structures by a rule that inserts the second conjunct into the first. Thus, the structure underlying (134) is derived from (134').

- (134) Professor Allerwissen, whom I've always admired, is giving a talk on nasalization tonight.

(134')



But the rule which is responsible for the derivation of (134) from (134') would violate CSC. If my reinterpretation of the facts is correct, however, no problem arises with respect to this rule because it violates neither (127) nor (128), i.e., it does not result in a surface structure like.



where either A or B is null, nor does it violate a well-formedness condition on the semantic relationship between a noun phrase and an adjoined sentence in logical structure.

7. An Alternative Solution

I have proposed here that left dislocated noun phrases are not moved into their surface structure position by a copying rule but are, rather, already generated in that position in the base. It was argued that certain properties of dislocated noun phrases--(a) they cannot be specific indefinites, (b) they cannot contain a quantifier, (c) their function is to name what the following sentence (and any sentence immediately dominated by it) is about, (d) they cannot have primary stress, (e) a dislocated pronoun is necessarily an objective form, and (f) the pronoun it can not be left dislocated--follow naturally from my theory, while they would require separate ad hoc restrictions on left dislocation in an extraction analysis.

Lakoff () has proposed that the underlying (semantic) representation of every sentence contains an element Topic (T) which is structurally independent of P_1 , the structure to which transformations apply. Moreover, various transformations may be made contingent on the information in T by means of global derivational constraints. In such a theory the properties of left dislocated noun phrases noted above (or at least some of these properties) would not require separate conditions on the left dislocation rule. They could all be accounted for by one derivational constraint which states that the noun phrase moved by this rule must be identical to T. I believe, however, that the analysis that I have proposed is preferable to such a solution for the following reasons.

1. Since T is structurally independent of P_1 , it is not obvious that separate conditions would not have to be stated to account for the fact that T cannot be an indefinite pronoun, a specific indefinite, a noun phrase containing a quantifier, i.e., precisely those conditions that would otherwise have to be stated on left dislocation. In my theory, on the other hand, these facts follow from the structural position of NP_1 with respect to S' (see above), i.e., the fact that NP_1 is generated outside the scope of any quantifier.
2. Such a proposal avoids the empirical question of whether the optimal analysis of the facts in question is one which complicates the base or one which complicates the transformational component. It complicates both.
3. The tremendous power of derivational constraints makes it possible to account for almost any phenomenon, thus making the task of choosing the correct grammar all that much more difficult. For this reason, it seems to me that a theory which is able to account for a given set of facts without appeal to such constraints, provided no other sacrifices such as loss of generalization need to be made, is to be preferred over a theory which accounts for the same set of facts with such constraints.

8. Left Dislocation in Subordinate Clauses

So far we have been considering only examples of left dislocation in the highest clause. Though left dislocation is possible in some subordinate clauses as well, the situation is not at all clear cut. That a general condition against left dislocation in subordinate clauses would be too strong is witnessed by (135)-(139), which appear to be acceptable to most speakers.

(135) Mary said that her grades, they weren't too good.

(136) I finally realized that those slacks you gave me for my birthday, I won't be able to fit into them unless I lose five pounds.

(137) I know that those slacks, they're too tight for me now.

(138) She dreamt that her brother, he had been in an automobile accident.

(139) ?The professor admitted that his book, it wasn't worth buying.

Compare, however, (140)-(153), which range from only marginally acceptable to completely unacceptable.

(140) ?The professor refused to admit that his book, it wasn't worth buying.

(141) ?Mary said that her grades, she wasn't too proud of them.

(142) ?Jim claims that beans, he doesn't like them.

(143) ??Jim claims that beans, Mary doesn't like them.

(144) ??If my father, he comes home late, my mother won't talk to him for the rest of the evening.

(145) ??It started to rain after Jack and his friend, they had finally made it up the hill.

(146) *It started to rain after Jack and his friend, we had finally managed to reach them.

(147) *If my father, he comes home late, we get to stay up an extra hour.

(148) *While your paper I was reading it, I fell asleep.

(149) *That my brother, you don't like him is clear.

(150) *Because those slacks, they don't fit me, I'll have to wear my new dress.

(151) *That those slacks you gave me for my birthday, I won't be able to fit into them unless I lose five pounds, is obvious to me now.

(152) *After that report, Mary talked to the man who had written it, she swore she would never eat peanut butter again.

(153) *John entered the room after Bill he did.

The contrast between (146)-(153), on the one hand, and (135)-(139) or even (140)-(145), on the other, is striking. Still another contrast exists between all of these sentences and examples of left dislocation in a relative clause. The latter are not even intelligible, as illustrated by (154)-(156).

- (154) a. The man who wrote that book is a well known linguist.
 b. *The man that book, who wrote it is a well-known linguist.
 b'. *The man who that book, wrote it is a well-known linguist.
- (155) a. That dog who bit your friend has rabies.
 b. *That dog your friend, who bit him has rabies.
 b'. *That dog who your friend bit him has rabies.²⁴
- (156) a. The beans which your brother ate made him sick.
 b. *The beans which your brother, he ate made him sick.
 b'. *The beans your brother, which he ate made him sick.

The following conclusions may be drawn from these facts.

1. Left dislocation in an object clause which does not have a lexical head noun, i.e., precisely those subordinate clauses that are not subject to Ross constraints, is generally acceptable. Though it is less acceptable if the dislocated noun phrase is not the subject of the clause (compare however (136)) or if the verb is negated.
2. Left dislocation in complex noun phrases (including adverbial and conditional clauses) and sentential subjects is generally not acceptable, though acceptability of left dislocation in these clauses is increased somewhat if (a) the subordinate clause follows the main clause and the dislocated noun phrase is the subject, or (b) there is a noun phrase in the main clause which is coreferential with the dislocated noun phrase.
3. Left dislocation in a relative clause results in a completely unintelligible construction.

Though a good deal more research on left dislocation and on topic-comment structure in general is necessary before a satisfactory explanation of these facts can even be attempted, there is some evidence, I believe, that whether or not a noun phrase can be dislocated inside a subordinate clause depends on whether or not the whole sentence may be interpreted as a statement (question, etc.) about that noun phrase. If we claim that a dislocated noun phrase inside a subordinate clause actually originates outside the clause as an adjunct to the highest sentence, it will be necessary to incorporate into the grammar a rule which can move the topic noun phrase into an embedded sentence. In Gundel (1974) I argue on independent grounds in favor of such a rule.

Notice, for example, that a sentence with an adverbial clause is generally not 'about' a noun phrase inside that clause. Thus, it seems to me that sentences ((160)-(162) are not natural responses to the questions in (157)-(159).²⁵

- (157) What about the letter?
 (158) What about those slacks?

- (159) What about Bill?
 (160) ??After Mary wrote the letter she want to bed.
 (161) ??Because those slacks don't fit me, I'll have to
 wear my new dress.
 (162) ??John entered the room after Bill did.

Similarly with sentential subject clauses, thus, compare

- (163) What about your brother? ??That Mary doesn't
 like my brother is clear.
 (164) What about those slacks? ??That I don't be
 able to fit into those slacks unless I lose
 five pounds is obvious.

On the other hand, noun phrases inside sentential complements of verbs like say, claim, believe, etc., are commonly what the sentence is about. For example,

- (165) What about those slacks? I know that those slacks
 are too tight for me now.
 (166) What about your aunt? I think that my aunt is
 coming.
 (167) What about his grades? Bill said that his grades
 weren't too good.

Notice also that if the assumption about the topic-comment structure of relative clauses which was made in section 6.4 turns out to be correct, this would explain why dislocation is impossible inside a relative clause. The reason is that the topic of the sentence embedded inside the clause is always that noun phrase which is identical to the head noun, i.e., the relative pronoun itself.

8.1. In section 1.1 it was noted that a left dislocated noun phrase may be a pronoun. Moreover, if it is a first person pronoun, it may be reflexive, for example,

- (168) Myself, I would have done it differently.

Consider now the following sentences.

- (169) As for myself, I never would have said that to
 Bill.
 (170) Harry told Glinda that as for himself, he didn't
 like bagels.
 (171) Mary believes that as for herself, she won't be
 invited to the party.
 (172) *As for himself, he doesn't like bagels.
 (173) *As for herself, she won't be invited.

Ross (1970) proposes that sentences like (169)-(171) are produced by a rule that optionally converts to a reflexive any pronoun appearing

in as for phrase which is prefixed to an embedded clause, just in case this pronoun refers back to the subject of the next highest sentence. This solution, if correct, provides evidence for the performative analysis which Ross proposes in this paper. If there is a higher clause in logical structure which contains a first person subject, this would explain why (169) unlike (172) and (173), is grammatical even though it does not refer back to the subject of a higher clause in the surface structure.

There are a number of cases where a reflexive in an as for phrase is not acceptable even though it is coreferential with a noun phrase in a higher clause. For example:

(174) *That as for herself she wouldn't be invited enraged Glinda.

(175) *John rejected the claim that as for himself he didn't like bagels.

(176) *The girl as for herself who wasn't invited/who as for herself wasn't invited said that she would never speak to Glinda again.

(177) *John told the girl who as for himself he didn't like/as for himself who he didn't like that she should never call him again.

Ross' condition that the reflexive must refer to the subject of the next highest clause will block (174); but it is not strong enough to exclude (175)-(177) as well.

If, as I suggested earlier, the NP in an as for phrase is in fact a left dislocated NP, this would automatically account for the unacceptability of (174)-(177). The derivations of these sentences would be excluded by the same principle(s) (whatever these may turn out to be) which block left dislocation in subordinate clauses. The fact that most speakers accept sentences like (170) and (171) does not constitute a counterexample to this hypothesis since, as was already pointed out, left dislocation is generally acceptable inside an object clause which is not a complex noun phrase. Moreover, if I am correct in the observation that left dislocation inside such clauses is less acceptable when the pronominal remnant of the dislocated noun phrase is not the subject of the clause, we would predict that reflexives in as for phrases are also less acceptable under those conditions. This is in fact the case, as the following examples illustrate.

(178) *John told Glinda that as for himself, we wouldn't invite him.

(179) *Harry thinks that as for himself, I didn't see him.

(180) *?Glinda said that as for herself, bagels make her vomit.

Ross' analysis would not exclude any of these sentences.

Ross cited one other example, however, which would appear to indicate that the higher subject condition must be maintained. For

him, and for many other speakers, (181) is less acceptable than (182).

(181)??Harry told Glinda that as for herself, she
wouldn't be invited.

(182) Harry told Glinda that as for himself, he
wouldn't be invited.

I myself find only little appreciable difference between the two. Moreover, I have found that even those speakers who reject (181) will accept it within an appropriate context, for example the following:

(183) Harry told Glinda that her children could come,
but that as for herself, she wouldn't be invited.

This of course still does not explain why (181) is found to be less acceptable than (182). It seems possible, however, that this fact is not specifically related to as for reflexivization in a subordinate clause but rather to left dislocation subordinate clauses in general. It was already seen that there are various (as yet unexplained) conditions that affect the grammaticality of left dislocation in subordinate clauses. Just as dislocation in a subordinate clause is generally less acceptable if the dislocated NP is not the subject of the clause, it may also be less acceptable if it is coreferential with a non-subject noun phrase in a higher clause (possibly for the same reason). On the other hand, various conditions, such as the fact that the noun phrase in question contrasts with another noun phrase in a subordinate clause, as in (183) may be stronger than the subject condition. These assumptions are difficult to test since the dislocated noun phrase will necessarily be a pronoun if it is coreferential with a noun phrase in a higher clause and dislocated pronouns in subordinate clauses are in general not very acceptable. It seems to me, however, that there is a slight distinction in acceptability between (184) and (185), which parallels that between (181) and (182), i.e., (185) seems to me better than (184).

(184)??Harry told Glinda that (as for) her, she wouldn't
be invited.

(185) ?Harry told Glinda that (as for) him, he wouldn't
be invited.

I conclude therefore that the condition that reflexives in as for phrases must refer to a higher subject must be rejected for the following reasons.

1. The condition is too weak if as for phrases are not assumed to be the same as dislocated phrases because it does not block (175)-(180) and it is unnecessary if as for phrases are the same as dislocated noun phrases because the ungrammaticality of (174)-(180) would then follow from more general conditions on left dislocation in subordinate clauses.
2. The condition is too strong because it would block sentences like (183).

If the reflexive in an as for phrase does not have to refer to the subject of a higher clause, (a) does it have to refer to a noun phrase in a higher clause at all?, and (b) what exactly is the source of the as for reflexive.

Concerning the first question, the unacceptability of (172) and (173) demonstrates that in order for an NP in an as for phrase or any dislocated NP for that matter) to be reflexive there must be a coreferential noun phrase somewhere else in the sentence. Moreover, it appears that the noun phrase to which the reflexive refers must be 'to the left' of the as for phrase. Thus, (186) with the dislocated noun phrase adjoined to the highest sentence is unacceptable, regardless of whether the reflexive is to be interpreted as coreferential with Bill or with John.

- (186) *As for himself, Bill told John that he
wouldn't be invited.

In this sense, the facts concerning reflexives in as for phrases still provide some support for the abstract-performative hypothesis, since this hypothesis makes it possible to explain the grammaticality of (169). It is not clear, however, that the noun phrase 'on the left' to which the reflexive refers must necessarily be in a higher clause. Thus, it seems to me that the following examples are both acceptable.

- (187) Bill doesn't mind if his guests smoke pot but
as for himself, he never touches the stuff.
(188) All of Harriet's friends are coming to the party,
but as for herself, she wasn't invited.

In (187) and (188) there is a coreferential noun phrase to the left of the as for reflexive, but this noun phrase is not in a higher clause.

There are other properties of reflexives in subordinate as for phrases which I am unable to provide any explanation for at present. Thus, while I believe that the noun phrase to which the reflexive refers is not necessarily the subject of a higher clause, sentences in which this is the case and where, moreover, the main verb expresses some positive and voluntary mental or verbal activity on the part of the subject are in fact the most common and most acceptable. Thus, for example, (189), where the verb is negative and (190) where it is not a voluntary verbal or mental activity reported by the speaker, are extremely awkward at best even though they meet the strongest conditions imposed on as for reflexives by Ross.

- (189)??John doubts that as for himself, he will be
invited.
(190)??Mary dreamt that as for herself, she wasn't
invited.

Cf. also

- (191) John thinks that as for himself, he won't be
invited.

but

- (192)?*John doesn't think that as for himself, he will
be invited.

8.2. The Source of the as for Reflexive. There are at least two different reflexivization processes in English. The first, illustrated by (193) and (194) reflexivizes the second of two coreferential noun phrases if and only if these are in the same clause. Reflexives derived in this manner are generally unstressed. The second type, illustrated by (195) and (196), does not have to be in the same clause with its coreferent and most likely has as as its source the so-called emphatic reflexive of sentences like (197) and (198). This type is never unstressed.

- (193) Mary forgot to wash herself this morning.
 (194) That John has a very high opinion of himself is obvious.
 (195) The only linguist who John thinks Mary can trust is himself.
 (196) John said that the letter had been written by Mary and himself.
 (197) The only linguist who John thinks Mary can trust is him/John himself.
 (198) John said that the letter had been written by Mary and him/John himself.

There is no reason to believe that the reflexive in as for phrases, i.e., the dislocated reflexive, is derived by a different rule than the one which optionally deletes the noun phrase immediately preceding an emphatic reflexive to produce sentences like (195) and (196), i.e. that the source for the as for reflexive is an emphatic reflexive. On the contrary, there is a good deal of evidence which suggests that it is so derived.

1. The emphatic reflexive, although it must be stressed, does not necessarily have to have primary stress; it may have secondary stress, as in the following sentences:

- (199) I myself never would have said that.
 (200) I thought that Jim himself didn't like bagels.
 (201) As for Jim himself, he never drinks tea.
 (202) I saw Jim's wife, but Jim himself I didn't see.

The reflexives in as for phrases always have secondary stress. While they, like dislocated noun phrases in general may never have primary stress (see above), they are never completely unstressed either,²⁶ as may be the case with pronouns as well as ordinary reflexives.

2. Reflexives in as for phrases have paraphrases with emphatic reflexives in non-dislocated sentences and with emphatic reflexives in as for phrases, though the latter are extremely awkward if the noun phrase preceding the reflexive is a pronoun (probably because of the repetition of identical forms--see above).

- (203) a. John told Glinda that he himself didn't like bagels.
 b. ?John told Glinda that as for himself, he didn't like bagels.

- (204) a. I think that you 'yourself probably have nothing to worry about.
 b. I think that as for you yourself,²⁷ you probably have nothing to worry about.
 c. I think that as for yourself, you have nothing to worry about.
- (205) a. Bill's wife often smokes pot, but Bill/he himself never touches the stuff.
 b. Bill's wife often smokes pot, but as for Bill/?him himself, he never touches the stuff.
 c. Bill's wife often smokes pot, but as for himself, he never touches the stuff.

3. A sentence may contain two reflexives if one of these is an ordinary reflexive and the other an emphatic reflexive, but not if both are emphatic reflexives. Thus, while (206) and (207) are acceptable, (208) and (209) are not.

- (206) Jim himself forgot to wash himself this morning.
 (207) I myself have more confidence in myself than I used to.
 (208) *Jim himself can't stand Mary herself.
 (209) *As for Jim himself, he didn't tell Mary herself that he was coming.

If reflexives in as for phrases are emphatic reflexives, we would predict that they could not be followed by a sentence which already contains an emphatic reflexive. The following examples illustrate that this is the case.

- (210) a. I don't like Jim himself.
 b. As for myself, I don't like Jim.
 c. *As for myself, I don't like Jim himself.
- (211) a. Jim claims that he didn't even tell Mary herself that he was coming.
 b. Jim claims that as for himself, he didn't even tell Mary that he was coming.
 c. *Jim claims that as for himself, he didn't even tell Mary herself that he was coming.

Thus, the hypothesis that reflexives in as for phrases are emphatic reflexives is not only consistent with the facts but receives support from them.

The conditions under which a noun phrase preceding an emphatic reflexive may be deleted are extremely complicated and, at present, unclear. It should be pointed out, however, that if a sentence like (212) is acceptable, which I think it may be, then the rule which deletes noun phrases preceding emphatic reflexives must be allowed to delete full nouns as well as pronouns.

- (212) ?All of Harriet's friends are coming to the party,
but as for herself, Harriet won't be invited.

This is so because there is no source, either in the extraction analysis or in the theory which I have proposed, for deriving sentences where the dislocated noun phrase is a pronoun and the corresponding noun phrase in the matrix sentence a full noun. Such examples are in face never acceptable.

- (213) *As for her, Harriet won't be invited.

I have suggested, however (and will argue further in Part II), that the grammar be allowed to generate sentences in which both the dislocated noun phrase and the corresponding noun phrase in the matrix sentence are full nouns.

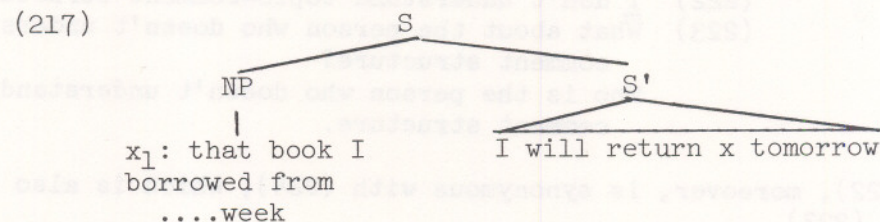
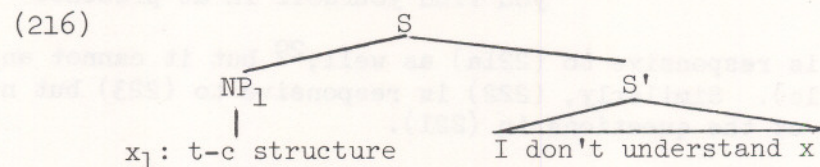
PART II

9. Topic and Comment in Other Sentences. On Deriving All Sentences From Underlying Left Dislocated Structures.

In Part I, I argued in favor of a theory which would derive the left dislocated sentences in (214) and (215) from the logical structures in (216) and (217) respectively.

- (214) (As for) topic comment structure, I don't understand it.

- (215) (As for) that book I borrowed from you last week, I'll return it tomorrow.



It was shown, moreover, that the function of the dislocated noun phrase, i.e., the function of NP₁, is to name what the following predicative sentence (S') is about. While S' represents what is actually predicated about NP₁, its illocutionary force (whether it asserts, questions, promises, etc.) depending on the particular speech act that the sentence is used to perform. We designated the former function as that of topic and the latter function as that of comment. A left dislocated sentence thus always answers some implicit or explicit question--what about x, where x is the dislocated noun phrase,²⁸

but is not responsive to such a question where x is some element other than the dislocated noun phrase.

The distinction between the element which names what the sentence (more exactly the speech act) is about and the actual predication made about that thing is, as I will argue below, not just a property of left dislocated structures, but is characteristic of all sentences. What distinguishes the left dislocated constructions is that in these the distinction is structurally explicit and unambiguous in the surface form of the sentence. Thus, for example, it is necessary to account for the fact that (218), like (214) is responsive to the question in (219).

(218) I don't understand topic-comment structure.

[An underlined word indicates position of primary stress.]

(219) What about topic-comment structure?

Sentence (220), on the other hand, is not responsive to (219); it may, however, answer any of the questions in (221).

(220) I don't understand topic-comment structure.

(221) a. What about you?

b. What about what you don't understand? What is the thing that you don't understand?

c. What's new? What's wrong? What's happening? etc. (Tell me something about the situation you find yourself in at present.)

(218) is responsive to (221a) as well;²⁹ but it cannot answer (221b) or (221c). Similarly, (222) is responsive to (223) but not to (219) or any of the questions in (221).

(222) I don't understand topic-comment structure.

(223) What about the person who doesn't understand topic-comment structure?

Who is the person who doesn't understand topic-comment structure.

(222), moreover, is synonymous with (224), which is also responsive to (223).

(224) The one who doesn't understand topic-comment structure is me.

Compare also the following sentences.

(225) As for topic-comment structure, I don't understand it.

(226) As for what I won't understand, I don't understand topic-comment structure.

- (227) *As for the person who doesn't understand topic-comment structure, I don't understand it.
- (228) As for what I don't understand, I don't understand topic-comment structure.
- (229) As for what I don't understand, it is topic-comment structure.
- (230) *As for topic-comment structure, I don't understand topic-comment structure.
- (231) *As for topic-comment structure, what I don't understand is it.
- (232) *As for (the person) who doesn't understand topic-comment structure, I don't understand topic-comment structure.
- (233) As for (the person) who doesn't understand topic-comment structure, I don't understand it.
- (234)?*As for topic-comment structure, I don't understand it.
- (235) *As for what I don't understand, I don't understand topic-comment structure.
- (236) *As for me, I don't understand topic-comment structure.
- (237) As for (the one) who doesn't understand topic-comment structure, it is me.
- (238) *As for what I don't understand, the one who doesn't understand topic-comment structure is me.

These examples show that a particular noun phrase, x, may appear in an about phrase preceding a given sentence just in case that sentence is an appropriate response to the implicit or explicit question--what about x, but not otherwise.

We can account for the above facts in a natural way if we derive all sentences from structures like (216), where NP_1 will be identical for two given sentences, just in case they are both responsive to the same question--what about x?, Topic may thus be formally defined as the relation $NP_1: S$ and comment as the relation $S': S$, where topic and comment are assigned semantic values roughly as follows:

- (239) Definition. If T is the topic of S, then S asserts, asks, promises, etc., something about T, depending on the type of speech act that S is used to perform.
- (240) Definition. If C is the comment of S, then C is what S asserts, asks, promises, etc., about the topic of S, depending on the type of speech act that S is used to perform.

Sentence (218), like (214) is derived from (216). But for (220) and (222), NP_1 and S' in logical structure are different. Sentences (218)

and (214), but not (220) and (222), are then interpreted as in (216')

(216') I don't understand x is asserted to be true
about x_1 , where x_1 is topic-comment structure.

In order to derive (218) from (216) it is necessary to incorporate into the grammar two rules, in addition to the ones we have already discussed in previous sections.

(241) Topic copying--copy NP_1 into the corresponding variable in S' .

(242) Topic deletion--delete NP_1 .

(241) and (242) could be two aspects of the same rule, i.e., we might propose a rule that copies NP_1 into the corresponding variable in S' and the same time deletes the original occurrence of NP_1 (in a sense the reverse of left dislocation), but then, unless the second part of the rule is somehow made optional, there would be no way of deriving sentences like (243) and (244).

(243) (As for) topic-comment structure, I don't understand topic-comment structure at all.

(244) (Concerning) that book, I promise to return that book to you next week.

These sentences seem to me at least marginally acceptable and certainly acceptable with the preceding about phrase. Notice that when there is a greater amount of material separating the two identical noun phrases (see also my note in Part I) such constructions become more acceptable even without the about phrase.

(245) (As for) topic-comment structure, Bill told Mary his professor claimed he was working on an analysis of topic-comment structure that would revolutionize linguistic theory.

(246) (As for) that book, I promised Bill that I would ask Harriet to return that book the next time she went to the library.

Another possibility is that topic-copying is just a special case of feature copying, the rule that copies the features of a noun phrase onto a corresponding variable that is later replaced by a pronominal form. That is, there may be a rule which applies 'in degrees' copying various aspects of a noun phrase--specific features, the whole noun phrase or possibly just the head of a complex noun phrase, as in (247).

(247) That book I borrowed from you last week, I'll return the book to you tomorrow.

I will assume for the present, however, that the rules involved in deriving (218) from (216) are (241) and (242). The derivation of (218) from (216) is thus roughly as follows.

- (248') I don't understand topic-comment structure is asserted to be true about a particular situation (time and place), x_1 .
- (249') x doesn't understand topic-comment structure is asserted to be true about x_1 , where x_1 is the speaker.
- (250') x is identified as topic-comment structure is asserted to be true about x_1 , where x_1 is what the speaker does not understand.

The derivation of (220) from (248) involves stress placement, which will assign primary stress to the noun phrase topic-comment structure, and topic-deletion, which deletes NP_1 . In deriving (249) from (220), (a) stress placement assigns primary stress to the noun phrase, (b) t-c structure, topic-copying copies NP_1 , I, onto x and (c) topic deletion deletes the original NP_1 .

9.1. In order to derive (220) from (250) it is necessary to incorporate into the grammar a rule of predicate nominal incorporation, which may be stated informally as follows:

- (251) predicate nominal incorporation
- (1) copy a predicate nominal onto a variable in the sentence embedded in the noun phrase to the left of be (i.e., the subject noun phrase with which the predicate nominal is asserted to be coreferential), where that variable is coreferential with the head noun.
- (2) Delete be, the predicate nominal, and the variable which is the head noun.

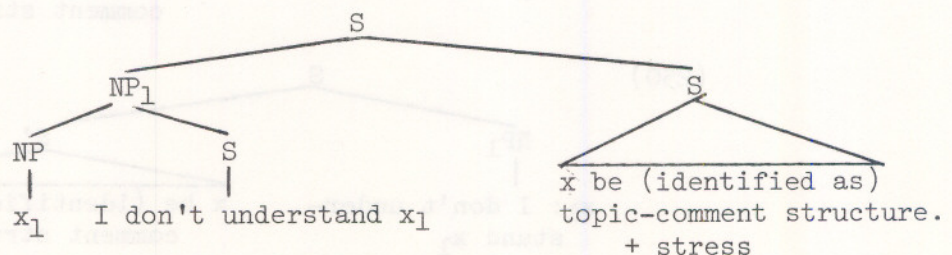
This rule, which must apply after topic copying, will move the noun phrase topic-comment structure into the position of the second occurrence of the variable in the subject noun phrase in (3) below and then delete be, the predicate nominal and the first occurrence of the variable.

The derivation of (220) from (250) is thus as follows.

1. (250)

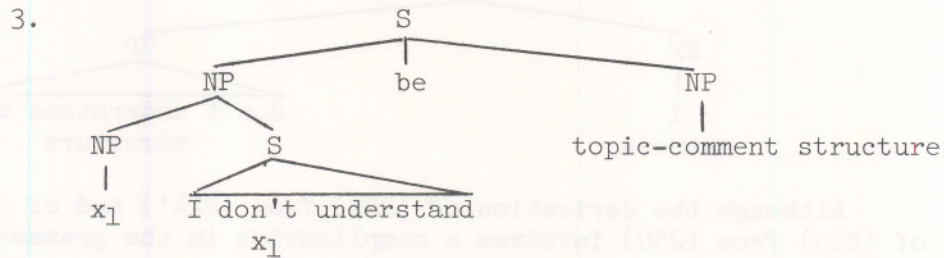
stress placement

- 2.

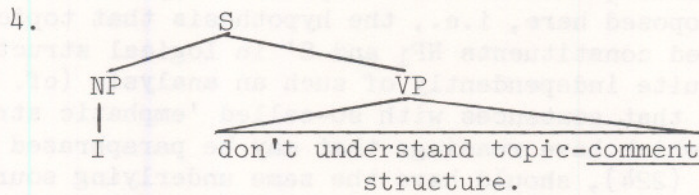


topic copying

topic deletion
tree pruning



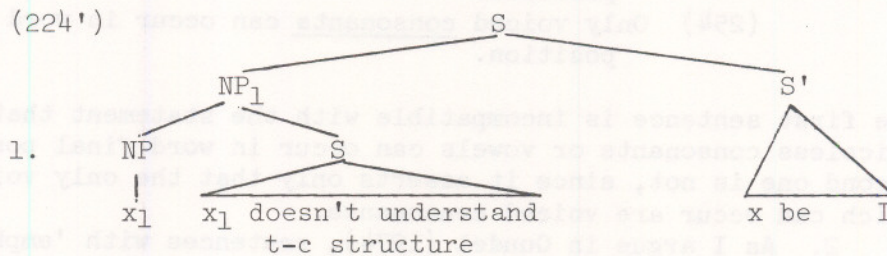
predicate nominal incorporation



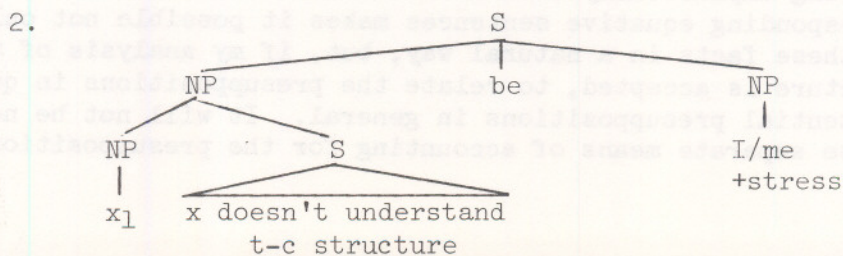
If topic deletion had not applied, the result would be, after relativization,

(252) As for what I don't understand, I don't understand topic-comment structure.

Sentence (222) which is only responsive to a question--what about x?, where x is (the one) who doesn't understand t-c structure is, like (224) derived from the structure in (224'), as follows.

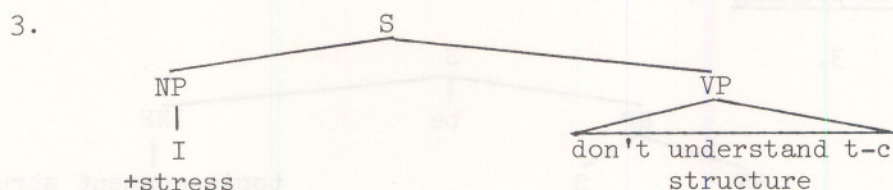


stress placement
topic copying
topic deletion



(224) if predicate nominal incorporation doesn't apply

predicate nominal incorporation



Although the derivation of (222) from (224') and of one reading of (220) from (250) involves a complication in the grammar for which there does not appear to be any independent syntactic evidence, namely the rule of predicate nominal incorporation, this complication is not just a consequence of the analysis of topic-comment structure that I have proposed here, i.e., the hypothesis that topic and comment are co-generated constituents NP₁ and S' in logical structure. It has been argued, quite independently of such an analysis (cf. for example Postal (1971)) that sentences with so-called 'emphatic stress', that is, sentences which have readings that may be paraphrased by equative sentences like (224), should have the same underlying source as the latter. In addition to the paraphrase relationship between sentences with 'emphatic stress' and equative sentences, the following arguments may be adduced in favor of an analysis which derives the two from the same underlying structure.

1. Sentences with different stress patterns differ not only in 'emphasis' but in cognitive content, i.e., in aspects of meaning relevant to determination of the truth value of statements. Compare, for example, the two sentences cited by Postal (1971).

(253) Only voiced consonants can occur in word final position.

(254) Only voiced consonants can occur in word final position.

The first sentence is incompatible with the statement that either voiceless consonants or vowels can occur in word final position; the second one is not, since it asserts only that the only voiced elements which can occur are voiced consonants.

2. As I argue in Gundel (1974), sentences with 'emphatic stress' share presuppositions (hence also facts concerning appropriateness of response to different questions) with corresponding equative sentences, but differ in presuppositions from corresponding sentences which are structurally identical except that they have a different stress pattern. Deriving emphatically stressed sentences from the structures underlying corresponding equative sentences makes it possible not only to account for these facts in a natural way, but, if my analysis of topic-comment structure is accepted, to relate the presuppositions in question to existential presuppositions in general. It will not be necessary to devise separate means of accounting for the presuppositions associated

with sentences with different stress patterns, equative sentences and definite referring expressions. Rather, these will all be accounted for by the same general principles, which may be stated informally as follows:

- (255) If T is the Topic of S and C is the Comment of S, then S is successfully used in predicating C of an object (or set of objects) X if and only if T involves a successful reference to X.
- (256) An expression, R, involves a successful reference if and only if there exists in some real or imaginary world an object (or set of objects) X such that either R contains an identifying description of X, or the speaker is able to supplement R with an identifying description of X, and such that, in the utterance of R, the speaker intends to pick out or identify X to the hearer.³¹

If a sentence like (222) presupposes a successful reference to some object--the one who doesn't understand topic-comment structure then it of course follows that it also presupposes there is someone who doesn't understand topic-comment structure.

3. If we derive a sentence like (220) (more exactly one reading of this sentence) from the structure which underlies the corresponding equative sentence, this explains the possibility of a sentence like (252). Otherwise, the dislocated noun phrase, which has no copy in the main sentence in surface structure, would have no source.

4. Along side question and answer pairs like

- (257) Was it Bill who hit Loretta?
 (258) No, it was Harry.
 (259) Was the one who hit Loretta Bill?
 (258) No, it was Harry.

where (258) is a proper response to both (257) and (259), and it refers in both cases to the description the one who hit Loretta³² we have pairs like

- (260) Did Bill hit Loretta.
 (258) No, it was Harry.

where it, again can refer only to the one who hit Loretta and the deleted clause in (258), apparently who hit Loretta is not present in the surface structure of (260). (Normally in question-answer pairs an element may be deleted in the answer if it is a repetition of an element in the question, e.g., Are you going with Bill? No, (with Harry.) Deriving (260) from the same structure that underlies (257) and (259) offers a principled basis for explaining the fact that (258) is a proper response to (260), and, in particular, for the source of it, which in this case cannot refer to any element in the surface structure of (258).

5. The syntactic behavior of certain emphatically stressed elements, for example reflexives, is distinct from that of the corresponding non-stressed elements. Thus, as discussed in Postal (1971), a noun phrase may not cross over a coreferential noun phrase within the same clause. Such a restriction is necessary in order to block derivation of (261a) and (261b).

- (261) a. *John is admired by himself.
b. John admires himself.

Unless stressed reflexives have a derivation which is distinct from non-stressed reflexives, in particular one in which the reflexive and the noun phrase with which it is coreferential do not originate in the same clause, sentences like (261c) constitute an unexplained exception to the above generalization.

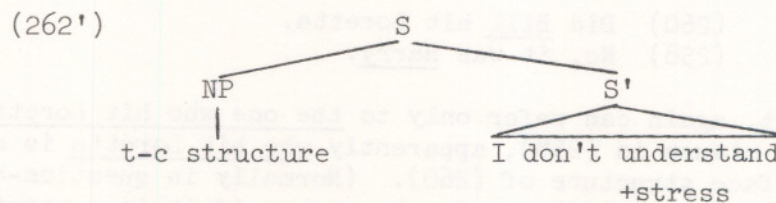
- (261) c. John is admired (only) by himself.

If we derive sentences like (261c) from corresponding equative structures this exception will be explained.

It seems plausible that the source for the reflexive in sentences like (261c) is the emphatic reflexive discussed in section i.e., (261c) is derived from (261d), which in turn is derived from the structure underlying (261e).

- (261) d. John is admired only by John himself.
e. The only one who John is admired by is John himself.

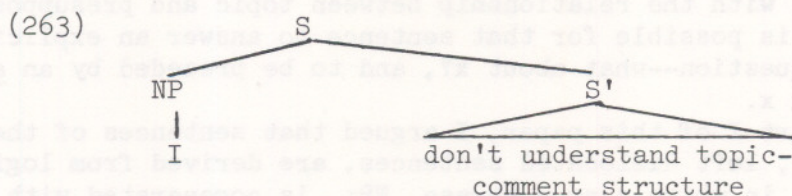
9.2. We have been assuming so far that either feature copying or topic copying must apply to copy part (or all) of NP₁ onto the corresponding variable in S'. But what if neither rule applies? Assuming that there is already a rule in the grammar which will delete any surface structure node that does not dominate any lexical material, the result for a structure like (216), for example, would be (262'), the structure immediately underlying (262) (assuming that topic deletion can apply only if either topic or feature copying has applied as well).



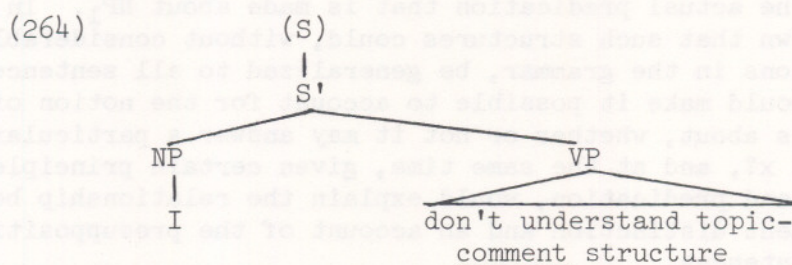
- (262) Topic-comment structure, I don't understand.

In Gundel (1974) I argue that so-called topicalized sentences like (262) are in fact derived from corresponding left dislocated structures by a rule that deletes the variable in S'. If this deletion rule is a general rule deleting nodes which dominate no lexical material, then no special rule is needed in order to derive topicalized sentences

like (262). Notice, however, that the result of such an analysis for a structure like (249) is not a topicalized sentence, but rather precisely the same sentence that would be derived if topic copying and topic deletion had applied, i.e., (220). This means that (220), where the topic is the speaker, could actually have two separate derived structures, represented in (263) and (264).



variable deletion



topic copying
topic deletion

But this situation is not as bad as it may at first appear; in fact, it may explain certain intonational properties of a sentence like (220). Thus, for example, it has often been noted that a sentence like (265) (or (220)) may be uttered with or without an intonational pause between the subject noun phrase and the rest of the sentence. The former option is particularly common if the subject is being explicitly contrasted or compared with someone else in the given context.

(265) John has always been one of my best friends.

If there are two possible derivations for (265), where John, moreover, is topic in both, then this fact is explained. If the structure that immediately underlies (265) is one like (263) then there is a pause between John and the rest of the sentence; if it is a structure like (274) then there is no pause.

10. Some alternative solutions.

In Gundel (1974) I argue that there is no semantic or syntactic motivation for distinguishing a notion 'topic' as first element or first noun phrase in surface structure, or in general for distinguishing a division of the sentence into topic 'what the sentence is about' and comment 'what is said about that thing' which is different from the distinction between what is presupposed in the sentence (sometimes referred to as given or known information) and what is actually predicated

(i.e., asserted, questioned, promised, etc.). I argue further that what is presupposed is in fact derivable from the existential presupposition (the principle of successful reference) associated with what the sentence is about.

It was shown further that if x is the topic of a given sentence, what that sentence is a predication about (in a sense which is consistent with the relationship between topic and presupposition noted above) it is possible for that sentence to answer an explicit or implicit question--what about x ?, and to be preceded by an about phrase containing x .

In Part I of this paper, I argued that sentences of the latter type, i.e., left dislocated sentences, are derived from logical structures in which a noun phrase, NP_1 , is cogenerated with a sentence S' , where NP_1 is designated as the topic, the noun phrase which names or identifies what the sentence is about, and S' is designated as comment, the actual predication that is made about NP_1 . In Part II it was shown that such structures could, without considerable unmotivated complications in the grammar, be generalized to all sentences. Such an analysis would make it possible to account for the notion of what the sentence is about, whether or not it may answer a particular question--what about x ?, and at the same time, given certain principles of reference and predication, would explain the relationship between the topic-comment distinction and an account of the presuppositional differences between sentences.

It is generally recognized that the concepts which I have attempted to account for in the theory presented above are crucial in determining certain paraphrase relationships between sentences, whether or not a given sentence is responsive to a particular question and, in general, whether or not a sentence may be successfully uttered in a given context. These facts, moreover, intertwine with the application of such proposed transformations as pseudo-cleft formation, left dislocation, topicalization, emphatic stress placement, etc. I will now briefly examine some alternative proposals to account for these facts. I will first discuss the possibility of accounting for these facts by means of interpretation rules that operate on the surface structure of sentences, and will then examine two specific proposals that have been put forward which would account for these phenomena at the level of logical (semantic) structure and which are, moreover, distinct from the proposal put forward here.

10.1. An Interpretivist Solution. It might be suggested, following the proposed analysis of focus and presupposition suggested in Chomsky (1970) that the distinction between what the sentence is (or may be) about and what is actually predicated about that thing may be interpreted from surface structure roughly as follows:

- (266) Replace some constituent containing the intonation center (primary stress) by a variable and replace Y in the formula in (267) by the resulting sentence. Place the constituent which was chosen to be replaced by a variable in the position of Z in (267).

- (267) x is Z is predicated (i.e., asserted, questioned, etc.) of x_1 where x_1 is Y .

Y is what is presupposed and the topic of the sentence is the object (concept, etc.) identified by the property Y . This principle would predict that (268) has roughly the three interpretations represented in (269).³³

- (268) Henry signed the treaty.
 (269) a. x is [Henry signed the treaty] is predicated of x_1 , where x_1 is [x (happened?)].
 b. x is [signed the treaty] is predicated of x_1 , where x_1 is [Henry x (something?)].
 c. x is [the treaty] is predicated of x_1 , where x_1 is [Henry signed x].

Subject to certain refinements (such as what exactly does the x in (2) and (b) stand for), (269a)-(269c) are in fact analogous to the interpretations assigned by our theory to sentence (220). There are a number of reasons, however, why I believe the proposal outlined above is less adequate than the analysis that I have suggested.

1. It cannot correctly predict what is predicated as opposed to what is presupposed (what the sentence is about) in those cases where the element that represents new information is not a continuous constituent in surface structure. For example, a sentence like (270).

- (270) John said that someone told Mary she couldn't attend the meeting tonight.

(270) can certainly be interpreted as a statement about Mary. It can answer the question--What about Mary?, What happened to Mary?, etc., and it may be preceded by an about phrase containing Mary, i.e.,

- (271) (as for) Mary, John said someone told her she couldn't come to the meeting tonight.

In other words, (270) may be interpreted as follows:

- (272) John said that someone told x that x couldn't attend the meeting tonight is predicated of x_1 , where x_1 is Mary.

Yet the Interpretivist position outlined above would predict that the only possible interpretations of (271) are:

- (273) a. x is [she couldn't come to the meeting tonight] is predicated of x_1 , where x_1 is [someone told Mary x].
 b. x is [told Mary she couldn't come to the meeting tonight] is predicated of x_1 , where x_1 is [John said someone (did) x].

- (273) c. x is [someone told Mary she couldn't come to the meeting tonight] is predicated of x_1 , where x_1 is [John said x].
 d. x is [said someone told Mary...] is predicated of x_1 , where x_1 is [John (did) x].
 e. x is [John said someone told Mary...] is predicated of x_1 where x_1 is x [something happened??].

Notice that (274), the question corresponding to (272) may appropriately be answered by any of the statements in (275), indicating that what is requested in (274) is information about Mary.

- (274) Did John say that someone told Mary she couldn't come to the meeting tonight?
 (275) No. Harry claims that Bill insisted she wouldn't be able to understand what was going on.
 No. Bill asked her to go to the movies.
 No. Mary never attends meetings.
 No. Mary is crying because she thinks no one understands what she's trying to say.
 No. Bill ordered her to stay home.
 I know nothing about what's going on with Mary.

2. Unless an additional condition is placed on (266) (or any theory that attempts to interpret what is being predicated from surface structure) which states that the constituent including the primary stressed element, i.e., the constituent replaced by a variable, may not itself contain an explicit performative clause, the interpretive rules will incorrectly predict that in (276) the speaker is asserting that he is giving an order.

- (276) I am hereby ordering all of you to turn your thermostats down to 68°.

That (276) cannot be an assertion about what the speaker is doing is witnessed by the fact that the expressions in (278) are possible responses to (277), for example, but not to (276).

- (277) I am reading the book now.
 (278) No you're not.
 That's a lie.
 Do you expect me to believe that?

3. As I argued in Gundel (1974) the topic and hence the presupposed elements of sentences like

- (279) There will be a tornado.
 It is windy.
 Someone just walked in.
 There's nothing to do.

may not be a constituent in surface structure, or even any element that may be interpreted from some constituent in surface structure.

4. Replacing a primary stressed constituent by a variable makes false predictions about the presuppositions of cleft and pseudo-cleft sentences. While the presuppositions of (280)-(282) are the same, this principle would predict that they are different, worse yet it would predict that (281) and (282) presuppose a near tautology.

- (280) The television woke me up.
 prsp: something woke me up.
 (281) What woke me up was the television.
 prsp: *What woke me up was something
 (282) It was the television that woke me up.
 prsp: *It was something that woke me up.

Since the predicted presuppositions for (281) and (282) themselves presuppose that something woke the speaker up they either fail to assert or assert a truth (hence the unacceptability of these sentences).

5. Interpreting the presuppositions of a sentence like (280), for example, from surface structure, precludes any uniform and coherent treatment of presuppositions since it does not relate the presupposition associated with (280) with that associated with the clause what woke me up in (281) or with the relative clause in (283).

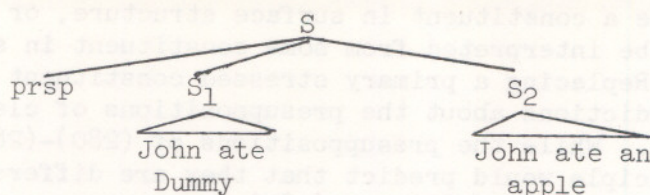
- (283) What woke me up is difficult for me to talk about.

A completely different means would therefore have to be invented to account for what appears to be essentially the same phenomenon.³⁴

10.2. Muraki's Theory. In his dissertation Muraki (1970) proposes that the underlying (semantic) representations of sentences contain as their highest predicate the verb presuppose which relates two sentences, S_1 and S_2 , the first of these representing the presupposition and the second the assertion of the given sentence. The rule of left dislocation is made sensitive to the material in S_1 , i.e., it is constrained to apply only to an element that 'represents the presupposition'. The intonational pattern of sentences is determined by a rule that operates on two structures S_1 and S_2 which are identical except for the fact that there is a dummy in S_1 which corresponds to some element in S_2 and assigns primary stress to this element. Optional rules convert S_1 into the relative clause of cleft and pseudo-cleft sentences and a later rule deletes S_1 after all transformations which are sensitive to the information contained in it have applied. Thus, for example, (284)-(287) would all be derived from the structure in (288).

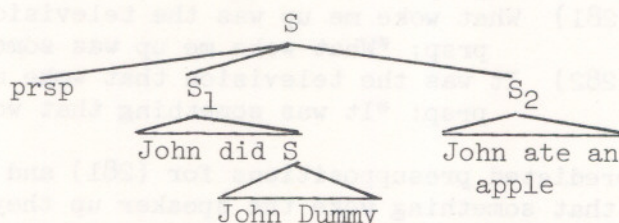
- (284) John ate an apple.
 (285) (As for) John, he ate an apple.
 (286) What John ate was an apple.
 (287) It was an apple that John ate.

(288)

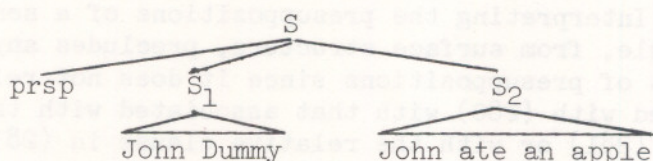


While (286) and (287) can have as their source only the structure in (288), (284) and (285) can also be derived from any of the following.

(289)



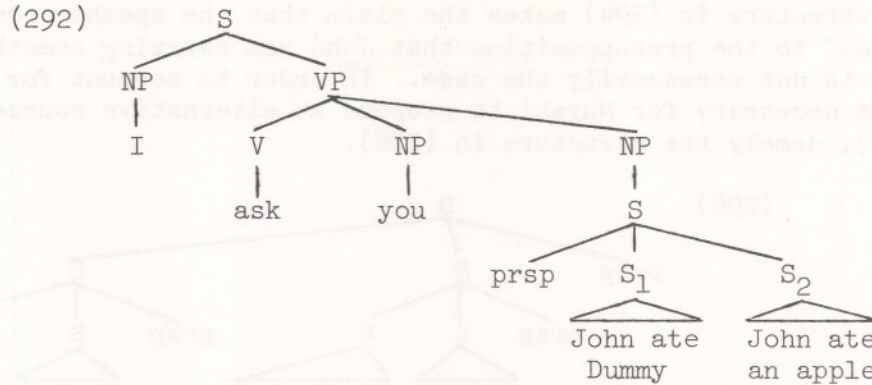
(290)



A clear advantage of this theory is that it offers a principled basis for explaining the relationship between presupposition and sentence intonation. It does so, moreover, with a single rule of stress specification, thus eliminating the need for two separate rules--nuclear stress rule (for 'normal' stress) and emphatic stress rule (for 'emphatic' stress) which is assumed in the standard theory.

However, I find a number of serious objections to Muraki's proposal. First of all, there are in general, two reasonable alternatives to account for presuppositions associated with a given sentence: (1) simply list the presuppositions of a sentence in its semantic representation and (2) invent a principle which would systematically interpret the presuppositions of a sentence from some level (or levels) in its derivation. I believe that the second alternative would clearly be preferable for reasons of simplicity and generality and should therefore be fully explored before any version of the first alternative is accepted. Muraki's proposal not only makes it necessary to list presuppositions separately for each sentence, but it does so in a highly artificial manner. His theory makes the claim that the underlying (semantic) representation of a sentence is an assertion about what the sentence presupposes. Note, in particular, the problems that such a solution would pose for a performative analysis such as the one proposed in Ross (1970). Thus, we certainly would not want to claim that the semantic representation of (291) is (292).

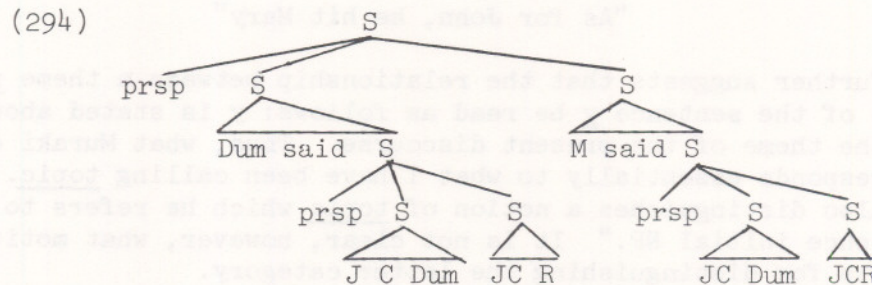
(291) Was it an apple that John ate?



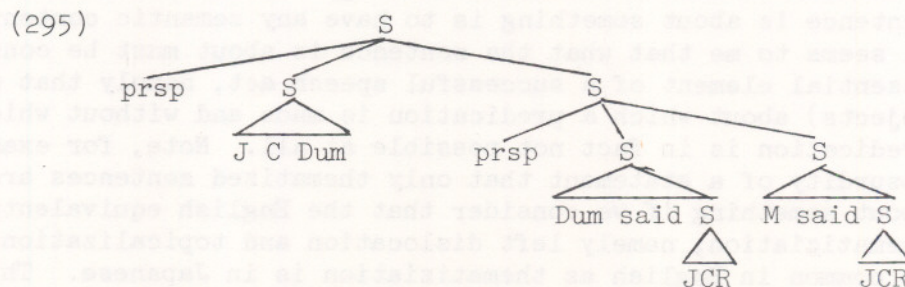
(291) clearly does not request information about the presupposition of S_2 . As Muraki himself points out, a similar problem arises in connection with a sentence like (293).

(293) It was Mary who said that what John was carrying was a revolver.

The P-marker which immediately precedes stress specification for (293) should be (294).

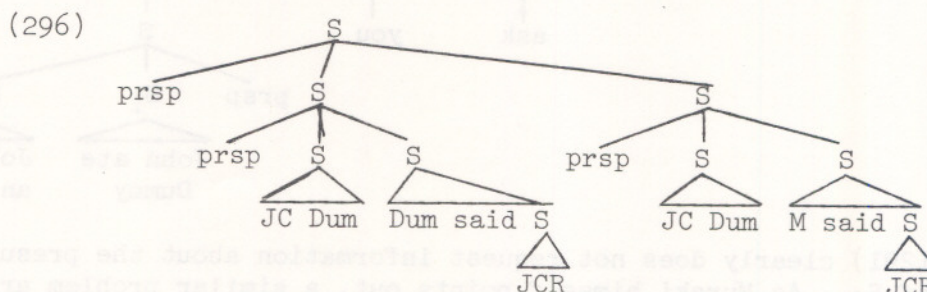


But (294) does not correctly represent the semantic structure of (293). In particular the predicate prsp should not be within the scope of the predicate said. In order to cope with this problem, it is necessary for Muraki to propose an additional rule of presupposition embedding which would operate on the presuppositions in (295), the correct semantic structure for (293), and embed it into the constituent sentences, resulting in the structure in (294).



However, another problem arises with respect to a sentence like (293).

The structure in (294) makes the claim that the speaker commits himself to the presupposition that John was carrying something. But this is not necessarily the case. In order to account for this fact, it is necessary for Muraki to propose an alternative source for (293), namely the structure in (296).



Another objection to Muraki's proposal concerns his treatment of the notions topic and presupposition. Muraki refers to the noun phrase with the postposition wa in a Japanese sentence like (297) as the theme.

(297) John-wa Mary-o nagutta
 John Mary hit
 "As for John, he hit Mary"

He further suggests that the relationship between a theme x and the rest of the sentence y be read as follows: y is stated about x which is the theme of the present discourse. Thus, what Muraki calls theme corresponds essentially to what I have been calling topic. However, he also distinguishes a notion of topic which he refers to as "any sentence initial NP." It is not clear, however, what motivation exists for distinguishing the latter category.

The rule of thematization in Japanese, which corresponds roughly to the English process of left dislocation, then chooses some unstressed noun phrase which "represents the presupposition" and Chomsky-adjoins it to the left of the S. The objections to such an analysis are as follows:

1. Since thematization is optional, if we accept Muraki's suggestion for how the relationship between theme and the rest of the sentence is to be interpreted, this would lead to the conclusion that some sentences are about nothing. If the statement that a sentence is about something is to have any semantic content at all then it seems to me that what the sentence is about must be considered as an essential element of a successful speech act, namely that object (or objects) about which a predication is made and without which successful predication is in fact not possible at all. Note, for example, the absurdity of a statement that only thematized sentences are sentences about something if we consider that the English equivalents of thematization, namely left dislocation and topicalization are not as common in English as thematization is in Japanese. This would force us to conclude that Japanese sentences are more often statements (questions, etc.) about things than are English sentences.

2. The restriction that the theme must "represent the presupposition", which is itself somewhat unclear, accounts for the fact that two sentences may have the same presupposition but different themes, as in (298), and (299), but they may not have a theme that is not somehow included in the presupposition, as illustrated by the unacceptability of (300).

(298) As for Mary, John gave her the book.

(299) As for the book, John gave it to Mary.

(300) *As for John, he gave the book to Mary.

Notice, however, that (300) is unacceptable not because the noun phrase John is not part of the presupposition associated with the structure underlying a particular cleft or pseudo-cleft construction. It is unacceptable because John is part of the comment, i.e., what is actually predicated in (298)-(300) (notice it has primary stress); thus, as our theory would also predict it cannot possibly be the topic (or theme). There are, however, perfectly acceptable sentences, like (301), where the presupposition necessary to form the relative clause of the pseudo-cleft construction in Muraki's analysis does not include the theme.

(301) As for John, what Mary said was something that didn't concern him.

This fact strongly suggests that a different analysis is necessary to account for the facts in (298)-(300).

3. Muraki's analysis of presupposition, like Chomsky's, does not allow a uniform and coherent treatment of this notion, i.e., one that would relate the presuppositions associated with different readings of a sentence with general presuppositions associated with definite referring expressions. Notice, in particular, that a presupposition itself must be a well formed proposition; yet it is not at all clear what well-formed proposition is represented by

(302) John Dummy

which is the presupposition that Muraki assumes for the reading of a sentence that answers the question--What about John? Even if it could be argued that (302) is to be interpreted as

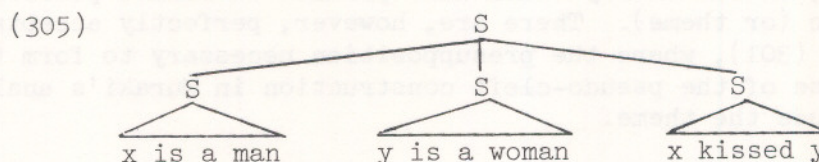
(303) There is something which is true of John.

the analysis still does not capture the fact that the presupposition associated with a sentence that is an appropriate response to a question like--What about John? is actually existential in nature, i.e., it would still be necessary to incorporate into the grammar a principle which predicts that the proposition expressed by (302), i.e., (303), itself presupposes (304).

- (304) there exists in some real or imaginary world
 an individual uniquely identified as John
 (the referring expression John uniquely
 identifies someone or something).

In fact, since (303) presupposes (304) and is at the same time entailed by it, (303) cannot possibly be false, i.e., either (304) is true, in which case (303) is true as well, or (304) is false in which case (303) is neither true nor false; it fails to make any statement at all. The reverse does not hold, however, since (304) does not presuppose (303).

10.3. Dahl's Theory. Assuming McCawley's (1968) hypothesis that a statement is to be represented by a proposition plus a set of NP descriptions (atomic sentences), roughly as in (305), Dahl (1969) proposes that topic-comment structure is a reflection of the inter-relationship between the atomic sentences.



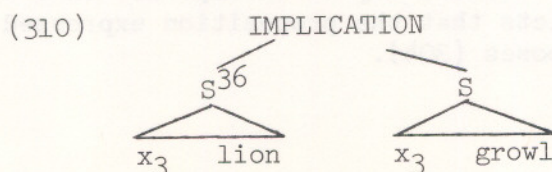
The topic, Dahl suggests, is one or more NP descriptions and the 'proposition will usually be found in the comment', where the relations between the two corresponds to that of a material implication in propositional logic. The left hand side of the implication is the topic and the right hand side is the comment.

Thus, the underlying representations of (306)-(309) would be roughly (306')-(309') respectively.

- (306) Lions growl.
 (307) Henry won't be coming.
 (308) Mary, I don't like (her).
 (309) It was the man who won.

- (306') $(x_3 \text{ is a lion}) \supset (x_3 \text{ growls})$
 (307') $(x_3 \text{ is Henry}) \supset \text{Not } (x_3 \text{ is coming})$
 (308') $(x_3 \text{ is Mary}) \supset ((x_1 \text{ is the speaker}) \supset (x_1 \text{ doesn't like } x_3))$
 (309') $(x_3 \text{ won}) \supset ((x_3 \text{ is a man}) \supset (x_3 \text{ won}))$

where the accent mark over the implication sign signifies that the NP description to the left of the implication refers to a definite noun phrase.³⁵ The formulas in (306')-(309') may be represented as trees like (310).



If x_3 in the rightmost S in (310) is replaced by the corresponding pronominal form, the result would be (311) or (312).

(311) A lion, he growls.

(312) Lions, they growl.

If not, the result is (306) or (313).

(313) A lion growls.

There are a number of problems with this analysis. First of all, Dahl notes that (309') and not (314) must be the semantic representation of (309).

(314) x_3 won \supset x_3 is a man

This is so because (314) does not make it possible to distinguish between (309) and (315).

(315) It was a man who won.

(309'), however, cannot possibly be the semantic representation for (309). The representation in (309'), $p \supset (q \supset p)$, is a tautology. What it says is that if some individual won, then if he is a man he won. This statement, which is necessarily true, is clearly not what is expressed by (309).

Secondly, these representations do not adequately account for the fact that the successful identification of the NP description (the topic) is a necessary condition for the successful predication of the proposition to the right of the implication sign (the comment). In a review of Dahl's work, Wayles Browne (1972) has pointed out that if implication is being used in the accustomed logical sense (which Dahl seems to be claiming it is) then, for example, (307') holds true in any instance in which x_3 refers to something or someone other than Henry, since a false antecedent makes a material implication true.

Even if these objections to Dahl's proposals did not exist, there is, I believe, a good reason to prefer the analysis that I have proposed in this chapter. Aside from the fact that generic statements like (306) may be paraphrased by a hypothetical statement like (316), Dahl offers no evidence for why his theory should be preferred over some reasonable alternative. All other things being equal, the more highly valued theory should, I believe, be the one that posits underlying structures which are more 'natural' and relatively less remote from observable semantic and syntactic facts. Few speakers of English (or any other language) would agree that when they utter a sentence like (308) what they are really saying is that if a particular individual is Mary they don't like her, or that (316) really means that if a particular set of individuals is the Mets they will win the Series.

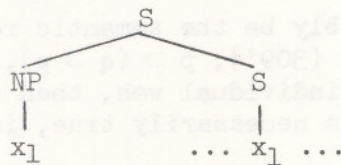
(316) The Mets will probably win the Series.

Any theory which deviates to this extent from native speakers' semantic

intuitions requires strong justification. Yet, aside from (1) the fact that some sentences, for example, general statements, have 'natural' hypothetical paraphrases and (2) it is possible to represent the topic-comment distinction in logical structure by assuming an implication relationship between atomic sentences, Dahl offers no evidence for why his theory should be preferred over some reasonable alternative. That the theory which I have proposed is more 'natural' and less remote from observable semantic and syntactic facts is demonstrated, I believe, by the following facts.

1. There are constructions in English (and in other languages as well), namely dislocated (and topicalized) sentences, in which the division of the sentence into topic and comment is structurally explicit. Such constructions have in fact the structure which I have proposed underlies and accounts for the topic-comment distinction in all sentences. While most (possibly all) languages contain conditional sentences, the purpose of such constructions is not to make clear the division into topic and comment, but to state that a conditional relationship exists between the propositions expressed by two sentences.

2. There are many languages in which the most common sentence form is one which has the structure



i.e. a structure roughly corresponding to a left-dislocated sentence in English. There is, as far as I know, no language in which the typical sentence form is a conditional construction.

3. In general, any sentence in English has a natural paraphrase in which the noun phrase which is topic is adjoined to the left of the highest sentence, optionally preceded by an about element. As was noted above, however, only a restricted set of sentences have natural hypothetical paraphrases.

4. In a very interesting paper (which to some extent led me to investigate this topic) Gruber (1969) notes that at a certain stage in the development of a child's grammar of English, the typical sentence structure is one in which a noun phrase is adjoined to the left (or sometimes to the right) of a sentence, i.e., roughly the type of structure that I have proposed underlies and represents the topic-comment distinction in all sentences of an adult grammar.

Footnotes

*This paper is a slightly revised version of Chapter 3 of my dissertation, *The Role of Topic and Comment in Linguistic Theory*. University of Texas, Austin, 1974.

1. No theoretical significance should be attached to my use of these terms or to the term pronominal remnant which I will sometimes

use to refer to the pronoun in the matrix sentence that corresponds to the dislocated noun phrase. I do not mean to imply thereby that the dislocated noun phrase has actually been moved or dislocated out of its position in the sentence; in fact, I will argue that just the opposite is the case.

2. Two important empirical assumptions are implicit in this rather rough formulation: (1) there is no need to distinguish in descriptions of natural languages between unit sets and individuals (2) we refer to and talk about members of a group collectively in the same way that we talk about and refer to individual members of a group and both carry presuppositions of existence. There is thus no reason to assume, as is often done in quantificational logic, that the only subject-predicate (topic-comment) statements are statements in the singular while, all other statements are existential.

3. This structure, like all others represented in this thesis, is grossly oversimplified. I have omitted all details except those that are immediately relevant to the point under discussion. In particular here the pronoun me most likely also originates outside of S', its position in S' being occupied by another variable. I do not believe, however, that all noun phrases originate outside the proposition (cf. McCawley 1970), in particular, not specific indefinites, which are introduced into S' by an existential quantifier, or any NP which does not carry an existential presupposition.

4. Similar observations have been made by Hankamer (1972:198).

5. I will henceforth use the terms 'about' element, 'about' phrase to refer in general to phrases containing an element which means roughly 'about', e.g. concerning, as for, etc.

6. I am assuming here that the most abstract representation of all sentences contains a higher performative clause. For arguments in favor of this hypothesis see Ross (19) and Sadock (19). I will omit the performative clause from tree diagrams, except in those cases where it is immediately relevant to the point at issue.

7. Similar claims have been made by other authors. Cf., for example, the discussion in Chafe (19

8. This is sometimes used as an argument against the hypothesis which I argue for in Gundel (1974: Chapter 5)), that topicalized sentences like (i) are derived from dislocated sentences by a rule that deletes the pronominal remnant.

(i) That book, I haven't read yet.

Indefinite noun phrases may be topicalized, as illustrated by the grammaticality of (ii) and (iii).

(ii) A dog I don't have.

(iii) A Norwegian I don't think you could persuade her
to marry.

9. Certain non-restrictive clauses are possible after a non-specific indefinite, e.g.,

(i) Alice would like to marry a Norwegian, who is
bound to be dependable.

10. Unless, of course, singular number is necessarily implied, as in (31), for example.

11. Unless these are already plural. e.g.

(i) I forget to bring two dresses; the blue one and the red one.

12. This is generally the case when the matrix sentence does not contain a noun phrase that is coreferential with the dislocated NP.

13. Actually, I believe that if something like this solution turns out to be correct, the order of the two conjuncts is significant. In these sentences, for example, the order should be the reverse of what it is in (31') and (31''). At least two reasons suggest this: (1) the position of the primary stress and (2) the rather counter-intuitive implication of (31') that in uttering (31) the speaker is asserting the existence of honest politicians. Thus, a more correct representation of (31), it seems to me, would be

(i) Ex (Gwendolyn would like to marry x and (that) x is an honest politician).

14. I leave open for the present the exact representation of these structures.

15. For an interesting discussion of the notion of specificity and various logical and linguistic problems in attempting to account for it, see Dean (1971).

16. For further discussion of this claim, see Gundel (1974).

17. Notice that the noun phrases modified by only and even always have primary stress. We would correctly predict therefore that they can never be dislocated (because they can never be topics), even when the quantifier is left behind.

18. The existence of sentences like those in (88) in Japanese, where a sentence with an initial NP-wa has no corresponding sentence out of which this noun phrase may have been moved, are used by Kuno (1972) as evidence that this noun phrase already is an adjunct to the main sentence in the underlying structure and is not moved out by a chopping or copying rule.

19. The Complex Noun Phrase Constraint is stated as follows:
No element contained in a sentence dominated by a noun phrase with a lexical head noun may be moved out of that noun phrase by a transformation.

20. Sentential Subject Constraint:
No element dominated by an S may be moved out of that S if that node S is dominated by an NP which itself is immediately dominated by S.

21. Left Branch Condition:
No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule.

22. What is meant by this statement is roughly that the element may be moved over an indefinitely large amount of material, i.e., it may originate indefinitely far down in the tree. Thus, in the statement of the rule, variables are used because it is impossible to list all the elements over which the noun phrase may be moved.

23. See, for example, Sanders and Tai (1969), Drachman (1970).

24. This sentence may be acceptable as an example of relativization with a pronominal remnant in the embedded sentence, where it means that the friend bit the dog; but this is not the meaning intended here.

25. In Russian, where word order is considered to be 'free', it is in fact considerably restricted in precisely those clauses where left dislocation is unacceptable in English. This point is discussed further in Gundel (1974).

26. This is equally true for dislocated noun phrases in general.

27. This seems to me somewhat better than him himself, them themselves, etc., possibly because the phonetic form of you and your (self) is different.

28. This is not true, of course, if the sentence is itself a question.

29. More exactly it answers some implicit or explicit question-- 'What about you and topic-comment structure?', i.e., what is the relation between you and topic-comment structure, where the topic is a conjoined NP and one of the members of the conjunction need not be overtly expressed, though it is still implicit in the question. For the purpose of the present discussion, however, I will ignore this complication.

30. This convention introduced in Ross (1967) deletes a (non-root) S-node if the latter does not branch, i.e., does not dominate more than one node.

31. This is essentially the condition for successful reference proposed in Searle (1969:95).

32. This claim would be disputed by many linguists; in particular those who adhere to the widely held hypothesis that the it in a cleft sentence like It was Harry who hit Bill is semantically empty, i.e., is not an anaphoric pronoun. In Gundel (1974) I put forward a different proposal, namely that the it in the cleft sentence is a pronominalization of the relative clause in the corresponding pseudo-cleft sentence. In any case, the source of the deleted clause who hit Loretta still remains to be explained in a theory which does not derive the sentences under discussion from corresponding equative structures.

33. I am grateful to Stanley Peters for pointing out to me that Chomsky's proposed analysis of focus and presupposition could be interpreted in this way.

34. For some more arguments against Chomsky's proposal to interpret focus and presupposition from surface structure, see Lakoff and Postal (1972).

35. Browne (1972) notes the difficulty connected with Dahl's attempt to account for definite reference in this manner. He writes "Is this a quality that can just be postulated? Are we to interpret (23) as 'X₃ is a lion and if it is definite it grows?' or perhaps 'if X₃ is definite and a lion it growls.'"

36. Dahl actually writes AF (= atomic formula) here instead of S.

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On Rule-Specific Constraints in Syntax*

Ronald L. Neeld

Fauconnier (1971) noted that two types of global constraints had been proposed. On the one hand, there are particular constraints that mention specific rules in specific languages. On the other hand there are general constraints (not necessarily universal: quantifier constraints do not hold for all dialects of English) which do not refer to specific rules of grammar. Fauconnier speculates: '...it may be possible to dispense altogether with language-specific global constraints' (255). To be sure, the issue of generality of constraints and the issue of universality are partially separate. But only partially: showing the generality of constraints is a preliminary to showing their universality. A constraint that mentions a specific rule in a particular language is not universal. The issue of the generality of constraints is interesting enough to be worth pursuing further. Of the constraints presented in the literature some are general and some are particular. But are the particular constraints really global? In this paper I examine this question.

Suppose we wish to examine the general properties of dollar bills, but some are counterfeit. Obviously, we first have to eliminate the bogus bills. Likewise, if we wish to examine the general properties of global constraints, we must eliminate the counterfeit constraints. There is a tendency for proponents of global rules to justify everything that has been proposed as a global constraint. But certainly no one who accepts transformations believes that everything that has been proposed as a transformation is in fact a transformation. I now turn my attention to those constraints that are highly specific in character in order to show that they may be removed from the class of global constraints.

1. Passive/Equi.

It was noticed by Robin Lakoff (reported in G. Lakoff (1970)) that no single lexical item may take a for-to complementizer and undergo both Passive and Equi:

- (1) a. Sam expected to leave last night.
- b. *To leave last night was expected by Sam.

This restriction requires use of a global constraint. However, Grinder (1971: 97-131) shows that the examples given by Lakoff are blocked by a far more general constraint, Controller Cross-Over. This more general constraint refers to classes of rules, rather than

to specific rules. We do not have a rule-specific global constraint, for the data cited follow from the rule-general global constraint Controller Cross-Over.

2. Greek Case-Agreement.

Andrews (1971) argues that in Greek 'a predicate modifier agrees with that NP which was its subject at the end of the first cycle applying to that predicate modifier' (147). Notice the examples (2)-(6).

- (2) Taûta dikiá estin.
(nom.) (nom.)
'these things just be'
'These things are just.'
- (3) Taûta legetai díkaia einai.
these things-are said- just - be
'These things are said to be just.'
- (4) Ismen taûta legómena díkaia einai.
(acc.) (acc.) (acc.)
we know - these things - being said - just - be
'We know these things to be said to be just.'
- (5) Emménomen touútois hâ ísmen legómena
(da.) (acc.) (acc.)
we abide-by those things - which - we know - being said
díkai einai.
(acc.)
just-be
'We abide by those things which we know are said to be just.'
- (6) Emménomen hoís ísmen legoménois díkaíois einai.
(dat.) (acc.) (acc.)
'We abide by what we know is said to be just.'

In (3) taûta and díkaia agree although taûta has undergone Raising and Passive. In (4) taûta and legómena agree where taûta has undergone Raising, Passive, and Raising again. This indicates agreement takes place at a late level. But in (6) touútois is optionally deleted from the structure that underlies (5), and as a result the relative pronoun becomes dative (hoís). The adjectives and participles switch to dative, although they are not in the right configuration for the agreement rule which gives a predicate modifier the same case as the NP it modifies. Case marking takes place at a late level, but an earlier level must be examined in order to tell what NP a modifier is to agree with. (This example is also discussed in Lakoff (1970), (1972), Emonds (1973); Baker and Brame (1972), and Perry (1973).)

3. French Adjective/Participle Agreement.

Casagrande (1970) discusses global rules in regard to grammatical agreement. He discusses Greek case agreement (see 2 above) and proposes a similar solution to the problem of agreement of adjectives and past participles in French. An example of agreement of adjectives is given in (7), of past participles in (8). The underlined elements agree in gender and number.

(7) Marie est jeune. 'Marie is young'.

(8) Noun les avons toujours admirées.
'We have always admired them.'

Casagrande argues that there is a single agreement rule for adjectives and past participles. This rule must occur after any object placement rule, for a past participle agrees with its direct object only if the direct object precedes the past participle. There are two object placement rules, a syntactic rule which moves pronominal NP, and a stylistic rule which moves full NP. The agreement rule then is as follows: The adjectival element of a deep être-verb agrees (in gender and number) with its deep subject NP and the adjectival element of a deep avoir-verb agrees with its deep direct object if that object is to the left of the adjectival element in question. Agreement applies after rules which permute direct objects, but must make reference to the notions deep subject and deep object. The rule must therefore be global in nature.

It appears as if the two constraints just discussed mention specific rules. I suspect, however, that no global constraints in syntax are rule-specific. This means that an apparent rule-specific global constraint is either an instance of a general constraint or it is not global in nature.

If the Greek example is considered in isolation, it appears to require a rule-specific constraint. However, when the Greek and French examples are considered together, it is obvious that the same phenomenon is exhibited in both cases: some node is stipulated as agreeing with some other node at an early level, but the actual assignment of those features for which agreement is marked must take place at a later level. The rule of case agreement in Greek and the rule of gender/number agreement in French are different rules, but both exhibit the same global phenomenon. We need to view case agreement and gender/number agreement as separate rules, for if they were the same rule, we would predict that a language either has that rule or not. Yet there are some languages, such as French, which have gender/number agreement but do not have case agreement. Notice, for example, (9) and (10).

(9) Je crois qu'il est fameux.
'I believe that he is famous.'

(10) Je le crois etre fameux.
'I believe him to be famous.'

The adjective fameux agrees in gender and number with its antecedent, but not in case. There simply are no varying case forms for adjectives in French.

Also, in languages that have syntactic gender--like French--the case form of a pronoun is governed by its grammatical relation to the verb, but the gender/number form of the pronoun is governed by its antecedent. Notice (11) and (12).

(11) J'ai trouvé le crayon, et il était rouge.
'I found the pencil, and it was red.'

(12) Marie a perdu le crayon, et je l'ai trouvé.
'Marie lost the pencil, and I found it.'

In (11) il is masculine singular, to agree with its underlined antecedent. But although the antecedent is a direct object, the pronoun is in the nominative form. In (12) le (contracted) I masculine singular to agree with its antecedent. Le is accusative because it is itself a direct object rather than because the antecedent is a direct object. Assignment of case and agreement of gender and number must be separate.

We can therefore view the French and Greek cases as instances of a general global condition which refers to a class of agreement processes. This condition would specify that if two nodes are part of some agreement process which must be stated at an early level, the features that the controlling element bears in surface structure will be assigned to the element that agrees with it. Thus, we do not have here an instance of a rule-specific global constraint.

There is some debate as to whether the relevant constraint is actually global. Fauconnier (1971) presents an analysis where no global constraint is required. There has been objection to Fauconnier's proposal on the grounds that it requires use of indexing, which extends the power of the theory. However, because the matter is still in debate, I summarize Fauconnier's proposal. Whether or not Fauconnier's analysis can be maintained, we certainly do not have a rule-specific global constraint.

Fauconnier (1971) argues that there are unexpanded indexed nodes in deep structure and that adjectives may become part of a network of coreference by virtue of an agreement rule which copies the index of a noun phrase onto an adjective. He provides argumentation that the use of unexpanded NP nodes can handle the problems involving definite descriptions discussed in McCawley (1970), Karttunen (1969, 1971), and Kuroda (1971).

Fauconnier (1971, 1973) argues that facts concerning Agreement, Quantifier Floating, and Pronominalization in French can be accounted for only by use of unexpanded indexed NP nodes, along with a process of index-copying. This approach will also account for the facts motivating the two global constraints presented.

The most important parts of Fauconnier's proposal are as follows:

- (a) There is an adjective agreement rule of roughly the form:

S.D.: $NP_x - V' - A$

S.C.: $NP_x - V' - A_x$

Here V' is a copulative predicate, A is an adjective or participle. The rule copies the index of the NP onto the adjective. This is a formal way of specifying that the adjective is under the control of that NP.

- (b) There is a rule of Feature-copying of the form:
Copy the features of a noun phrase NP_x onto all nodes W_x that are coreferential with NP_x and not already marked for those features.
- (c) There is a Closeness Constraint on feature-copying.

First, we need the definition: 'Node B is closer to node C than node A is, if the lowest S dominating A, B, and C dominates the lowest S dominating B and C' (Fauconnier 1971: 144). Then the constraint is defined as:

Closeness Constraint: Given two coreferential NP's, NP_x^1 and NP_x^2 , both marked for the feature F, and an unmarked node V_x with the same index, if NP_x^2 is closer to V_x than NP_x^1 is, then feature copying of a feature specification for F cannot operate between NP_x^1 and V_x .

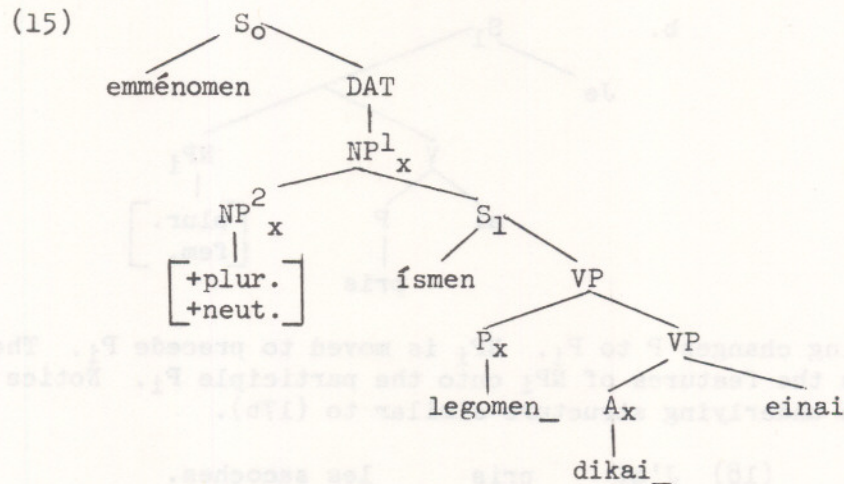
Fauconnier motivates the Closeness Constraint on the basis of anaphoric definite descriptions and epithets in English and French (146-9), the 'accusativus cum infinitivo' construction in Latin (149-54), and relative clause reduction in Latin (154-60).

Fauconnier summarizes the Lakoff-Andrews data concerning Greek and proposes that agreement does not actually copy any features, it 'only establishes control relations between noun phrases, adjectives and participles' (161). Case-marking is a late rule and therefore all nodes bearing the same referential index will share the surface features of the antecedent node.

Fauconnier analyzes the examples concerning Greek case agreement in the following way. The common deep Structure of (5) and (6) is (13) (= Fauconnier's (46), p. 162).

two will receive the case feature of NP^2_x (namely [accusative]) by the Closeness Constraint. The result is (5).

But suppose the replacement rule substitutes NP^2_x for taûta. The result is (15) (= (48), p. 164).



In this tree, NP^1_x is marked [dative] and this feature appears on its head NP^2_x . In this event, Feature-copying marks P_x and A_x [dative], and the result is (6).

It seems to me that Fauconnier is not arbitrarily assigning indices to certain nodes in order to keep track of them, as Baker and Brame (1972) do. The point is that during a derivation a network of coreference is established between certain nodes, and Feature-marking takes place on the basis of this network of coreference. According to Fauconnier no rule-specific global constraint is needed.¹

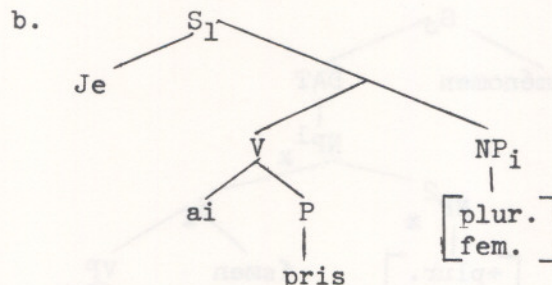
Fauconnier's analysis can also be applied to French agreement. In French a participle agrees in gender and number with an object if and only if the object precedes the participle. But the structural description for agreement is always met before and not after the object moves, which led Casagrande to propose a global constraint. Fauconnier (1971, 1973) shows that adjective agreement must be an indexing transformation. The situation with past participles is parallel, so he formulates Object-Participle Agreement as an indexing rule:

(16) S.D.: Aux - [P_V] - NP_x

S.C.: P becomes P_x

Feature-copying (FC) is responsible not only for the features of adjectives and participles, but for the lexical forms of pronouns. Certain constraints on anaphora, as well as other facts, can be explained if FC obeys the Ross-Langacker constraint.² (17a) is derived from (17b) as follows.

(17) a. Je les ai prises.
 [fem. plur.] [fem. plur.]



Indexing changes P to P_i . NP_i is moved to precede P_i . Then FC copies the features of NP_i onto the participle P_i . Notice that (18) has an underlying structure similar to (17b).

(18) J'ai pris les sacsches.
 [no features] [fem.]
 'I took the bags.'

But no rule moves NP_i (it is not a pronoun), and FC cannot apply, since P_i precedes and commands NP_i .

Fauconnier offers several other considerations (119-122) which indicate that his proposal is superior to that offered by Casagrande. I shall not repeat the details, for what concerns me here is that no rule-specific global constraint is needed.

By using rule-specific global rules we claim that each constraint is an idiosyncratic fact about some particular language. Fauconnier claims that a number of facts about separate languages can be explained by the general processes that languages may draw on in constructing their grammars. This solution, in view of its widespread motivation in different languages, is superior to the Baker and Brame (1972) indexing proposal. There they assign arbitrary indices only in order to mark nodes as being within the same simple S. But Fauconnier uses referential indices which are needed anyway in accounting for definite descriptions. Such naturally limited use of indices does not intolerably extend the power of grammars, and the advantage is that the two examples discussed here automatically follow from a more general analysis.

The above discussion opens up a number of problems due to the debatable status of indexing in grammar. A more insightful analysis may well show that indexing is not necessary, but in any case the examples of agreement do not require use of rule-specific global constraints.

4. 'Obligatory' Extraposition.

Verbs like seem, appear, happen, strike, etc. (which I will refer to as seem-class verbs) cannot appear in certain grammatical structures which have not undergone Extraposition.

- (19) a. It seems to me that Louise is a good cook.
b. *That Louise is a good cook seems to me.

- (20) a. It appears to me that Harry will win.
b. *That Harry will win appears to me.

Extrapolation is ordinarily optional:

- (21) That Jean-Pierre is a revolutionary is well-known.

We cannot account for (19) and (21) by making Extrapolation obligatory for seem-class verbs. For the sentences in (22) are grammatical, where Raising has applied (to the structures underlying (23)) but not Extrapolation.

- (22) a. John seems to please you.
b. Watson happened to be in London.

- (23) a. [John please you] seems
b. [Watson be in London] happened

Furthermore, we cannot say that Extrapolation must apply if applicable, for there are cases like (24b) and (25b) where Extrapolation has not applied.

- (24) a. It seems strange that Betty can't tapdance.
b. That Betty can't tapdance seems strange.

- (25) a. It appears (to be) true that Winchell cheats at tic-tac-toe.
b. That Winchell cheats at tic-tac-toe appears to be true.

Postal (1972a) discusses the above problems, and tries to find a solution using rule-features. Assuming that the rule-feature assigned to the verb by Extrapolation is [Extra] and the one assigned by the rule marking a complement as a that-clause (as opposed to an infinitive or gerund) is [that], the constraint is:

- (26) Throw out all derivations in which the verbs seem, appear, happen, etc. occur with the feature markings

-Extra
+That

.

This rules out (19b) and (20b) but allows (22), (24) and (25). Of course this proposal won't work, as Postal himself points out, because Extrapolation is obligatory even when a seem-class verb is embedded and has its subject NP raised, as in (27).

- (27) a. *That Harry threw the game is likely to seem.
b. It is likely to seem that Harry threw the game.

Since Extraposition applies to the clause containing the verb likely, rather than the clause containing the verb seem, the verb seem is marked [-Extra] and (26) wrongly predicts that both (27a) and (27b) are ungrammatical. Postal therefore has no solution.

The problem is that Postal is trying to find conditions that make Extraposition obligatory. This does violence to the distinction between optional and obligatory. An obligatory rule is one in which no derivation is acceptable where that rule has not applied (if its structural description was met at some point in the derivation). An optional rule is one in which any derivation is acceptable in which that rule has not applied. Now if some derivation is blocked because an optional rule has not applied, then we violate the definition above of optional and meet the definition above of obligatory. We would have to create more complicated definitions of the notions 'optional' and 'obligatory' which would rob them of their generality and simplicity. Furthermore, suppose we adopted more complicated redefinitions which would allow a rule to be either optional or obligatory under certain circumstances. It then becomes impossible to state that any given rule either is or is not obligatory. If some rule appears to be optional, that may be because no one has found conditions where it is obligatory. And if some rule appears to be obligatory, it may really be optional, with the conditions engendering obligatoriness so numerous that no one has found examples of optional application. The distinction optional/obligatory becomes useless. We might just as easily speak of the conditions under which a rule can apply. The way Postal uses the term 'obligatory' it becomes devoid of meaning.

In addition, Postal's use of ad hoc feature markings like [Extra] provides no way to explain why the features are used that are used. Any arbitrarily selected set of features should be available. Postal's solution carries with it the claim that the constraint might in other dialects of English mention any two randomly selected rules, a highly unnatural claim.

Postal notes that both Raising and Extraposition give acceptable sentences, but fails to draw the proper conclusion from this fact. The real question is: What is it that Raising has done to make the surface forms acceptable that Extraposition also does? Once the question is phrased this way, the solution is obvious. They place an NP or VP after the matrix verb. Seem-class predicates always have a surface form in which either an NP, VP, or adjective follows the verb. Seem-class predicates do not appear as the rightmost element of a sentence in surface structure. One does find sentences like *John is except under the existential reading of the predicate be.

I propose that there is a surface structure constraint which throws out structures not of the form:

$$(28) \text{ NP} - \text{V}' - \text{X} - \left\{ \begin{array}{l} \text{VP} \\ \text{NP} \end{array} \right\}$$

where V' is a seem-class predicate. This constraint blocks (19b), (20b), and (27a). But it allows (19a), (20a), (22), (24), (25), and (27b).

There are sentences like John seems rich and John appears happy where an adjective follows the verb. But these are derived from John seems to be rich and John appears to be happy, which indicates that the constraint holds at 'shallow structure' before the minor rule which deletes to be. If this is so, we can eliminate the curly brackets in (28) by specifying that there must be some constituent following the matrix verb which itself contains a verb. Or perhaps it is best to say that a major constituent must follow the verb, where a major constituent is one which results from the first expansion of the S-node by the phrase-structure rules. In any event, no global constraint is needed.

5. Say.

Lakoff (1970) claims that if the verb say takes a for-to complementizer, it must undergo Raising, Passive, and Agent Deletion.

- (29) a. *Sam said for John to be tall.
 b. *Sam said John to be tall.
 c. *John is said to be tall by Sam.
 d. John is said to be tall.

Lakoff claims that a global constraint is needed here, but it would have many complications in its statement. A global constraint throws out certain derivations as ill-formed, so in order to mark (29a-c) as ungrammatical, the constraint would have to be stated as: Throw out any derivation in which (a) the verb say appears in the matrix sentence, (b) the complement sentence takes a for-to complementizer, and either (c) Raising applies, or (d) both Raising and Passive apply, but not Agent Deletion. Such a formulation fails, of course, to state what conditions (c) and (d) have in common.

A similar approach is taken by Stockwell, Schachter and Partee (1973, cf. pp. 530-1, 560-1), who present a derivation of (29d) which is the same as Lakoff's. They claim that (29b) can be blocked by making Passive obligatory with Raising. There are serious theoretical problems with such a position, namely the problems of making an optional rule obligatory (discussed in section 4) and the use of a rule-specific global constraint. Furthermore, I think the Lakoff/Stockwell approach is based on a false analogy with sentences like (30) which undergo Raising and Passive in their derivation which follows.

- (30) a. One believes [Lloyd is the fastest gun in the West].
 → b. One believes Lloyd to be the fastest gun in the West.
 → c. Lloyd is believed by one to be the fastest gun in the West.
 → d. Lloyd is believed to be the fastest gun in the West.

What is ignored here is the grouping of verbs into lexical classes. Baker and Brame insightfully point out that say can be broken up into two lexical items, say₁ and say₂. Say₁ occurs in (31), and say₂ in (29d) and (32).

(31) Hermoine said that Marcelle tickled her fancy.

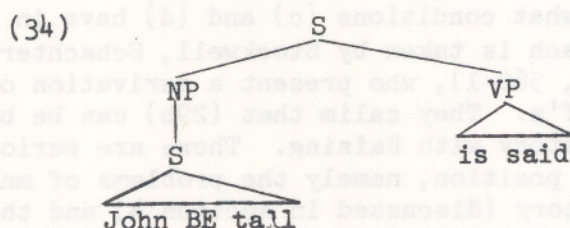
(32) It is said that John is tall.

Baker and Brame then claim (incorrectly, I think) that Extraposition is obligatory for say₂:

(33) *That John is tall is said.

They propose that be said is generated as a Passive by the base rules, and adopt Emond's analysis of complementation, so that be said has an empty subject NP and Intraposition (the reverse of Extraposition) is blocked. But Postal (1972c) provides extensive argumentation against replacing Extraposition by Intraposition, and Lakoff (1972) discusses the arbitrary nature of empty nodes. Lakoff's remarks in this regard are much to the point, but both parties in the dispute focus on formal devices and not insight into grammatical phenomena.

The clue to what is going on appears when Baker and Brame say: 'There are a number of respects in which be said and rumored behave like predicates such as seem and appear' (67). It is plausible, then, that is said is a predicate which takes a sentential subject, as in (34).



If Raising applies, (29) results, if Extraposition applies, (32) results. If neither applies, the surface structure constraint (28) discussed in section 4 throws out (35).

(35) *That John is tall is said.

(29a-c) are blocked because while say₁ takes an object complement, that complement cannot have a stative predicate if it bears a for-to complementizer:

- (36) a. *Sam said for John to {know the answer
be tall }.
- b. Sam said for John to open the door.
- c. Sam said that John {knew the answer
was tall }.

(36b) is all right because open is a non-stative predicate. The verb in (29a-c) could not be say, because that predicate does not take an object complement. We now have more evidence against Lakoff's proposal: since the deep structure of (29) is ill-formed due to the constraint on stative predicates demonstrated in (36), how could the application of any transformations (much less a list of specific transformations) make the surface sentence acceptable? I conclude that there is no global constraint here, rather that what we have is simply a case of the more general restriction for seem-class predicates developed in 4.

6. Double-Ing.

Ross (1972) argues that there is a derivational constraint which rules out certain sequences of present participles. Notice that (37d) is unacceptable.

- (37) a. It continued to rain.
 b. It continued raining.
 c. It is continuing to rain.
 d. *It is continuing raining.

Ross first shows that the Double-Ing constraint must be an output condition: there are some intermediate stages where such sequences must be allowed. But the constraint also has to refer to earlier levels of structure. To begin with, the second ing form has to be a verb in the complement of the first verb. There is no violation in (38) because the second ing form is a noun, and no violation in (39) because the second ing is not in the complement of the first.

(38) The police are stopping drinking on campus.

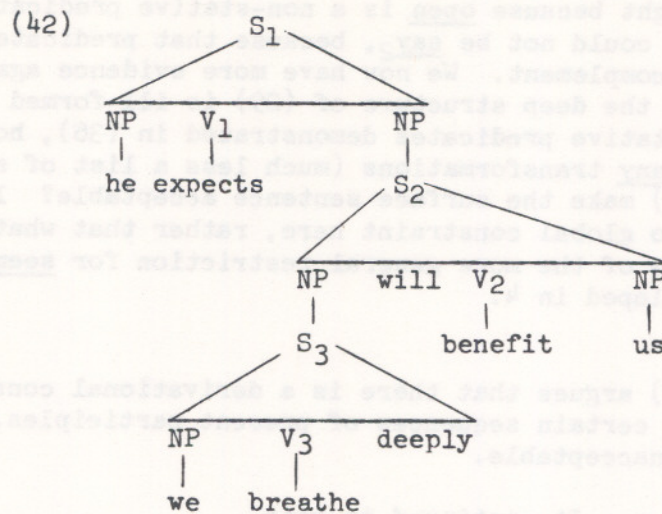
(39) I saw the man who had been drinking opening up the cash register.

Furthermore, notice that (41), derived from (40) by Raising, is acceptable.

(40) His is expecting that breathing deeply will benefit us is naive.

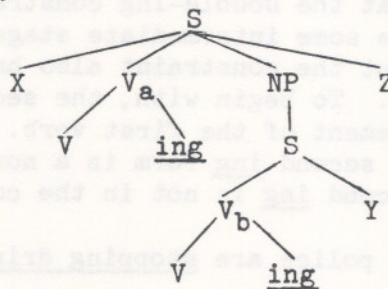
(41) His expecting breathing deeply to benefit us is naive.

(41) is acceptable because the constraint blocks only contiguous verbs that were in immediately adjacent clauses in remote structure. The deep structure of the subject of (41) is as in (42), where expecting (=V₁) and breathing (=V₃) are not in adjacent clauses.



Ross formalizes the Double-Ing constraint as follows:

- (43) All surface structures containing a subtree of the form,



in which the node corresponding to V_a in remote structure was immediately dominated by S_i , and the node corresponding to V_b in remote structure was immediately dominated by S_j , and in which no S node intervened in remote structure between S_i and S_j , are ungrammatical.

This formulation of the Double-Ing Constraint has been amply criticized by Pullum (ms.) who offers a solution which does not require a global constraint. Pullum first summarizes the proposals by Emonds (1973) and Milsark (1972) that the constraint may be stated without reference to derivational history. In essence, they both propose that surface sequences of V-ing's are prohibited unless an NP boundary intervenes. They give evidence that there is no NP node in surface structure over the complement of a verb of temporal aspect, so that (44) is blocked.

- (44) *John is continuing singing soprano arias.

But there is an NP node over the ing forms that have traditionally

been called gerunds, so (45) is not blocked.

(45) John was considering getting into college.

Emond's constraint will allow (38), (39), and (41) because an NP dominates the second ing form that does not also dominate the first. Pullum then presents counterexamples to Emond's constraint (sentences from Pullum's ms., p. 7).

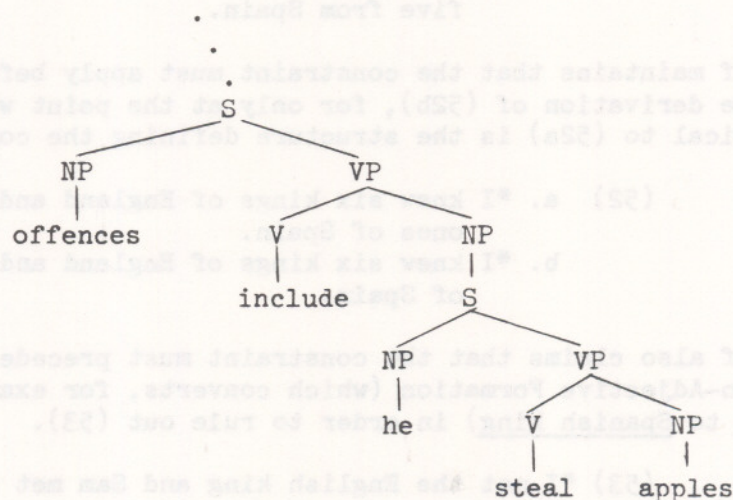
- (46) a. Three policemen dragged the screaming, struggling girl away.
 b. I was sitting thinking about my troubles when there was a knock at the door.

In these sentences there is no NP node over one of the ing forms that is not also over the other, so (46a) and (46b) should be blocked. The problem is that Emonds tries to state the constraint in terms of surface sequences of categories, rather than in terms of a phrase marker.

Pullum presents strong evidence against a global statement of the Double-Ing constraint. The remote structure of (47) must include something like the substructure (48).

(47) He was charged with numerous offences, including stealing apples and assaulting the Queen.

(48)



The surface structure of (47) must include a substructure of the form given in (43), with including as V_a and stealing as V_b . Ross' constraint wrongly predicts that (47) is blocked.

Emonds (45) points out that it may be a general property of surface structure constraints that they do not prohibit a sequence of items when an NP boundary occurs between them. Pullum suggests that if this is the case, the Double-Ing Constraint may be stated as:

- (49) Any sequence $V_i [V + \text{ing}]_{V_i} - V_j [V + \text{ing}]_{V_j}$
 in surface structure is ungrammatical if
 V_j is in the complement of V_i .

We may conclude that this constraint is not a global constraint.

7. One-Pronominalization.

Lakoff (1970) discusses a constraint which blocks structures roughly of the form one of NP under certain conditions. But the constraint does not hold if ones is spelled those in surface structure (by application of an optional morphophonemic rule which converts the ones into those). Thus, we have the contrast between:

- (50) a. Max had known the kings of England and I had known the ones of Spain.
 b. Max had known the kings of England and I had known those of Spain.

Lakoff claims that the constraint must refer to an intermediate level of structure, as well as to surface structure, because the constraint must precede the rule of One(s)-deletion, which derives (51a) from (51b).

- (51) a. *I knew six girls from England and Irv knew five ones from Spain.
 b. I knew six girls from England and Irv knew five from Spain.

Lakoff maintains that the constraint must apply before one(s)-deletion in the derivation of (52b), for only at the point where (52b) is identical to (52a) is the structure defining the constraint present.

- (52) a. *I knew six kings of England and Irv knew five ones of Spain.
 b. *I knew six kings of England and Irv knew five of Spain.

Lakoff also claims that the constraint must precede the rule of Pseudo-Adjective Formation (which converts, for example, king of Spain to Spanish king) in order to rule out (53).

- (53) *I met the English king and Sam met the Spanish one.

The evidence for referring to surface structure comes from (50). Now if we did not need to refer to intermediate stages, the constraint would be a surface structure constraint. But do we really need to refer to earlier structures? The evidence that the constraint must hold before certain rules comes from examples (51), (52), and (53). But I think all these can be blocked by other restrictions than Lakoff's. (51a) and (52a) can be blocked by an independently-needed restriction which prohibits structures in which

ones is preceded by a quantifier of the class including numerals and items such as these, those, some, many. Notice the examples in (54).

(54) a. *I kissed five girls and George kissed six ones.

b. *I kissed many girls and George kissed some
many
a whole room-
ful of ones.

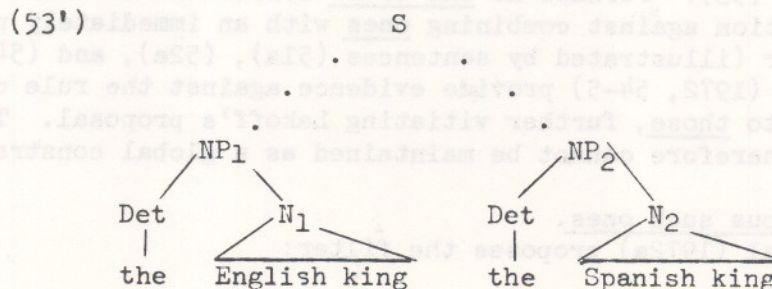
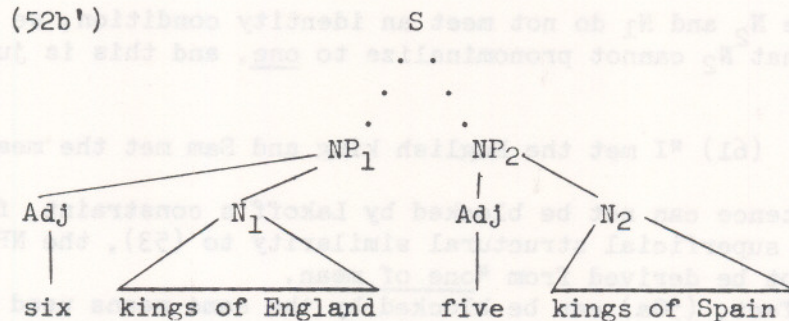
(52b) and (53) can be blocked in the following way. Baker and Braine give some indication (55) that there is a structural difference between NP like king of England and NP like a picture of Mary. It seems that king of England is dominated by the node NP. Notice that there are sentences like (55), where one of NP occurs, indicating that an N under the domination of NP has been reduced to one.

(55) John took a picture of Mary, and I took one of Alice.

But phrases like the king of England and Man of La Mancha are single nouns in some sense, as indicated by the difference between (55) and (56).

(56) I met the Man of La Mancha and George met
{ the man of the year
*the one of the year }.

Now suppose that the NP's in (52b) and (53) have the structures shown in (52b') and (53').



The rule of One-Pronominalization can apparently apply to both NP and N nodes:

- (57) Alice bought a blue dress, and Harriet bought
 { one, too
 a green one }.

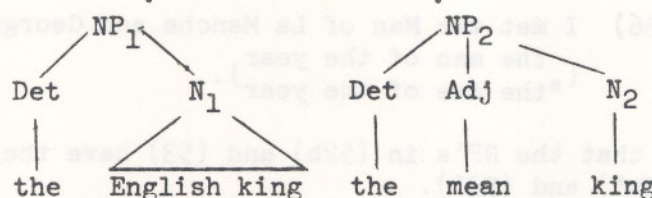
But the rule cannot apply to (53'), because NP₂ and NP₁ do not meet any identity condition, nor do N₂ and N₁, so (53) cannot be generated. The situation is the same with NP₂ and N₂ in (52b'). Since One-Pronominalization can't apply, neither can One-Deletion, so (52b) can't be generated. The structural distinction between NP's like the English king and the cheerful lady is supported by the following considerations. Notice that One-Pronominalization can apply to (58).

- (58) a. I met the generous king and Sam met the mean king.
 b. I met the generous king and Sam met the mean one.

Now suppose the NP's in (59) are as in (60).

- (59) I met the English king and Sam met the mean king.

- (60) S



Now since N₂ and N₁ do not meet an identity condition, we should expect that N₂ cannot pronominalize to one, and this is just what we find:

- (61) *I met the English king and Sam met the mean one.

This sentence can not be blocked by Lakoff's constraint, for while it has a superficial structural similarity to (53), the NP the mean one cannot be derived from *one of mean.

In fact, (50a) can be blocked by the same means used to block (52b) and (53). Perhaps no one of NP constraint is necessary, only a restriction against combining ones with an immediately preceding quantifier (illustrated by sentences (51a), (52a), and (54)). Baker and Brame (1972, 54-5) provide evidence against the rule changing the ones to those, further vitiating Lakoff's proposal. This example therefore cannot be maintained as a global constraint.

8. *Numerous such ones.

Postal (1972a) proposes the filter:

- (62) Throw out all derivations in which the substructure
 NP[numerous such ones]_{NP} occurs.

Postal derives one forms from such forms. Thus the (b) sentences in (63) and (64) are derived from the respective (a) sentences.

- (63) a. John was looking for a yellow robin, but he
 couldn't find such a one.
 → b. John was looking for a yellow robin but he
 couldn't find one.
- (64) a. Smith was searching for non-returnable boomerangs,
 but he couldn't find any such ones.
 → b. Smith was searching for non-returnable boomerangs,
 but he couldn't find any such.

The filter blocks sentences like:

- (65) a. *Harry needed atomic ray guns and George sold him
 numerous.
 b. *Harry needed atomic ray guns and George sold him
 numerous such + (*ones).

The sentences in (65) are acceptable if we replace numerous with many. (62) refers only to a single tree, but this cannot be a surface structure tree since no such appears in (65b). The filter is unusual in that it is a single tree filter that is not stated at either deep or surface structure.

Postal notes, correctly, that the constraint cannot be a surface structure constraint, since in some forms ones does not appear, and in others such does not appear. But from this one cannot logically conclude, as Postal does, that the constraint must be stated at some level or levels of intermediate structure. Postal dismisses the possibility of a deep structure constraint with the comment 'No non-ad hoc way of preventing generation of the underlying structures appears to exist, especially in view of the normal distribution of the closely related form many' (149). But an ad hoc deep structure constraint is surely preferable to an ad hoc constraint of a new type. (Remember, this constraint would be odd as a global rule, for it does not relate corresponding structures at nonadjacent points in a derivation.) And in all of the blocked sentences, the banned structure *numerous such ones appears in something very much like deep structure. Furthermore, it has by no means been demonstrated that the deep structure blocking does not have to do with the semantics of numerous as opposed to many. This filter may be removed from the class of global constraints.³

9. Each Shift.

Postal (1972c) presents a derivational constraint on the rule of Each Shift, which 'has the effect of moving the quantifier each out of the NP corresponding to the variable which each binds and

attaching it to (or after) the end of a (usually) numerically quantified NP whose numerical quantifier is under the scope of each' (189).⁴ Examples of the rule are:

- (66) a. Each of the boys kissed her three times.
 b. The boys kissed her three times each.
- (67) a. I gave each of them five dollars.
 b. I gave them five dollars each.

One NP (the each-Source) is moved to the end of another (the each-Target) at the point of application.

- (68) a. He sent three men to each of the stores.
 b. *He sent three men each to the stores.

Furthermore, there is a clause-mate condition on Each Shift. In the sentences in (69), there is a clause boundary after about, and each may not hop over this boundary.

- (69) a. I talked to each of the senators about (my) blocking three bills.
 b. *I talked to the senators about (my) blocking three bills each.
 c. I talked to each of the advisers about displaying three pictures of myself.
 d. *I talked to the advisers about displaying three pictures of myself each.

There are two significant restrictions here: (a) the requirement that each-Source precede each-Target, (b) the Clause Mate condition. Now notice that unbounded leftward movement rules (like Topicalization, Adverb Preposing, Wh Rel Movement) can move NP's so that Each Shift can apply, even when it could not apply in the structures which were input to those rules.

- (70) a. Harry bought three diamonds for each of those girls.
 b. *Harry bought three diamonds each for those girls.
 c. For those girls, Harry bought three diamonds each.
 d. The girls, for whom Harry bought three diamonds each, are happy.

The relevant movement rules are unbounded.⁵ Notice, for example, Adverb Preposing:

- (71) a. For those girls, I am sure Harry bought three diamonds each.
 b. For those girls, it was later learned that Mary claimed that he bought three diamonds each.

Bringing the facts about Each Shift together, we notice that the condition that each-Source precede each-Target is defined on the output of unbounded movement rules (as shown in (70) and (71)), but the clause-mate condition could only be met before the application of these rules.⁶ Postal's account is that Each Shift is postcyclic, subject to a left-right condition. The Clause Mate requirement is a global condition referring to earlier stages of a derivation. That is, the correspondents of each-Source and each-Target must be Clause Mates at the end of the lowest cycle covering both of them.

But I think the logic of this argument is faulty, for Postal is trying to build two restrictions into one rule. Such a move would perhaps be necessary if (a) the condition that each-Source precede each-Target is applicable only to the rule of Each Shift, (b) this condition is defined at the point of application of the rule Each Shift. I think that both of these assumptions should be called into question, thereby vitiating an analysis based upon them.

There is some interesting data given in Fauconnier (1971: 7-10, 171-95) which bears on the first assumption. There is a rule of Quantifier Floating (QF) in French which derives (73) from (72).

(72) Chacun des hommes a vu l'auto.

(73) Les hommes ont chacun vu l'auto.

Both (72) and (73) mean 'each of the men saw the car'. QF says in brief: In a clause containing (prep) {^{chacun}tous} NP, move (prep) {^{chacun}tous} into post-auxiliary or postverbal position. Fauconnier notes (p. 10) that the remaining NP must precede the detached chacun:

(74) a. J'ai mangé chacun des gâteaux.

'I ate each of the cakes'

→ b. *J'ai chacun mangé les gâteaux.

The same condition holds on the parallel rule of Quantifier Floating in English:

(75) a. I have seen each of those movies.

→ b. *I have each seen those movies.

The conditions here seem to be the same as the condition on Each Shift: the moved quantifier must follow the NP it moved off of. Since the same restriction applies to separate rules in separate languages, it is unlikely that it should be built into the rule of Each Shift in English.

Furthermore, Fauconnier gives interesting data which indicate that the constraint could be viewed as a surface structure constraint: In French chacun or tous can be moved from an NP in object position only if the NP from which it moves is a pronoun which ends up as a clitic or relative pronoun. Thus compare (74b) with (76).

- (76) a. Je les ai chacun mangés.
 'I ate each of them'
 b. Les gateaux que j'ai chacun mangés étaient bons.
 'The cakes which I ate were good'

But the application of the separate rules of Clitic Movement and Wh Rel Movement will in (76) insure that the NP precedes its quantifier in surface structure. If the pronoun cannot be moved to the left of the quantifier, the surface structure is banned. Notice (77), where the pronoun eux cannot be cliticized:

- (77) a. J'ai mangé chacun d'eux.
 'I ate each of them'
 b. *J'ai chacun mangé eux.
 c. *Je eux ai chacun mangé.

The fact that separate rules create the acceptable sentences indicates that the constraint is stated at surface structure, for otherwise we could not explain why these separate rules both engender surface acceptability. We could, then, formulate a surface structure constraint which insures that a detached quantifier will follow the NP it is detached from. Roughly, the constraint would state: Block structures of the form Q - X - NP where Q is not immediately dominated by the node NP. The data motivating the left-right condition on Each Shift would automatically follow from the more general condition. Now since this condition is separate from the clause-mate condition on Each Shift, no global constraint is necessary.

We are still missing something, it seems to me. This surface structure constraint is puzzling in view of the fact that non-detached quantifier precedes its NP. Perhaps the structures which we explained by use of a surface structure constraint actually result merely from the way the rules operate. We then would not need a surface structure constraint. In this case, perhaps the reason all detached quantifiers follow their NP's is that the quantifier detachment rules are rightward movement rules.⁷ (70b) is ruled out because the rule can't move each to the left. (70c), (70d), and (71a) are acceptable because the rules of Adverb Preposing and Wh Rel Movement carry the whole NP each of those girls to the left. After that, Each Shift moves each to the right. The derivation of (71a) is:

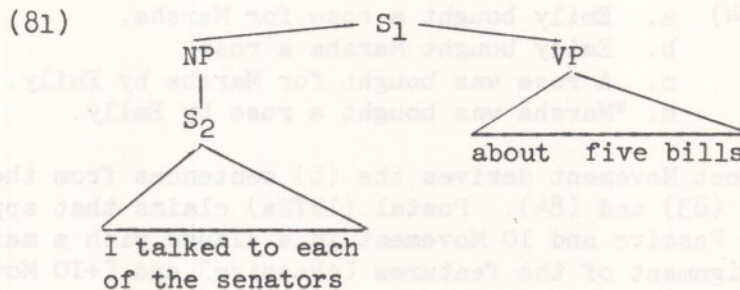
- (78) a. I am sure Harry bought three diamonds for each
 of those girls.
 → b. For each of those girls, I am sure Harry bought
 three diamonds. (Adverb Preposing)
 → c. For those girls, I am sure Harry bought three
 diamonds each. (Each Shift)

According to this derivation, we violate the Clause Mate condition on Each Shift. But the Clause Mate condition may well be illusory. Postal cites (69) as evidence for a clause-mate condition. But Each Shift is independently blocked from moving each into the about-phrase after the verb talk:

- (79) a. I talked to each of the senators about five bills.
 → b. *I talked to the senators about five bills each.

- (80) a. Each of the authors talked to the editor about five books.
 → b. *The authors talked to the editor about five books each.

No clause-mate condition can be invoked here. J. Geis argues that adverbial prepositional phrases originate as 'higher predicates' which take sentential subjects. If about X is such an adverbial, then the deep structure of (79) is (81):



(69) has a similar deep structure. But now we can easily see why Each Shift is blocked, for rightward movement rules are upward-bounded. (They may not move an element into a clause higher than the one they originated in. See Ross 1967: 146-84.) Therefore each cannot move out of S_2 in (81).

The only other evidence which could motivate a clause-mate condition would be a case where one S is embedded within another, and the each in some NP of the matrix sentence could move onto an each-Target in the lower sentence. If the movement is blocked, we could claim that there is a clause-mate condition. An example of this situation is (82).

- (82) a. Each of the farmers thinks that Zebe owns five acres.
 → b. *The farmers think that Zebe owns five acres each.

But notice that in the examples (66) and (67) motivating the rule of Each Shift, the each-Source and each-Target command each other. In (82a), however, each asymmetrically commands five and precedes it. In (82b) each and five command each other, but five precedes each. It is just such a situation which is blocked by Lakoff's Quantifier Constraint, which specifies that if Q_1 asymmetrically commands Q_2 in deep structure, then if Q_1 and Q_2 command each other in surface structure, Q_1 must precede Q_2 .

Since we cannot motivate a clause-mate condition, we cannot assume there is one, and derivations of the type presented in (78) cannot be blocked. In such an event, Postal's data can be accounted for by the simple restriction that Each Shift is a rightward movement rule, along with other independently-needed restrictions in the grammar.

By focusing on the nature of the rules involved, we can explain what is going on here, and we do not need to use a global constraint or a surface structure constraint.

10. Indirect Object Movement.

Postal (1972a) points out that, as Fillmore (1965) first noticed, for-prepositional phrases behave differently with respect to Passive than do to-prepositional phrases.

- (83) a. Marsha gave a rose to Emily.
 b. Marsha gave Emily a rose.
 c. A rose was given to Marsha by Emily.
 d. Emily was given a rose by Marsha.
- (84) a. Emily bought a rose for Marsha.
 b. Emily bought Marsha a rose.
 c. A rose was bought for Marsha by Emily.
 d. *Marsha was bought a rose by Emily.

Indirect Object Movement derives the (b) sentences from the (a) sentences in (83) and (84). Postal (1972a) claims that application of the rules Passive and IO Movement in a clause with a main verb V_i leads to assignment of the features [+Passive] and [+IO Movement] to V_i . The filter is:

- (85) Throw out all derivations in which a single verb V_a both:
 (i) occurs in an underlying structure with a for-indirect object; and
 (ii) occurs in a derived structure marked
- | |
|--------------|
| +Passive |
| +IO Movement |

This is merely a restatement of the fact that no verb which has a for-indirect object can undergo both Passive and IO Movement. Constraint (85) mentions two specific rules, as well as the presence of a for-indirect object as opposed to a to-indirect object. There is no difference in the structural configuration of these indirect objects: the difference is indicated by the preposition to as opposed to for.

The trouble with Postal's constraint is that the distinction between to-indirect objects and for-indirect objects is not sufficient. Notice, for example (86a)-(86d) where a to-indirect object may not be moved.

- (86) a. John sang a new song to Mary.
 b. John sang Mary a new song.
 c. A new song was sung to Mary by John.
 d. *Mary was sung a new song by John.

The generalization seems to be that both Passive and IO Movement occur with three-place predicates but not with two place predicates.

This is true of necessity because one argument is the subject of the predicate, and IO Movement can take place only when there are two arguments in the VP to be interchanged. A passivized indirect object does not appear with verbs that are two-place predicates, like buy and sing. To see the distinction between two and three place predicates, notice (87)-(89).

(87) *John gave a book.

(88) John bought an apple.

(89) John sang 'Keep on Truckin'.

A sentence like (87) can occur only where the third argument has been deleted by some rule. Now if buy is a two-place predicate, why is it that (84a) appears to have an indirect object, and why does it look as if IO Movement has applied in (84c)? One possibility would be to claim that buy is a three-place predicate. Then the third argument in (88) is deleted by a rule of Indefinite Dative Deletion, similar to the way in which the indefinite direct object of the two-place predicate read is deleted by Indefinite Object Deletion.⁸

- (90) a. John was reading something.
b. John was reading.

The trouble is that while (90b) has the meaning of (90a), (88) does not have the meaning of the supposed source (91):

(91) John bought an apple for someone.

Another possibility is that verbs like buy and sing may be optionally either two- or three-place predicates. But this does violence to the notion of saying that some verb is an n-place predicate. If there is a verb which apparently differs in the number of arguments it can take, I claim that we actually have two homophonous lexical items. Notice the verb rent is apparently either a two- or three-place predicate:

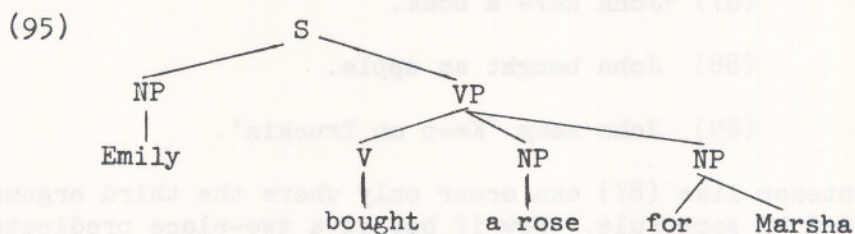
(92) Albert rented a cabin.

(93) Albert rented a cabin to the Quigleys.

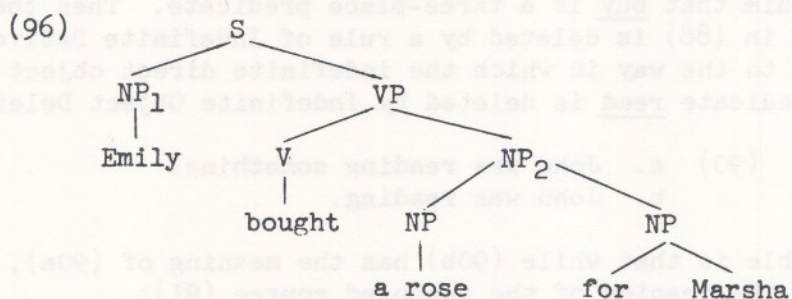
There is a difference in the meaning of the verb rent in (92) and the verb rent in (93). In (92) the subject of the sentence is paying money, but in (93) the subject is receiving money. (92) has another reading in which an indefinite dative to someone has been deleted, but this other reading is irrelevant. A promising way to account for this difference is to claim that it is based on the existence of two verbs rent: rent₁, which takes two arguments, and rent₂, which takes three arguments. But there is no detectable difference in meaning between the verbs in (94a) and (94b).

- (94) a. Emily bought a rose.
 b. Emily bought a rose for Marsha.

To state a verb is an n-place predicate, the n must be specified for some single value, and the existence of (94a) indicates that for buy that value is two. How then do we account for (94b)? Postal implicitly assumes that the deep structure of (94b) is like (95).



But I think a more correct structure is like that in (96).



The second argument, NP₂, is a 'nominally-complex' NP. There is good evidence for this analysis. Transformations operate on single constituents. Now notice that the following examples involving movement rules show that NP₂ above is a single constituent.

- (97) a. Q: What did Emily buy?
 A: A rose for Marsha.
 b. What Emily bought was a rose for Marsha.
 c. It's a rose for Marsha that Emily bought.
 d. The rose for Marsha which Emily bought was an American Beauty.

Compare (97) to parallel examples involving the three-argument predicate give:

- (98) a. Q: *What did John give?
 A: *A book to Harry.
 b. *What John gave was a cigarette to the cop.
 c. *It was a cigarette to the cop that John gave.
 d. *The car to his wife which John gave was a Cadillac.

I conclude that the deep structure of (94b) is as in (96). Now why

is it that (99b) and (99c) are acceptable, while (99d) is not? I offer the following speculation.

- (99) a. Emily bought a rose for Marsha.
 b. A rose was bought for Marsha by Emily.
 c. Emily bought Marsha a rose.
 d. *Marsha was bought a rose by Emily.

Speakers of English misanalyze the parsing of (99a) to be as in (95) instead of (96). Based on this misanalysis, the speaker incorrectly applies either Passive (to get (99b)), IO Movement (to get (99c)), or IO Movement and then Passive (to get (99d)). In other words, the speaker assumes that there are two arguments in the VP instead of one, and applies rules on that basis. But why is (99d) starred? I think this sentence is grammatical but unacceptable. Bever and Langendoen (1973) and Grosu (1972) argue that perceptual strategies play an important part in marking as unacceptable sentences which are grammatical (in the sense that they can be generated by the grammar). There must be a strategy which assigns the superficial subject of a passive sentence to object position. This strategy will assign the NP a rose in (99b) as the direct object of bought.⁹ But when this strategy is applied to (99d) the NP Marsha is immediately marked as the direct object in toto of the verb bought. But this creates a problem, for one is speaking of buying a flower, not a person. Furthermore, the leftover NP a rose could only be assigned as the indirect object of the verb (since the strategy already gives us the subject and direct object). But an inanimate NP cannot be the indirect object of the verb buy.¹⁰

In summary, I suspect that (99d) is unacceptable because speakers have no strategies which will allow them to effectively recover the underlying structure of the sentence.¹¹ I have tried to base the remarks just offered on a search for insight into grammatical phenomena rather than an attempt to find a formalism which 'handles the data'. Whatever the exact nature of the solution, it should be clear that a proper understanding will not involve an ad hoc global constraint.

11. Coordination Reduction.

In a (to my mind) dubious analysis Postal (1972a) claims that (100a) is derived from (100b) by Coordination Reduction.

- (100) a. Mary and John Smith (both) have jobs.
 b. Mary Smith and John Smith (both) have jobs.

These two sentences differ in that the (a) sentence there is a presupposition that the individuals named Smith are related, but there is no such presupposition in the (b) sentence. Postal claims that Coordination Reduction applies to phrases which are the names of human individuals only when in the semantic representation there is a presupposition that the individuals have the same last name because they are related. Thus, '...the constraint is naturally [! - RN]

stated as an ad hoc filter which is not part of Coordination Reduction as such, a filter which throws out all derivations in which there is a semantic representation with the relevant names but without the relevant presupposition and a later tree in which the names have been smashed together by Coordination Reduction' (143).

I do not believe that a global constraint is necessary here. The problem is that there is little reason to think that (100a) is derived from (100b) by Coordination Reduction. Postal would have to map (101a) into (101b).

- (101) a. NP[Mary Smith]_{NP} and NP [John Smith]_{NP}
 b. NP[[Mary and John] [Smith]]_{NP}

The same process would map (102a) into (102b).

- (102) a. John's bicycle and Mary's bicycle are on the porch.
 b. John's and Mary's bicycles are on the porch.¹²
 c. *John's and Mary's bicycle are on the porch.

But the underlined NP's in (102a) must become plural when the reduction process applies, as shown by comparing (102b) with (102c). If this reduction process truly maps (101a) into (101b), the name Smith should be pluralized, giving *Mary and John Smiths. While a proper name can appear in the plural in generic contexts such as the Smiths, it certainly cannot be plural in the context of (100). Thus, the mapping of (100b) into (100a) is blocked by the impossibility of pluralizing proper names here, and no global constraint is necessary.

If (101b) is not derived from (101a) by Coordination Reduction, where does it come from? Most likely it is an instance of phrasal conjunction, as discussed in Lakoff and Peters (1969). There must be cases where conjoined NP's are generated by the phrase structure rules rather than derived transformationally. John and Mary are alike cannot be derived from *John is alike and Mary is alike. Suppose the deep structure of the subject NP of (100a) is as in (103), and the deep structure of the subject NP of (100b) is as in (104).

- (103) NP[[Mary and John] Smith]_{NP}

- (104) NP[_{NP}[Mary Smith]_{NP} and NP[John Smith]_{NP}]_{NP}

We now have a natural basis to distinguish the semantics of (100a) and (100b). Since only one name Smith appears in (103), that name must refer to one family, and the individuals bearing the first names mentioned must belong to that family. In (104), two names Smith appear, so each Smith may refer to a different family. Postal has no such natural way to distinguish the meaning. On these grounds the analysis presented here is superior, in addition to not requiring a rule-specific global constraint.

12. Tough Movement.

Berman (1973) postulates a constraint on Tough Movement. This rule derived (106) from the structure underlying (105).

(105) Albert is tough (for me) to get along with.

(106) To get along with Albert is tough for me.

Now consider the rules shown in (107)-(110) below.

Dative Movement:

- (107) a. It is impossible to buy presents for John.
→ b. It is impossible to buy John presents.

About Movement:

- (108) a. It is difficult to talk to Mary about such things.
→ b. It is difficult to talk about such things to Mary.

Passive:¹³

(109) It is unpleasant to be kicked by John.

Raising:

- (110) a. It is difficult to believe [John made such a mistake]
→ b. It is difficult to believe John to have made such a mistake.

Now notice that if an NP has been moved by any of the above rules it may not be moved by Tough Movement.

Dative Movement:

- (111) a. It is impossible to buy John presents.
→ b. *Presents are impossible to buy John.
→ c. *John is impossible to buy presents.

About Movement:

- (112) a. It is difficult to talk about such things to Mary.
→ b. *Mary is difficult to talk about such things to.
→ c. *Such things are difficult to talk about to Mary.

Passive:

- (113) a. It is easy to be accepted by that group.
b. *That group is easy to be accepted by.

Raising:

- (114) a. It is impossible to expect John to know the answer.

(114) b. *John is impossible to expect to know the answer.

Berman proposes that the relevant constraint is that no NP may be moved by Tough Movement if it has earlier been moved by some rule. There are several difficulties with Berman's analysis. To begin with, the constraint is in many instances more general than one which would only block Tough Movement from applying. Notice that Wh Rel Movement cannot apply to a sentence where Dative Movement has applied:

(115) *Sally is a girl I would give my last dime.

Another problem is that it is hard to see what explanation there could be for a constraint on re-movement of an NP. The condition could not be general, for there are many cases where an NP is successively moved by different rules: for example, an NP can be moved by Dative Movement and then by Passive, a raised subject can be passivized and then raised again, etc. I think Berman's data can be explained by other means. First, I shall consider the case of Dative Movement.

Hankamer (1973) provides extensive discussion of the notion of structural recoverability, primarily in regard to deletion rules. I can only present the major relevant points of his work, and urge the reader to go to the original for details and some very interesting discussions. Hankamer first discusses (with regard to deletion rules) certain restrictions which function to insure recoverability of deletion.

A deletion is recoverable if, given only the statement of the rule effecting deletion and the output of a particular application of the rule, the input to the rule can be uniquely determined. In order to meet this condition, a deletion rule would have to be so formulated or so constrained that it could never map two distinct inputs into the same output. Any rule which so neutralized the distinction between two different underlying structures would introduce ambiguity, and a deletion which introduces ambiguity is not recoverable. (Hankamer 1973: 39).

One way to prevent ambiguity from arising is by a Structural Recoverability Condition: 'If a deletion rule operating over a variable would introduce structural ambiguity by yielding the same output upon application to two different sources, both applications of the rule are blocked' (41).

Hankamer goes on to show that this condition can be extended to chopping rules. It is just such a condition which will account for Berman's Dative Movement cases. The Structural Recoverability Condition precludes (115), for movement renders the chopping site unrecoverable. The chopping in (115) could have moved an element from either of the chopping sites indicated by dashes in (116).

(116) *Sally is a girl I would give ___ my last dime ___.

The structural ambiguity which would otherwise exist is disallowed,

for the chopping site would not be uniquely recoverable without a Structural Recoverability Condition on chopping rules. Such a condition will also block (111b) and (111c). The chopping site in (117) is not uniquely recoverable, for on structural grounds there are two possible chopping sites, as indicated.

(117) Presents are impossible to buy ___ John ___.

One of the readings (that indicated by the leftmost 'gap') would be blocked by selection restrictions, but Hankamer (p. 30) is quite clear that it is structural ambiguity that is blocked, and the matter of selection restrictions is irrelevant here.

Conditions on structural recoverability also seem to be at play in the Raising case. (118) has two possible chopping sites.

(118) *John is impossible ___ to expect ___ to know the answer.

A more remote structure of (118) could be either (119) or (120).

(119) It is impossible [to expect John [to know the answer.]]

(120) It is impossible [for John to expect [to know the answer.]]

One might raise the objection that the chopping site is recoverable because the restriction against Tough-moving subjects of embedded sentences would prevent (120) from being recovered. But recall the motivation for restrictions on recoverability. To repeat what Hankamer said, where we may substitute 'chopping' for 'deletion': 'A deletion is recoverable if, given only the statement of the rule effecting deletion and the output of a particular application of the rule, the input to the rule can be uniquely determined.' But the condition against chopping subjects is not part of the statement of the rule. Therefore, given only the statement of the rule, the chopping site is not uniquely recoverable.

Even if the approach developed here can't block the Raising cases, there is another way they can be blocked. Tough Movement always moves the rightmost element of a sentence, save that a prepositional phrase or adverb may follow. But there is never a following S, NP, or VP. In (114a) John is followed by the VP (or maybe NP or S, depending on what one thinks about pruning) to know the answer, and application could be blocked on those grounds.

There seems to be a different principle at work in the Passive case. First, consider the form the derivation of (113) would have to take.

- (121) a. [for that group to accept one_i] is easy for one_i
 → b. [for one_i to be accepted by that group] is
 easy for one_i
 (Passive)

- (121)→ c. [to be accepted by that group] is easy for one_i
 (Equi)
 → d. [to be accepted by that group] is easy
 (Indefinite Deletion)

If we then applied Tough Movement to (121d), we would derive (113b). But consider what the rules of Passive and Tough Movement do. They function to topicalize certain NP's, and the rest of the sentence is part of the comment. It is easy to see that there is a difference in meaning between (122a) and (122b), depending on what is topic.

- (122) a. Sonatas are easy to play on this violin.
 b. This violin is easy to play sonatas on.

Application of Passive topicalizes one in the embedded sentence. But application of Tough Movement topicalized that group. If we are to preserve the requirement that transformations preserve meaning, then one must somehow be marked as topic, so Passive can apply to it, and that group must also be marked as topic, so Tough Movement can apply. But a sentence cannot have two topics, which is why (113b) is odd. Another way to look at it is that Passive throws that group into the background and therefore it cannot be moved into the foreground, or topic position, by Tough Movement.

Berman's constraint runs into problems with the About Movement case. To begin with, there is a question about the data, for most speakers that I have questioned find (112c) acceptable. Furthermore, whatever blocks (112b) is more general, for it blocks any leftward movement rule.

- (123) a. *It's Mary who I want to talk about such things to.
 b. *Mary is the girl who I want to talk about such things to.

Given the acceptability of (112c), what could block movement of Mary to the left in (112b) and (123)? I think we don't actually have a condition blocking rule application, but rather a length-and-complexity output condition on stranding the preposition to. The more intervening material there is between Mary and the preposition to, the worse the sentence sounds:

- (124) a. ?Mary is difficult to talk about such things to.
 b. ??Mary is difficult to talk about these distressing things to.
 c. ?*Mary is difficult to talk about things which affect her family to.
 d. *Mary is difficult to talk about those things concerning the office of the Presidency to.

Notice that the same phenomenon appears in sentences which do not involve About Movement at all:

- (125) a. Mary is impossible to speak to.
 b. ?Mary is impossible to give presents to.
 c. ??Mary is impossible to try to speak to.
 d. *Mary is impossible for anyone to begin to
 try to speak to.

Notice also that if the to is carried along with the moved element, the sentence sounds much better:

- (126) a. ?*Who is it difficult to try to talk about such
 things to?
 b. To whom is it difficult to try to talk about
 such things?

Berman's article is interesting, for it points out the problem of spurious generalization. To be sure, a crucial part of science is discovering generalizations. But one can be too quick to group a selected set of data together and draw a conclusion. Such a move is especially suspect when the conclusion offers no hope of providing an explanation, i.e. when it is purely descriptive. In the case at hand, the descriptive device is unnecessary, for subsets of the data can be explained by reference to certain natural principles of grammar. When an explanation is sought the apparent generalization turns out to be spurious. This example points out one of the problems with purely descriptive formalism in a theory.

13. Auxiliary Reduction.

King (1970) notices that the rule of Auxiliary Reduction, which gives contracted forms of auxiliary is, has, would, had, have, will, are, and am, is blocked from applying if an element immediately following the auxiliary is moved or deleted. Thus we have the distinction between the (a) and (b) sentences below.

- (127) a. Tell Harry that the concert's at two o'clock.
 b. *Tell Harry where the concert's at two
 o'clock.

- (128) a. Bill's rich these days.
 b. *Sam's richer than Bill's these days.

My concern here is with whether a rule-specific constraint is needed. It is of course possible that this constraint is nonglobal. An attempt at a nonglobal formulation is made in Baker and Brame (1972). However, Lakoff (1972) presents what I think are serious problems with their attempt, so the question of reformulation is still open. So far as the question of generality is concerned, we need to know whether we must specifically mention the rule Auxiliary Reduction. Baker (1971) discusses this problem, and indicates that general restrictions on stress-lowering come into play. Since Auxiliary Reduction is dependent on prior stress-lowering, we need not single out any particular rule for mention.

Baker discusses the rule Auxiliary Shift, which (in his words) 'positions the finite auxiliary at the left hand side of the verb phrase, to the left of a variety of different types of preverbal elements' (167). If the auxiliary is emphasized, it may not be repositioned to the left, as (129) and (130) show (examples from Baker, 169).

- (129) a. We often HAVE heard those allegations.
 b. The money never WOULD have been found by the police if Jones hand't lost his key.
 c. Murphy never IS angry.
- (130) a. *We HAVE often heard those allegations.
 b. *The money WOULD never have been found by the police if Jones hand't lost his key ring.
 c. *Murphy IS never angry.

Auxiliary Shift is also restricted from applying when a constituent following the auxiliary is moved or deleted, even when the adverb rather than the auxiliary bears emphatic stress.

- (131) a. I wonder where Gerard USUALLY is ___ at this time of day.
 b. I wonder where Gerard is USUALLY at this time of day.

The common factor in both situations is that the auxiliary has nonlow stress, so we may specify that Auxiliary Shift can apply only when the finite auxiliary is unstressed. We can provide a uniform formulation of the restrictions on Auxiliary Shift and Auxiliary Reduction if we specify that the auxiliary be unstressed, a condition for which Baker provides some independent evidence in both cases. We can then specify that a general condition on stress lowering prevents application of the rules.

Now we must still face the question of how a deletion site prevents stress lowering. Baker offers the tentative proposal that 'the principle effect of deletion sites is to block the application of phonological rules by intervening between two elements mentioned in the structural description' (177). This, of course, does not make the restriction on stress lowering nonglobal, for a deletion-site mark is just a way of encoding a global constraint.

The problem with Auxiliary Reduction is complex, and no doubt much remains to be said on the subject. I know of no acceptable nonglobal alternative, but the constraint is not rule-specific. I have left this example out of the discussion of general constraints because I wish to consider only clearly syntactic global constraints. The issue of the interaction of syntactic and phonological phenomena is outside the scope of this inquiry. I mention this example because it has received such wide publicity.

14. Raising/Passive/Psych Movement.

Postal (1972a) presents a restriction on interchanging certain NP's. (132b) and (133b) have undergone Raising and Psych Movement in the derivation from the (a) versions.

- (132) a. I seem [Jerry like Lucille]
→ b. Jerry seems to me to like Lucille.

- (133) a. I strike [Jerry like Lucille]
→ b. Jerry strikes me as liking Lucille.

(134) differs from the two above sentences in that Passive rather than Psych Movement has applied.

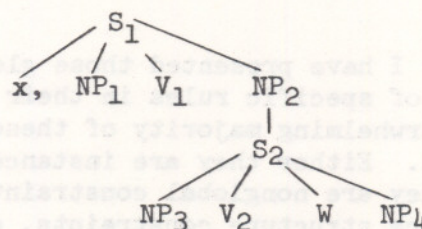
- (134) a. The police found out _S[Jerry was living with Margaret]_S
→ b. Jerry was found out by the police to be living with Margaret.

There is a constraint on coreference in sentences which undergo either Passive or Psych Movement:

- (135) a. *Jerry seemed to me to like me.
b. It seemed to me that Jerry liked me.
- (136) a. *Jerry struck me as liking me.
b. It struck me that Jerry liked me.
- (137) a. *Jerry was claimed by Pete_i to have attacked him_i.
b. It was claimed by Pete_i that Jerry attacked him_i.
- (138) a. *Jerry was found out by the police_i to be criticizing them_i.
b. It was found out by the police_i that Jerry was criticizing them_i.

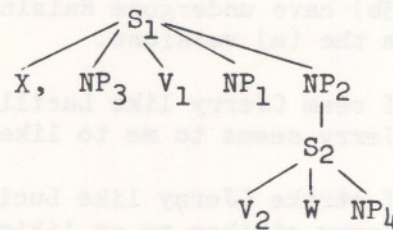
The relevant constraint is:

- (139) Throw out all derivations which have both:
(i) an underlying structure of the form:



where NP₁ and NP₄ are stipulated coreference;
and

(139) (ii) a later derived structure of the form:



This constraint blocks derivations in which NP₃ above is raised into S₁, and then interchanged with NP₁ by either Psych Movement or Passive.

15. Comparative Simplification.

A constraint discovered by Michael Geis (1973) states that the rule of Comparative Simplification can apply (with the lexical item earlier than) only when the verb modified by at a time is identical to the verb originally modified by at which. Geis derives (141) from (140) by a rule which deletes the underlined material.

(140) John left at a time which was earlier than the time at which you left.

(141) John left earlier than you left.

Notice that (142a) is ambiguous, since at which could modify either say or leave.

- (142) a. John left at a time which was earlier than the time at which you said that Pete left.
 b. John left earlier than you said that Pete left.

But (142b) is unambiguous since the underlined material can be deleted by Comparative Simplification only if at which (as well as at a time) modifies the verb leave. Notice that we must also mention the distinction between the lexical items earlier than and before, for (143), unlike (142b), retains ambiguity after Comparative Simplification.

(143) John left before you said that Bill left.

16. Summary.

In this paper I have presented those global constraints which mention the names of specific rules in their formulation. I have shown that the overwhelming majority of these are not rule-specific global constraints. Either they are instances of general global constraints, or they are nonglobal constraints (deep structure constraints, surface structure constraints, constraints on the way some particular rule operates). I showed in Neeld (1974: Chapter Two) that the general constraints, however, could not be reduced to nonglobal alternatives. There are only two rule-specific constraints

that I have not provided an alternative for: Postal's constraint on moving a raised NP under certain conditions (section 14) and the constraint proposed by Geis on Comparative Simplification. Hopefully, future research will show that these are either nonglobal or general, or that there is some basis to explain why these exceptions exist. In any event, the fact that so many of the rule-specific constraints have nonglobal alternatives lends credence to the idea that grammars should not contain rule-specific global constraints.

Footnotes

*This paper constitutes Chapter Three of my Ohio State University doctoral dissertation, *Global Constraints in Syntax*, completed in late May of 1974. The version presented here embodies no substantive revisions, only a few changes to make the text read easier in isolation from the rest of the dissertation. Several issues require further development. In particular, the data presented in sections 14 and 15 need some reformulation in general or nonglobal terms. Furthermore, while I feel that perceptual strategies are at work in section 10, the discussion is tentative in view of the preliminary nature of research on syntactic perception (but see Grosu (1972) for a trailblazing foray into the area). In spite of these deficiencies, I feel that the work is valuable and release it to my colleagues in hopes that it will prove useful to them. For the interested reader, Chapter Four of the dissertation places the results within the theoretical framework of transformational grammar. In fact, the discussion here is part of the larger issue concerning the place of filters in linguistic theory, an issue to which the present essay is prologue. My reading committee, Michael Geis, Arnold Zwicky, David Dowty, and David Stampe offered many insightful comments which greatly improved the content of this work. To them, much thanks.

1. Fauconnier shows that the Andrews-Lakoff global constraint is empirically inadequate, for there are in Greek constructions parallel to the 'accusativus cum infinitivo' construction of Latin (cf. Fauconnier (1971: 149-54)). There are infinitival complements in which the subject of the infinitive is in the accusative case, and likewise any predicate modifiers of the subject. Yet if the subject of the infinitive is deleted by Equi, the modifiers take on the case of the controller for Equi. The global constraint cannot account for this, for at no point is the controller NP the derived subject of the infinitive. But Fauconnier's solution can easily account for such cases. Andrews tries to patch up the global constraint by having Equi superimpose the lower NP on the controller. Such a move would introduce an entirely new type of rule into transformational grammar and there is no independent motivation for it.

Furthermore Fauconnier (1973: 17) points out that Andrews' proposal fails in configurations like

$$S_0 [\dots NP^1_x \dots NP^2_x \dots S_1 [NP^3_x A]]$$

[case 1][case 2][case 3 = acc.]

because NP^3_x would be superimposed on NP^1_x before case marking, and A could only take case 1. In fact, A can take case 1, 2, or 3 except when the controller NP^1_x is in the nominative. Examples are in Andrews (1971).

2. See Langacker (1969) and Ross (1967). Roughly, the constraint specifies that an anaphor may not both precede and command its antecedent.

3. In a footnote Postal claims that the relevant sentences go through derivations of the following sort:

- (i) Harry needed green bananas, and so George bought numerous bananas which were such that they were green.
- (ii) Harry needed green bananas and so George bought numerous such bananas.
- (iii) *Harry needed green bananas and so George bought numerous (such) (ones).

Postal concludes that this is evidence against blocking underlying structures in this case. But this is a non sequitur. All that is required is some statement of the incompatibility of numerous with a following NP containing the item such (or the semantic material in its lexical decomposition).

4. This rule is separate from the rule (usually called Quantifier Floating) which positions all, both, each, etc., into the post-auxiliary position of the verb phrase.

5. It is interesting that a movement rule either moves something over only one clause boundary (for example Raising) or else it is unbounded. There are no rules which move something over only two boundaries, three boundaries, odd numbered boundaries, etc.

6. The unbounded movement rules operate in a single swoop, and are not successive cyclic. See Postal (1972c: 471-2; 1972d).

7. Fauconnier (1971: Chapter V) claims that QF in French can operate to the left. But the only sentences he gives in evidence of this are those such as (76a), for which he claims the derivation:

- (i) a. J'ai mangé chacun (de) NP.
- b. J'ai chacun mangé NP. (by QF)
- c. Je les ai chacun mangé. (by Clitic Movement)

But we could just as easily allow Clitic Movement to carry a pre-nominal modifier along with the pronoun, giving (ii):

- (ii) Je chacun les ai mangé.

Then QF applies, giving (76a). We thus maintain that QF only operates to the right.

8. Grinder (1971) replaces deletion of indefinites by the mechanism of optional lexicalization. This has no bearing on the present issue.

9. Notice that this strategy supports the misanalysis of (99a), where a rose is assumed to be in toto the direct object argument of the verb.

10. It is a fact that there are sentences like (i), seemingly parallel to (99a).

(i) John bought a flower for the altar.

But the NP in the prepositional phrase cannot be an indirect object, as shown by the fact that IO Movement cannot apply.

(ii) *John bought the altar a flower.

Such facts indicate that grammatical relations cannot be stated only on structural configurations, which is the import of recent work by Postal and Perlmutter.

11. It was noticed in the literature by Fillmore and Postal that there are dialects (or perhaps idiolects) in which (99d) is acceptable. Neither Fillmore nor Postal can give a basis for a natural explanation of the dialect differences. Fillmore must postulate alternative rule orderings, a solution not only ad hoc but theoretically shaky in view of the move to eliminate extrinsic ordering. Postal must simply state that his constraint exists in some dialects but not in others. His constraint becomes even more ad hoc in this event. The analysis sketched above seems to me to provide a fruitful avenue for the study of dialect differences, since one expects dialects to differ on the basis of performance and perceptual strategies rather than on the basis of the rules and constraints of the grammar. In the example discussed here (99d) would be acceptable in some idiolects because some speakers would have perceptual strategies which would allow them to delay blockage of structures until a deeper level had been reached by application of other strategies. I suspect that some speakers process sentences at a 'deeper' level than others. The general issue has not been explored in any detail, but I see no reason to think that all speakers have the same uniform set of perceptual strategies.

12. I am concerned with the reading of (102b) which is synonymous with (102a). There is another irrelevant reading of (102b) in which John and Mary each have more than one bicycle.

13. In (109) Passive has applied to the lowest clause. The relevant intermediate stage before Passive applies is something like:

(i) It is unpleasant for one [John kick one]

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Sections from The Principle of Phonology-Free Syntax

by G. K. Pullum and A. M. Zwicky

The following short items are drafts of sections from a longer work still in preparation. This monograph examines the ways in which syntactic phenomena might be said to be phonologically conditioned--in particular, the question of whether there is in any language a syntactic rule that has among the (language-specific and rule-specific) conditions on its applicability a condition that makes reference to phonological features. The principle of phonology-free syntax asserts that there are no examples of this type.

I. The problem. The initial problems data involve the existence of some nationality adjectives that occur in the construction mentioned above. Illustrated in (1) and some that do not. Illustrated in (2).

- (1) { The Chinese
The Swiss
The English
The Dutch
The French
The Welsh
The Irish
- (2) { *The Israeli
*The Australian
*The Greek
*The German
*The Pakistani
*The Czech
*The Mongolian

It is immediately obvious that the source of the ill-formedness in (2) is not semantic; for one thing, the word people could be added after the adjectives in (2) to produce acceptable sentences parallel to those of (1), and for another, we can actually find a syntactic pair of nationality adjectives which fall into different classes: of the latter, the Latvian, the latter (p. 17).

(From: The Principle of Phonology-Free Syntax)
PEOPLE DELETION in English*

G. K. Pullum

English adjectives may freely be used as if they were plural nouns in generic plural NPs like the good, the bad, the ugly, which have the meaning those people who are good, etc. Jespersen 1933:80-1 observes: 'This is particularly frequent with those adjectives denoting nationalities which end in a hissing sound'. A closer examination of the occurrence of nationality adjectives in generic plural constructions reveals a rather interesting apparent counterexample to the principle of phonology-free syntax (Zwicky 1969), and one for which the possibility of a theoretically acceptable and descriptively adequate reanalysis remains somewhat doubtful.

1. The Problem. The initial problematic data involve the existence of some nationality adjectives that occur in the construction mentioned above, illustrated in (1), and some that do not, illustrated in (2).

- (1) {
The Chinese
The Swiss
The English
The Dutch
The French
The Welsh
The Irish
} disapprove of Nixon's policies.
- (2) {
*The Israeli
*The Australian
*The Greek
*The German
*The Pakistani
*The Czech
*The Monegasque
} disapprove of Nixon's policies.

It is immediately obvious that the source of the ill-formedness in (2) is not semantic; for one thing, the word people could be added after the adjectives in (2) to produce acceptable sentences parallel to those of (1), and for another, we can actually find a synonymous pair of nationality adjectives which fall into different classes: cf. the Lettish, *the Latvian (pl.).

The fact which raises the question of phonological constraints in syntax is the generalization adumbrated by Jespersen: all the

adjectives in (1) end in sibilants (strident and coronal in the framework of Chomsky and Halle 1968), while all those in (2) have nonsibilant final segments. If the scope of the constraint is restricted to nationality adjectives (excluding names of tribes like the Hopi, the Iroquois, the Bedouin) it turns out that this is a sufficient condition for characterizing the class of forms that are excluded from nounless generic plural contexts. If it proves also to be a necessary one, we have a counterinstance to the principle of phonology-free syntax.

One way of avoiding this conclusion would be to state the constraint as a surface structure constraint in the sense of Perlmutter 1971, since such constraints apply at the level where underlying phonological shapes have been assigned to the formatives in a syntactic surface structure--prior to the operation of phonological rules, but after all syntactic rules, including the lexical insertion process of 'spelling out'. It appears, however, that this cannot be done. In order to be able to state a restriction as a surface structure constraint, it must be the actual structure appearing that is impermissible, not the application of some particular rule. Frequently the argument used to establish the need for a surface structure constraint is that any of several rules may produce the structure in question, and that all these rules would have to be constrained identically if there were not an output condition on surface structures (the Condition Duplication argument). But in this case there are at least two other rules, in addition to whatever rule produces nounless generic plural phrases, that yield outputs of the form $NP[\underline{the+Adj}]_{NP}$, and the outputs of these rules are not constrained. Consider the data in (3).

- (3) a. The town has excellent restaurants, the French, the Greek, and the Italian ones being particularly noteworthy.
 b. I prefer the French restaurants in this town to the Greek.

In sentence (3a) it is Conjunction Reduction that is involved, and in (3b) it is the rule of Identity-of-Sense Anaphora. Both are permitted to produce a plural NP of the form $NP[\underline{the+Adj}]_{NP}$ where the Adj is a nationality adjective with a nonsibilant final segment. It would therefore appear that there is no hope of stating an output condition of surface structures to cope with the ungrammaticality of the examples in (2); the condition will have to be placed on whatever rule generates the latter class of structures.

2. PEOPLE DELETION. The analysis implicitly assumed by Ross 1967, who touches on the question on nounless NPs briefly, is that such phrases have an underlying head noun (he takes it to be ones) which is deleted at some stage (Ross 1967: sec. 3.2). It is doubtful whether the underlying head noun can actually be ones, since phrases like the strong are always interpreted as referring to the class of people who are strong and never to the wider class of strong entities

(nylon ropes, elephants, bridges, etc.), whereas the strong ones is not so restricted (Look through this box of rubber bands and pick out the strong ones; cf. ??and pick out the strong). Furthermore, ones would seem quite unsuited to be the underlying head noun in the phrases the known, the inevitable, the supernatural, which do have nonhuman sense. However, if we duck the problem of this latter type of abstract NP and consider just the nounless NPs interpreted as having human, generic plural heads, we may assume that some head noun is present in underlying structure (for it is reasonable to think that every NP contains a noun at the underlying level), and that it has at least the features [CONCRETE], [ANIMATE], [HUMAN], and [PLURAL]. If we refer to this head noun by the abbreviatory tag PEOPLE, we may think of NPs like the strong being derived via a rule of PEOPLE DELETION, which we may state very roughly as:

(4) PEOPLE DELETION (optional)

X - the - Adj - PEOPLE - Y

1 2 3 4 5 ⇒ 1 2 3 ∅ 5

Such evidence as is available regarding the surface category membership of strong in the strong supports the claim implicit in (4) that it does not become a noun itself but remains an adjective: (a) it takes comparative and superlative inflections (the stronger should protect the weakest in the community); (b) it may be modified by adverbs (the really strong) and the adjective intensifier very (the very strong); and (c) it can never take the plural morpheme (*I've been doing a comparative economic study of the poors of different countries). The fact that we also find constructions like the pampered rich does not mean that rich is a noun, but rather that pampered modifies the whole NP rich PEOPLE.

One other piece of evidence that there is a rule of PEOPLE DELETION is provided by the correspondence between the paradigms in (5), where a NP that has its head noun deleted is seen to be incompatible with the possessive morpheme 's, and (6)

- (5) a. (i) I was offered lots of cakes, but I didn't eat one ~~cake~~.
 (ii) *I was offered lots of cakes, but I only ate one's icing.
 b. (i) The job was done to the satisfaction of all ~~of them~~.
 (ii) *The job was done to all's satisfaction.
 c. (i) Renfield caught lots of flies, but he didn't eat any ~~of them~~.
 (ii) *Renfield caught lots of flies, but he didn't pull any's wings off.
 d. (i) I haven't seen any alligators round here, but my wife saw the tails of some ~~alligators~~ {a few ~~alligators~~} disappearing down sewers.

we can construct two closely related analyses that circumvent the direct reference to phonology made in (7), both of which have a promising air of plausibility that (7) lacks.

The first of them suffers from the slight drawback that it takes not only Chinese and Swiss but also English, Dutch, etc. in (1), as well as strong in the strong, to be nouns (albeit of a special generic kind), and thus runs counter to the evidence presented at some length above that they are true adjectives in surface structure. But suppose we shelve that difficulty for the moment in order to follow the argument. The proposal is that a lexical redundancy rule be formulated having approximately the content of (8).

(8) The Alternative Noun Principle.

For any adjective in the lexicon there exists a corresponding (semantically related) generic plural noun of the same phonological shape, except that for nationality adjectives no such noun exists, if there exists a lexical entry for a count noun that (a) is semantically related to the adjective, (b) has the same phonological shape, and (c) takes regular plural affixation.³

The claim made by (8) is that *The Israeli disapprove is blocked because of the existence of the regular count noun Israeli, whereas The English disapprove is permitted because *an English is not. The Swiss gets by because Swiss is not regular (two Swiss). This analysis has the merit of suggesting that *The Israeli disapprove is out because it sounds like an error for The Israelis disapprove (or perhaps The Israeli disapproves), which is intuitively a very appealing explanation for the phenomenon we are concerned with.

It has the demerit, however, that it does not work. First, there is a minor problem about the fact that for some speakers but not for others the existence of the nouns Dane, Swede, Finn, Pole, Spaniard, and Turk prevents the use of the adjectives Danish, Swedish, Finnish, Polish, Spanish, and Turkish as generic plural nouns, which means that (8) has to be relaxed as regards the requirement of phonological identity with the alternatively available count noun. This relaxation must not permit uncomplimentary epithets such as Chink, Jap, Gook, and Frog to block generic plural use of Chinese, Japanese, Vietnamese, and French, and nor must it permit the existence of Englishman, Dutchman, Frenchman, etc. to prevent the generation of generic plural phrases with English, Dutch, French, etc. But the further investigation that is necessitated as this line of analysis dissolves into a morass of ad hoc conditions to cover individual cases soon uncovers something much worse: a straightforward, unavoidable counterexample. The crucial datum is given in (9).

(9) *The Icelandic disapprove of Nixon's policies.

Since the relevant count noun in this case is Icelander, which is neither a monosyllabic abusive epithet nor a noun ending in -man, and

since no speakers seem to use it in contexts like that of (9), Icelandic would simply have to be indicated as an exception to (8). Yet the phonological constraint (7) copes perfectly with this case, as with all others cited (if we take the preference of some speaker for the Danes over the Danish to be a matter of usage rather than grammar).⁴ Icelandic ends in a nonsibilant segment, so PEOPLE DELETION would be blocked.

The second line of analysis starts similarly from a somewhat implausible assumption about surface categories--the converse assumption to the Alternative Noun analysis, namely that in The Israelis disapprove, Israelis is at an earlier stage in derivation an adjective, not a noun, despite its plural morpheme. This approach has the merit of allowing the Americans to be ambiguous between a plurality-of-individuals understanding and a generic plural one in exactly the same way as the Vietnamese is. It could perhaps be implemented by rewriting the correct set of nationality adjectives in the appropriate structures as [+N] and [+PLURAL] so that the regular plural affixation rule would attach the plural morpheme to them in the usual way, and by making nationality adjectives with sibilant final segments exceptions to this (essentially morphological) rule.

The main disadvantages of this analysis seem to be as follows: (a) it is unashamedly ad hoc, carrying no real explanation of what is going on (a complaint that can also be made about (7), of course); (b) it conflicts strongly with our intuition that in a sentence like The Russians are coming there is no item that is the slightest bit adjectival; (c) it requires a definition of the structure referred to that cannot be given without global reference to the effects of the rules that derived it, since like the rejected surface structure constraint analysis discussed above it would have to distinguish the results of various identity deletion rules from the result of PEOPLE DELETION, which is presumably still going to be needed anyway; (d) besides this global identification of the deletion history of the structure, the rule will be objectionably powerful in other ways since it changes category membership, as Jackendoff 1973 argues that no rules can, and appears to be a rule of the feature-switching type, argued against by Delisle 1973; (e) its reference to sibilance means that it must refer to the same phonological class as another morphological or phonological rule, the one that handles the alternations of the plural suffix, and this suggests that a generalization is being missed. In view of these five objections it can hardly be said to be an appealing candidate analysis even if it attains observational adequacy. Indeed, it is hard to see that its excessive power is less obnoxious from a theoretical point of view than the much simpler phonological constraint on PEOPLE DELETION it is intended to supplant.

4. Conclusion. It should, of course, be pointed out that only a small, closed list of items is involved in this whole problem, and that the descriptive work of the grammar of English could be done to a reasonable standard of adequacy and economy if in this case the

adjectives in (2) and those like them were simply marked as lexical exceptions to PEOPLE DELETION in the way that ox and sheep are exceptions to the regular plural affixation rule. Just as there might be no linguistic explanation of why likely permits subject raising from its complement but probable does not (see Hudson 1972), there might be no linguistic explanation beyond a simple list for the phenomenon discussed here; our theory must allow for the possibility of coincidences, like the coincidence that morphology 'the study of (linguistic or biological) form' could be derived from the non-occurring potential word *form-ology by interchanging the initial and final segments of the root.

However, it is methodologically inadvisable to appeal too readily to 'coincidence' or similar categories when a theoretical principle is being defended. The preferable methodological procedure here would be to attempt to find an analysis that captures a generalization wherever possible. The simplest solution that works in the present case is the phonological constraint given in (7), and this means it has to be admitted that in this case the analysis that is better confirmed is the one that is incompatible with the principle of phonology-free syntax.

Footnotes

*Many people have contributed to the thinking out of the ramifications of the data discussed here. Among them must be mentioned Stephen Harlow and R. A. Hudson as well as a number of people who listened to a talk incorporating this material given to the London Linguistic Circle at University College London on February 27, 1974.

1. Ross 1972:62-3 uses data similar to (5e)-(5g) to argue for a structure-independent surface structure constraint blocking sequences of the form Demonstrative-Possessive, but it seems clear that a much wider generalization is possible. For instance, the incompatibility with the possessive morpheme evinced by demonstratives is paralleled exactly by just those wh-words which occur as determiners; thus we have What knife shall I use? and Which chair fell over? but not *What's execution was faultless? or *Which's legs are loose?, whereas in the case of a wh-word like who that cannot be used as a determiner (*Who linguist invented the asterisk?) we do get a possessive form (Whose knife shall I use?). It is surely the non-nouny property of being capable of occurring alone in determiner position that is the relevant one.

2. The ill-formedness of *The Yugoslav disapprove suggests that it is not sufficient to mention the feature [strident] here, since [v] is a strident segment in the framework of Chomsky and Halle 1968.

3. Notice that this statement quantifies over lexical entries and is thus translexical in the sense of Nessly 1973.

4. This is not the circularity it might seem to be. It is true that in the preceding paragraph the problem of the variable acceptability of the Danish, etc. was cited as a problem for the Alternative Noun analysis, but this is legitimate, since in that analysis the existence of an alternative noun is made the crucial factor on which the grammatical analysis depends; it thus becomes a problem that it is hard to specify precisely when an alternative noun counts for purposes of (8). The phonological constraint (7), on the other hand, requires no notion of alternative noun for its formulation, and thus the rather plausible position that people have differing degrees of preference for the use of a noun over the use of an adjective in certain contexts may reasonably be adopted by an advocate of (7).

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(From: The Principle of Phonology-Free Syntax)
Verb-final Sentences in Mandarin Chinese¹

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Although the normal word order in Mandarin is SVO, there are a number of syntactic processes that result in verb-final sentences. In the discussion given by Wang ms. 1972, these include the formation of the BA and BEI constructions, in which a verb is moved to the end of its S, and topicalization and object-preposing rules, which can move objects away from final position; compare (2)-(5) with (1):

- (1) Tā dǎ-le JāngSān. 'He beat JangSan'
he beat LE JangSan
- (2) Tā bǎ JāngSān dǎ - le. 'He beat JangSan'
- (3) JāngSān bèi tā dǎ - le. 'JangSan was beaten by him'
- (4) JāngSān, tā dǎ - le. 'JangSan he beat'
- (5) Tā JāngSān dǎ - le. 'He beat JangSan'

Wang observes that verb-final sentences are unacceptable when the verb is monosyllabic (Chao 1968:345 similarly characterizes a restriction on the BA construction in modern spoken Mandarin²). The examples corresponding to (1)-(5), but without the aspect marker LE, are as follows:

- (6) Tā dǎ JāngSān. 'He beats JangSan'
- (7) *Tā bǎ JāngSān dǎ.
- (8) *JāngSān bèi tā dǎ.
- (9) *JāngSān, tā dǎ.
- (10) *Tā JāngSān dǎ.

Wang further observes that untransformed sentences with final verbs are also unacceptable if the verb is monosyllabic:

- (11) *Wōmen tán. 'Let's talk'
we talk
- (12) *Tā hǎo. 'He is good'
he good

Compare:

(13) Wǒmen tán - tán. 'Let's talk a while'
we talk talk

(14) Tā hǎo - kàn. 'He is good-looking'
he good look-at

Wang concludes that Mandarin exhibits a constraint that 'disallows sentences in which a verb is sentence-final, unless contrast is expressed' and that this restriction is an output constraint.

Wang's argument that these facts should be accounted for by a surface structure constraint rather than by a constraint on rules, is a straightforward condition duplication argument (Ross 1972: sec. 2.1). He also argues against the position that the restriction is syntactic; for the BA and BEI constructions, he counters the claim of some Chinese grammarians that the constructions are limited to resultative verbs, as in

(15) Děng wǒ bǎ ywángu shuō - míngbai. 'Let me explain the
wait I BA reason speak clear reason'

by citing three types of examples; those like (2)-(5), with aspectual LE; those like

(16) Nǐ bǎ shū ná - lái. 'You bring the book here'
you BA book bring here

with directional adverbs; and those like

(17) Jiāngsān bèi tā dǎ - le shí - jǐ - cì. 'JangSan was
JangSan BEI he beat LE ten how-many times' beaten by him
more than
ten times.'

with number expressions. A brief survey of the cases in which the BA construction is possible is given by Li 1971, who argues against the monosyllabicity formulation and in favor of a condition requiring a sentence-final verb to 'consist of more than one grammatical unit' (47). Li observes that 'polysyllabicity is not in itself a sufficient condition for using BA' (47), citing cases of disyllabic verbs that are not analyzable into parts in modern Mandarin (tǎulwùn 'discuss', shōushr 'tidy up'); these do not occur in the BA construction, unless they are in construction with further elements:

(18) *Lǎumǎdz bǎ fàntīng shōushr. 'The maid tidies up
maid BA dining-room tidy-up the dining room'

(19) Lǎumǎdz bǎ fàntīng shōushr-le. 'The maid tidied up
the dining room'

Thus it appears that the surface structure constraint demands not polysyllabicity, but rather grammatical complexity.

Footnotes

1. We are indebted to Sandra Annear Thompson for providing us with the Wang and Li references. Our examples are adapted from these two sources.

2. Apparently, the restriction is less severe in the literary language.

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