



On the Surface Verb 'Remind'

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Introduction

In the present paper* I analyze the syntactic properties of one reading of the Surface Structure English verbal element *remind*. It will be shown that there is an elaborate array of evidence indicating that this element has a transformational derivation from a complex underlying source in which there is no single verbal element corresponding to *remind*. Instead, there are two elements, one a main verb with properties like those of the verb *strike* which occurs in sentences such as:

- (1) Harry strikes me as being incompetent
- (2) Margaret struck Pete as having a grudge against Lucy

the other the verbal of a complement sentence which has properties like the verbal/adjectival forms in sentences like:

- (3) Max is like my brother
- (4) Pete resembles his father
- (5) that suggestion is similar to Max's idea

It is shown how the necessary analysis of *remind* is incompatible with the standard view of Deep Structure in transformational grammar, a view which, in effect, assumes a rather strict correspondence between the lexical items of Surface Structure and the elements of Deep Structure. It is argued that the properties of *remind* cast great doubt on the existence of a special set of interpretive Projection Rules specifying part of the relation between Semantic Representations and Surface Structures. Conversely, these properties provide considerable support for the view of this relation assumed in so-called Generative Semantics, as described recently by Bach, Gruber, Lakoff, McCawley and others. The latter follows since the structure required as a syntactic basis for *remind* clauses is isomorphic in crucial ways with the properties which must be assumed to characterize the relevant Semantic Representations of these clauses.

* I am indebted to G. Lakoff and J. R. Ross for many important improvements of content in this work, and to the latter for innumerable improvements of style. The whole would, no doubt, have been superior had I taken more of their advice. Remaining inadequacies are, of course, entirely the author's responsibility.

Section I Aspects of *Remind* Clauses

A. Identification

There are really several verbs in English whose phonological shape is *remind*. The one to be considered here is illustrated by such examples as:

- (1) a. Harry reminds me of Fred Astaire
- b. Johnson reminded Betty of an Argentinian admiral

From the Surface Structure point of view, one is then dealing with a verbal element which requires three nominals (NP):

- (2) a. *Harry reminds me
- b. *Harry reminds of Fred Astaire
- c. *reminds me of Fred Astaire

The meaning of this verbal element involves a perception or recognition of similarity between entities. It will be convenient to have names to refer to the three NP occurring in *remind* examples. I propose, as a purely conventional terminology, with no hidden or subtle implications, to refer to them in left-to-right order (in simple declaratives) as Subject (S), Indirect Object (IO), and Object (O).

In all cases, the verb under discussion must be kept distinct from a homonym which means roughly "cause to remember". This verb is illustrated in:

- (3) a. Harry reminded Betty to visit her sick uncle
- b. Lucille reminded me of a party (I was supposed to attend)

Some of our examples are ambiguous over "perceive similar" versus "cause to remember" interpretations, and if examples are said to be ill-formed, I will be referring necessarily only to the fact that they are ill-formed on the former kind of reading. It can be observed that the "perceive similar" *remind* is a stative, or nonactive, element, while the "cause to remember" *remind* is active. Hence, for example, the latter forms imperatives, while the former does not:

- (4) a. *remind me of your brother
- b. remind me to visit your brother

B. Initial Peculiarities of Remind Clauses

On the face of it, *remind* is a rather strange verb. While verbs which take three NP are found in English, for instance, those like *give*, *throw*, those like *steal*, *borrow*, those which occur with *about* phrases, etc., *remind* falls into none of these classes and is, from the point of view of its choice of NP types, unique. In particular, observe that while there are verbs like *convince*, *warn*, *inform*, which occur in structures that could be represented schematically as:

- (5) NP₁ Verb NP₂ of NP₃

just as those of *remind* could, the contrast between these verbs and *remind* is sharp.

For example, in the NP₃ position of structures like (5), there must be an abstract NP with any of these verbs. Animate NP are totally barred.

- (6) a. I convinced John of that
- b. I warned John of the danger
- c. *I convinced John of the dog
- d. *I warned John of your mother
- e. *I informed John of Bill's parakeet

No such restriction holds for the post-of NP of *remind* clauses. Just so, verbs like those in (6) are *active*, form imperatives, etc. (cf. Section II.B(2) below), while the *remind* being discussed is *stative*. Similarly, the verbs in (6) have the subject NP as their *Agent*, while the stative verb *remind*, of course, has no Agent NP. It follows that in no significant sense is *remind* in a class with verbs like *warn*, *convince*, etc. It appears to be a unique element.

One of its most important peculiarities is that in well-formed *remind* clauses S and IO cannot be presupposed coreferents:¹,²

- (7) a. *Harry reminds himself of a gorilla
- b. *Johnson reminds himself of an Argentinian admirai

In reading examples like (7) and further similar ones, it is important that in all cases the reflexive forms do *not* have contrastive stress. With this feature, some of the examples are well-formed. I am discussing throughout forms without contrastive stress. This is not an arbitrary restriction, since observe that in sentences like:

- (8) *I* reminded *myself* of a gorilla

the *underlined* NP are *not* understood as *presupposed* coreferents but rather as *asserted* coreferents. That is, (8) is understood as an essential equivalent of:³

- (9) *the one who I reminded of a gorilla was myself

(9) is ill-formed in my dialect, for reasons discussed extensively in Section II.B(5) below. However, (9) has a clear interpretation in which the IO of *remind* is asserted

¹ Since I will only consider presupposed coreferents throughout this study, the adjective will henceforth be omitted.

² Many of the arguments throughout this paper are based on facts of considerable subtlety. Many may also be based on properties subject to a good deal of dialect and idiolect variation. I have throughout utilized my own judgments. The reader may thus find that, on at least some of the topics discussed, he has conflicting judgments. Before attributing too much importance to this, he should observe the following. The conclusion which I seek to establish is supported by the validity of any reasonable subset of the overall class of arguments given. Hence, before the reader concludes on the basis of some disagreements that the point is not established, he might make a list of the total set of arguments given, comparing this with the subset for which the facts as described in the text do not correlate with his own judgments. If, as I suspect, the majority of arguments go through for everyone, the residue of undoubted variation can be seen in its proper perspective, i.e., as having no real bearing on the validity of the analysis under discussion.

³ The reason for this is, I believe, that (8)-like structures are transformationally derived from (9)-like ones. For brief discussion and justification of such a derivation, cf. Postal (1968, Chapter 19).

to be a coreferent of the nominal which follows *was*. Thus both (8) and (9) are interpreted in such a way that they involve the *presupposition*:

- (10) X (I) reminded someone_i of a gorilla⁴

and they contain, semantically at least, the assertion that:

- (11) someone_i is X (myself)

Consequently, the restriction illustrated by (7) is a restriction on presupposed coreference, which correlates with weakly stressed reflexive forms.

Another peculiarity of *remind* clauses is that the S cannot be a coreferent of O:

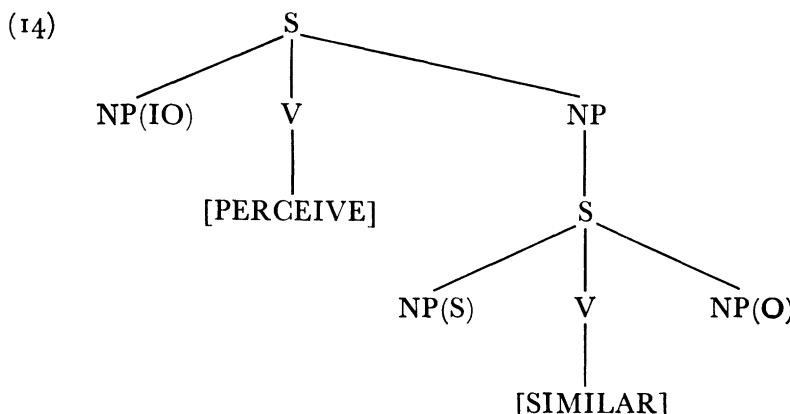
- (12) a. *Harry reminds me of himself
 b. *Johnson reminded Betty of himself

An additional feature is that sentences with O and IO coreferents are not well-formed either:

- (13) a. *Harry reminded me of myself
 b. *Harry reminded Barbara of herself

Thus *remind* clauses are well-formed only if *none* of the three NP is a presupposed coreferent.

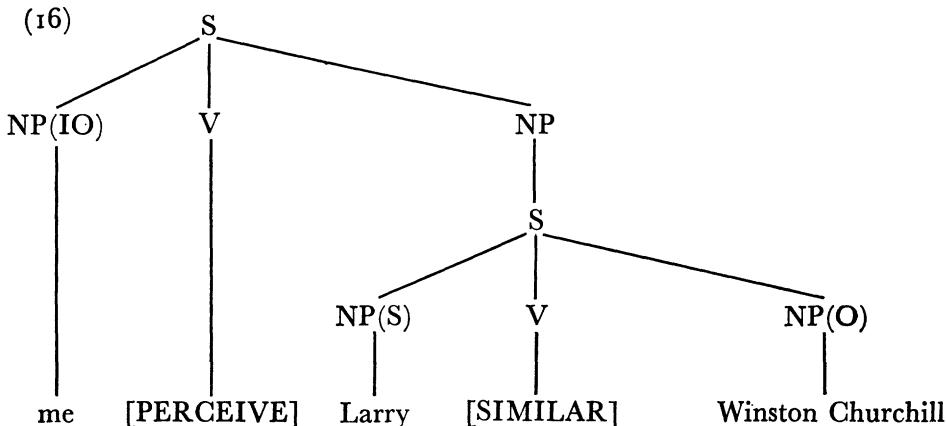
Let us consider now the meaning of *remind*. It seems to involve conceptually a perception of similarity between two entities, one represented by the S NP, the other by the O NP. The IO NP then represents the entity which perceives the similarity. One might represent this schematically as follows, postulating a two-place predicate of perception holding between an individual and a state of affairs described by a proposition involving similarity, and a two-place predicate of similarity, holding between entities:



⁴ Here and throughout I use words with identical subscripts as a gross, merely literary device for representing coreference.

Here I use the device of bracketed, capitalized inscriptions to represent schematically elements of meaning, that is, predicates. This kind of meaning representation indicates that sentences like (15):

(15) Larry reminds me of Winston Churchill
are propositionally complex, conceptually. Schematically:



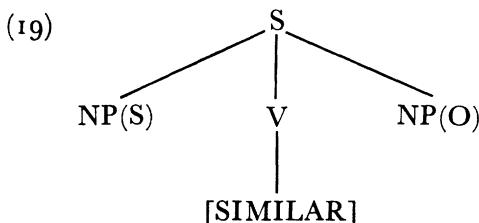
One proposition, the “main” one, states a perception relation between an individual and a state of affairs defined by a proposition involving similarity. An analysis like (14) of *remind* clauses claims that these should be paraphrases of sentences with *perceive* main verbs and complements involving assertions of similarity. Hence, for instance, (14) claims that (15) should be an essential paraphrase of:

- (17) I perceive that Larry is similar to Winston Churchill
(14) also claims that, just as (18a) is contradictory, so is (18b):

- (18) a. I perceive that Larry is similar to Winston Churchill although I perceive that Larry is not similar to Winston Churchill
b. Larry reminds me of Winston Churchill although I perceive that Larry is not similar to Winston Churchill

The essential correctness of these predictions from (14) suggests that (14) is indeed a basically right analysis for *remind* clauses semantically.

Consider then propositional representations of the form:



It is the NP terms of this expression which show up in sentences like (12) as not having the possibility of being coreferents. However, propositional structures like (19) can also be realized as simple sentences:

- (20) a. Harry is similar to Ben
- b. Jack is like Tommy
- c. your mother resembles my aunt

And, strikingly, such sentences manifest a coreference constraint:

- (21) a. *Harry is similar to himself
- b. *Jack is like himself
- c. *your mother resembles herself

The natural suggestion at this point is that one can *explain* the S-O constraint in sentences with the Surface verb *remind* if they are derived from underlying structures containing embedded sentential structures with *those properties that are common to sentences like* (20). This assumes that the coreference block in such sentences is attributed to some set of syntactic-semantic features common to predicates like *similar*, *resemble*, *like*.⁵ Let us refer to a predicate with the common properties of *similar*, *resemble*, and *like* as a *Similarity Predicate*.⁶ Among other things, such predicates are logically Reflexive, Symmetrical, and nonTransitive. Support for the proposal to derive *remind* sentences from underlying structures containing Similarity Predicates is that such a structure provides part of the basis for a correct account of the general meaning of such sentences, as indicated by the representations in (14) and (16).

The proposal is, therefore, that deriving *remind* clauses from structures with embedded Similarity Predicate clauses explains the S-O coreference blockage of *remind* clauses. It explains it in the sense that it reduces it to the independently required blockage of Similarity Predicate clauses. This suggestion has so far explained nothing about the S-IO coreference restriction manifested by *remind* sentences. It is noticeable that Surface-complex sentences like:

- (22) Jack perceives that Bill {
 is like
 is similar to
 resembles } Tony

⁵ Actually, the blockage is a function of an even more general principle governing predicates which are logically reflexive or irreflexive. Observe:

- (i) *Harry is next to himself
- (ii) *Harry is related to himself
- (iii) *Harry is distinct from himself
- (iv) *Harry is identical to himself
- (v) *Harry is married to himself
- (vi) *Harry is more intelligent than himself

⁶ Observe that, as defined, Similarity Predicate does not cover forms like *different*, *distinct*, *differ*, etc. Clearly, there is some natural class containing Similarity Predicates, these last three forms, together with those like *identical*, *equivalent*, *equal*, *equals*, etc. In fact, several of the regularities discussed below as characterizing Similarity Predicates are in fact valid for this wider class.

do *not* manifest restrictions of the sort that would explain the S-IO constraint of *remind* clauses, even if structures underlying sentences like (22) were taken to underly *remind* clauses. Sentences like:

- (23) Jack_i perceived that he_i was like Bill

are well-formed. The basis of an explanation of the S-IO restriction lies, I believe, in the existence of verbs whose meaning is quite close to that of *perceive* in (23), but whose grammatical properties are rather different. In particular, consider the verb *strike* of such sentences as:

- (24) it struck Jack that Betty was like Bill

At first glance, it is not clear how such a verb provides an advance over one like *perceive*, since sentences like (25a) do *not* manifest a coreference constraint appropriate to explain that in (25b):

- (25) a. it struck Jack_i that he_i was like Bill

- b. *Jack_i reminded himself_i of Bill

However, *strike*, unlike *perceive*, participates in the process of *complement subject raising*. That is, there exists a rule, which I will call RAISING,⁷ which, with certain main verbs, has the effect of turning the subject of the complement sentence into a derived main clause object. This rule can be seen at work in the infinitival cases of :

- (26) a. Joe believed Bill to be a vampire

- b. Bill was believed to be a vampire by Joe

- c. Joe believed that Bill was a vampire

- d. *Bill was believed (that) was a vampire by Joe

- e. Joe believed himself to be a vampire

- f. *Joe believed (that) himself was a vampire

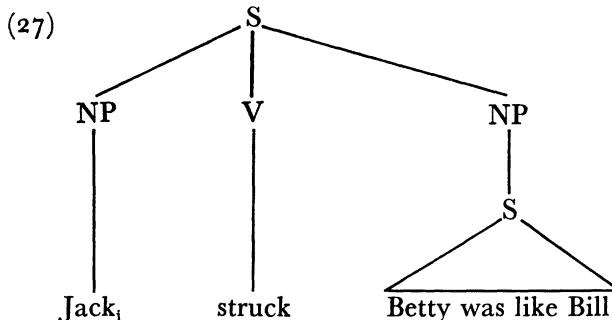
The fact that the complement clause subject undergoes main clause passivization as in (26b), and reflexivization, as in (26e), are among the clearest indications that raising has taken place.

In describing RAISING above, I said that it produced a derived object. This is not, however, necessarily a remark about Surface Structures, since, as (26b), for example, shows, subsequent rule applications may alter the situation. This is crucial, because the operation of RAISING with verbs like *strike* is intertwined with another, poorly known, operation which I have referred to (Postal 1968) as PSYCH MOVEMENT. PSYCH MOVEMENT has the effect of interchanging subject and object NP with certain "psychological" verbs and adjectives.⁸ That is, as far as nominal-

⁷ This term is due to Kiparsky and Kiparsky (to appear). For discussion of this rule cf. Postal (to appear a), McCawley (1968b).

⁸ I ignore in this discussion McCawley's (1968b) recent, important demonstration that English has underlying Verb Subject Object constituent order. Consequently, there is really a rule of SUBJECT FORMATION which provides all subjects, and rules like PSYCH MOVEMENT simply effect the relative positions of NP within a constituent. They do not make subjects into nonsubjects and vice versa.

verbal ordering is concerned, its operation is exactly parallel to the more well-known rule PASSIVE. That is, I claim that in sentences like (24), *Jack_i* is the underlying "subject", and *that Betty was like Bill* the complex abstract "object". Hence a remote structure of (24) would be:



The similarity between (27) and structures entered into by the verb *perceive* is crucial here. The difference between *strike* and *perceive* is largely that the former undergoes one or both of the rules RAISING and PSYCH MOVEMENT, while the latter undergoes neither. This contrast is roughly parallel to that between *seem* and *think* in such sentences as:

- (28) a. I think that vampires have large livers
 b. it seems to me that vampires have large livers
 c. vampires seem to me to have large livers

Compare:

- (29) a. I perceive that Max has a large liver
 b. it struck me that Max had a large liver
 c. Max struck me as having a large liver

When PSYCH MOVEMENT operates on (27), the result is:

- (30) that Betty was like Bill struck Jack

which is turned into:

- (31) it struck Jack that Betty was like Bill

by the well-known rule of EXTRAPPOSITION, a rule which throws clauses to the end of the next higher clause.⁹ But (31) is (24). However, in the derivation of (24) = (31), the rule RAISING has *not* applied. If it had, it would have operated at the point (27), before PSYCH MOVEMENT had a chance to apply.¹⁰ The result, assuming for

⁹ For this rule cf. Rosenbaum (1967) and Ross (1967).

¹⁰ I assume in this discussion that RAISING is cyclical and ordered *before* PSYCH MOVEMENT. For discussion of these features cf. Postal (to appear a). In the light of recent developments, I rather doubt that the ordering is necessary, a special case of my feeling that transformational rules in grammar may turn out in general to be subject to other kinds of derivational constraints than extrinsic ordering. The ordering argument for PSYCH MOVEMENT and RAISING, just as for PASSIVE and RAISING, depends on assumptions about the cross-over principle which I now think are unacceptable.

convenience concomitant shift from *that* clause to infinitival complement form, would be:

- (32) Jack struck Betty to be like Bill

At this point, PSYCH MOVEMENT applies. Now, however, as a result of the functioning of RAISING, the object of *struck* is no longer the whole complement sentence, but only its old subject. Consequently, only the new, derived object, *Betty*, is placed in subject position, the result being:

- (33) Betty struck Jack to be like Bill

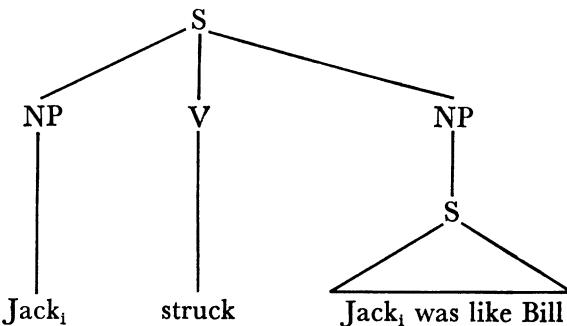
Obligatory operations of a sort that need not concern us require such structures to be mapped onto Surface Structures of the form:

- (34) Betty struck Jack as being like Bill

with *as* instead of the ordinary infinitival sequence *to be* and with obligatory presence of the progressive form of *be*.

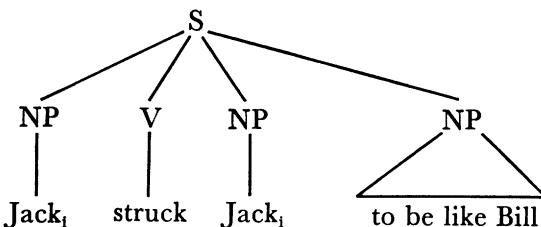
In the previous paragraph, I considered the analogue to the derivation of (24), the difference being the occurrence of the application of RAISING, which was not applied in forming (24). Consider then the analogous derivation of a sentence differing from (25a) in the utilization of RAISING. The remote form would be:

(35)



Application of RAISING yields:

(36)



At this point, PSYCH MOVEMENT should apply, exchanging the positions of the subject of *struck* and the new derived object, which are coreferents in this case. In our

notation, the result would be indistinguishable from (36). Placing the result in a properly pronominalized form¹¹ would then yield the reflexive output:

- (37) *Jack struck himself as being like Bill

But (37) is ill-formed (recall that the reflexive form must be read *without* contrastive stress). This is not, however, an isolated fact. There is no case where PSYCH MOVE-ment operates on coreferential subjects and objects. In Postal (1968), I argued that this was a function of a general principle prohibiting transformational reordering rules from crossing coreferent NP under certain, quite complex conditions. I argued in particular that the restriction in (37) is exactly analogous to the restriction in reflexive passives without contrastive stress on the reflexive word:

- (38) a. *Jack was stabbed by himself
 b. *Louise was criticized by herself

It is not necessary for present purposes to accept the cross-over explanation of the restriction in (37). Indeed, I no longer believe that the explanation in terms of crossing is adequate. What is crucial is that in those cases where RAISING applies, sentences based on the verb *strike* do manifest a coreference constraint of the sort illustrated in (37).

Return now to *remind* clauses like:

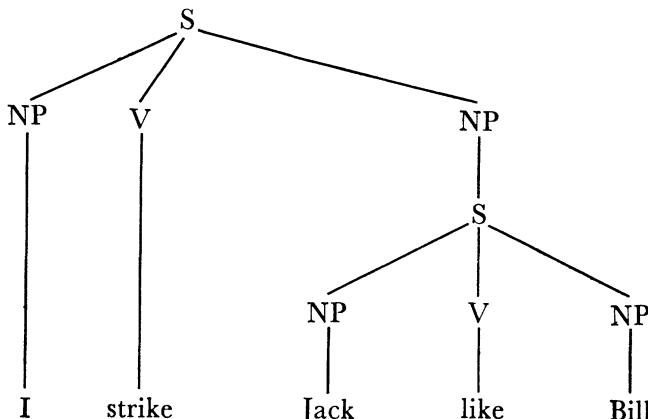
- (39) *Jack reminds himself of me

which are ill-formed, due to the constraint that S and IO cannot be coreferents. Suppose the underlying structure of all *remind* clauses is taken to involve a main verb with the properties of the *strike* which undergoes RAISING. Suppose, that is, that the remote structure of the sentence:

- (40) Jack reminds me of Bill

were essentially:

(41)

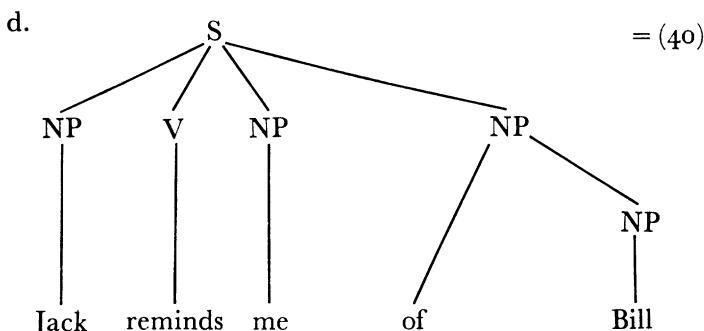
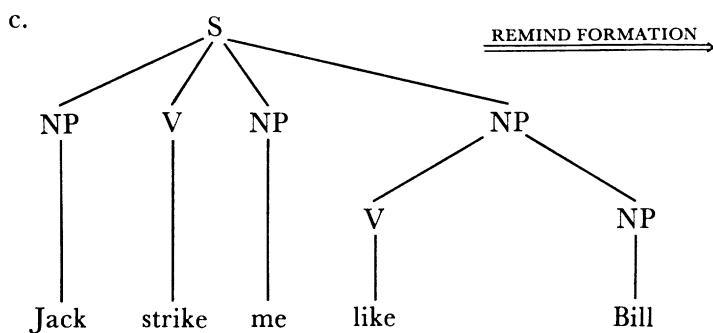
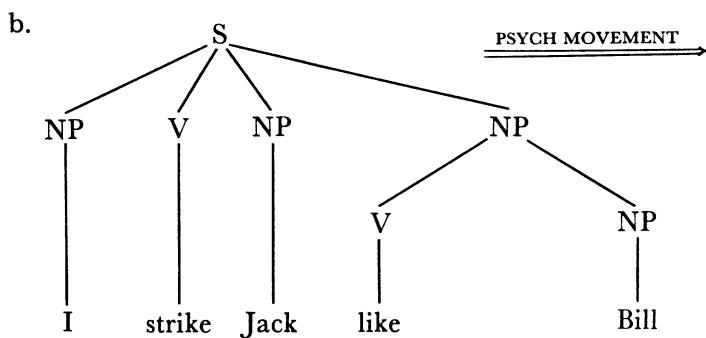


¹¹ That is, by replacing our expository representations of coreference by their appropriate Surface Structure realizations.

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and the derivation proceeded in part as:

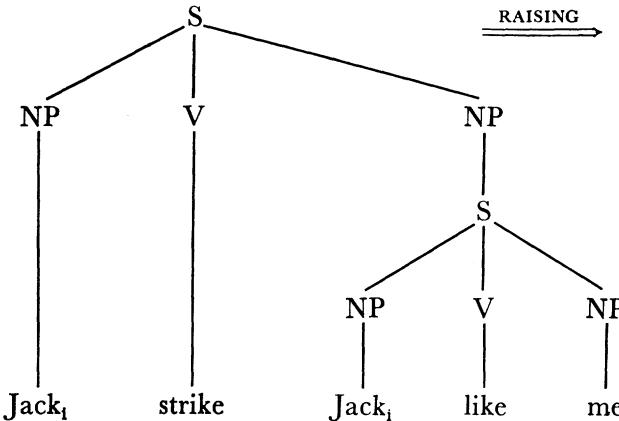
(42) a. (41) $\xrightarrow{\text{RAISING}}$



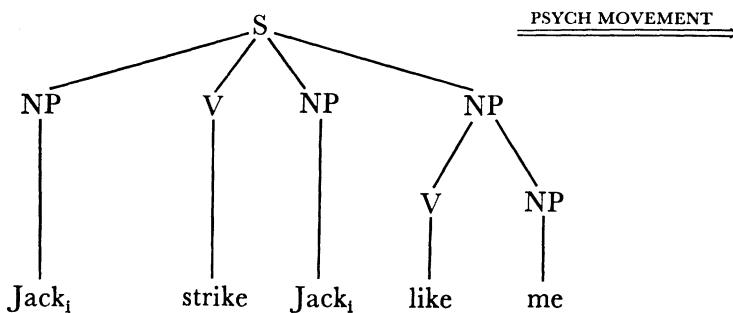
The rule REMIND FORMATION mentioned in this derivation would involve the formation of a compound main verb out of the main verb *strike* and the complement verbal, which is a Similarity Predicate. I discuss this rule in greater detail below in Section III.

If (42) gives the derivation for (40), the derivation of a sentence like (39) would necessarily have to be:

(43) a.

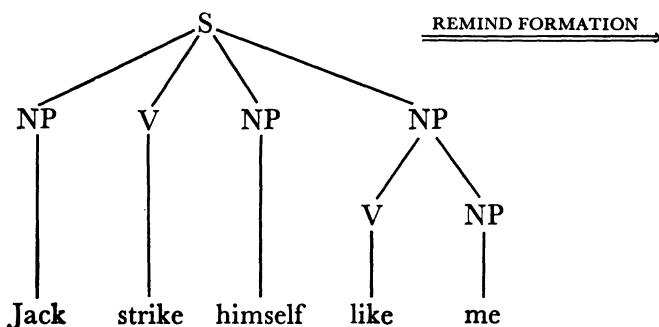


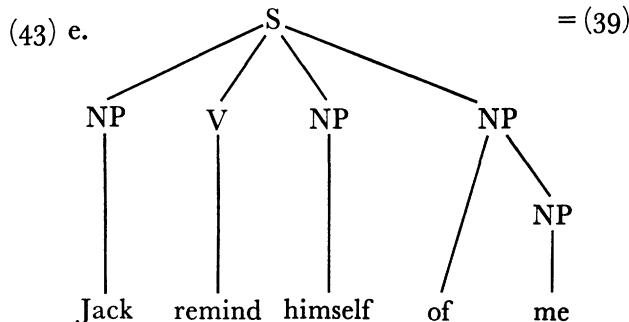
b.



c. = b, PRONOMINALIZATION

d.

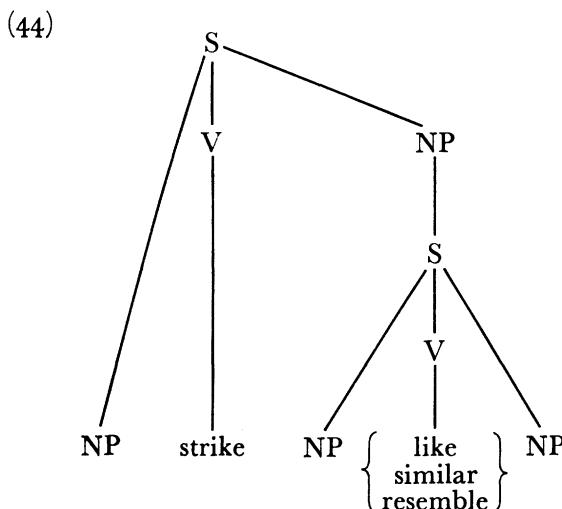




The crucial point, then, is that a derivation like (43) must involve the application of PSYCH MOVEMENT in such a way that coreferent subjects and objects are interchanged. But as was observed in discussing sentences like (37), this is never possible.

Consequently, the derivation of *remind* sentences by way of underlying structures including a verb like *strike* as main verb reduces the peculiar S-IO coreference blockage of *remind* sentences to the independently required constraint of sentences like (37), a constraint which is, moreover, valid generally for PSYCH MOVEMENT sentences, and which can be shown to be the same as that in PASSIVE reflexives like (38). Clearly, then, the constraint is a function of some general principle, even if the cross-over hypothesis is not, as I think now, the correct reconstruction of this principle.¹²

It is thus clear that two of the three coreference peculiarities documented so far for *remind* sentences are an automatic function of derivation from underlying propositionally complex structures of the form:



¹² One could propose an analysis of *remind* clauses such that they had PSYCH MOVEMENT but no other transformation in their derivation. This would account for the S-IO coreference constraint in terms of

where the *strike* in question is one which undergoes RAISING and PSYCH MOVEMENT. I shall henceforth refer to the proposed structure in (44) as *the strike-like analysis*.

What then of the third coreference restriction, the fact that *remind* sentences with coreferent IO and O are ill-formed, although possibly not to the extent of coreferent S-IO or S-O sentences:

- (45) a. *Harry reminded Mary of herself
 b. *that nurse reminded Jack of himself

Here also the restriction seems to follow from structures like (44). For me, sentences such as:

- (46) a. ?it struck Mary_i that Harry was like her_i
 b. ?it struck Jack_i that that nurse was like him_i

are a bit unnatural and strained if interpreted in such a way that the unstressed pronoun is a coreferent of the post-verbal NP. The unnaturalness perceived in (46) is quite subtle. However, when one takes examples in which RAISING has applied:

- (47) a. *Harry struck Mary_i as {resembling
being like} her_i
 b. *that nurse struck Jack_i as {resembling
being like} him_i

the degree of deviance is much more marked on the coreferential readings. It seems to me that the deviant character of the anaphoric connection in sentences like (47) corresponds to the degree of deviance perceived in sentences like (45). Consequently, there are good grounds to suggest that the analysis of *remind* sentences in terms of structures like (44) also reduces the IO-O coreference constraint of *remind* clauses to an independently required statement in the grammar, namely, to the facts of sentences like (47).

Moreover, the argument from IO-O coreference constraints for deriving *remind* clauses from underlying structures with a main verb *strike* is even stronger than appears so far. This follows because apparently the properties of the sentences in (47) are not ad hoc features of *strike*, but follow from some relatively general principle. Notice first that they are typical of other PSYCH MOVEMENT verbals which undergo RAISING. Hence compare *strike* with *seem* and *appear*:

- (48) a. it appeared to Louise, that Tony recognized her,

the principle just noted without assuming any complex, embedding analysis for *remind* clauses as in (43). It will be seen later that this approach is incompatible with other facts relating to the PSYCH MOVEMENT behavior of *remind* clauses, in particular with their behavior with respect to the Extractability Constraint discussed in Section II. B(5). Here we can observe that since it is not clear that application of PSYCH MOVEMENT can be predicted without ad hoc lexical markings, reduction of its application to *remind* to that of its application to *strike* represents a small saving in any event. But cf. Section V. C.

- b. *Tony appeared to Louise_i to recognize her_i¹³
- (49) a. it seemed to me that Jack knew me
 b. *Jack seemed to me to know me

Similarly, with *impress*, which obligatorily undergoes RAISING if it takes a complement, we find:

- (50) *Jack impressed Sally_i as being fond of her_i

These facts might then suggest a principle something along the lines of:

- (51) A verbal V_i which undergoes PSYCH MOVEMENT and RAISING cannot have its underlying "subject" NP be a coreferent of one of the NP elements of its subjectless complement clause.

Actually, however, even (51) is not general enough. Facts like those in (47)–(50) are equally characteristic of the analogous passive constructions of verbs with complements which undergo RAISING. Compare:

- (52) a. Harriet_i believes Jack to have been unfaithful to her_i
 b. it is believed by Harriet_i that Jack has been unfaithful to her_i
 c. *Jack is believed by Harriet_i to have been unfaithful to her_i

And:

- (53) a. Harriet_i proved Melvin to be inferior to her_i
 b. it was proved by Harriet_i that Melvin was inferior to her_i
 c. *Melvin was proved by Harriet_i to be inferior to her_i

Finally:

- (54) a. Greg_i assumed that Linda was fond of him_i
 b. it was assumed by Greg_i that Linda was fond of him_i
 c. *Linda was assumed by Greg_i to be fond of him_i

Triples like those in (52)–(54) show that main clause verbs which undergo both PASSIVE and RAISING behave exactly like those which undergo PSYCH MOVEMENT and RAISING with respect to the possibility of coreference between their underlying "subjects" and NP elements of the subjectless complement produced by RAISING.¹⁴ Consequently, (51) must be replaced by something more general. To state this more general restriction, let us speak of an NP which would show up as the subject of a clause if some particular rule R¹⁵ does not apply, but which shows up

¹³ Ross (personal communication) points out that for some speakers at least the choice of embedded verb is relevant to this restriction. Hence for him (i) is much better than (ii):

(i) Tony appeared to Louise_i to recognize her_i
 (ii) Tony appeared to Louise_i to be cruel to her_i

I do not know how to characterize this contrast, which I have not investigated.

¹⁴ It goes without saying that these facts provide a strong argument for the existence of the rule PSYCH MOVEMENT, a rule whose reality has often been doubted, probably because of the fact that it is subject to a mass of lexical and semantic constraints of largely unexplored character.

¹⁵ The rule in question must be one like PASSIVE, whose operation is Upward Bounded in the sense of Ross (1967), that is whose operation does not cross higher clause boundaries. Hence rules like those which move *wh*-marked NP are not relevant here.

as a *non*-subject in case R does apply to it as having been *Downgraded*.¹⁶ Thus both PASSIVE and PSYCH MOVEMENT have the effect of Downgrading NP. The NP *Mary*, in (47a), *Louise*, in (48a, b), *me* in (49a, b), *Sally*, in (50), *Harriet*, in (52b, c), and *Greg*, in (54b, c) are all Downgraded NP. Given this notion, one can give the more general reformulation of (51) in a way something like:

- (55) A Downgraded NP, NP_k of a Verbal V_t , which takes a complement sentence and undergoes RAISING, cannot be the antecedent of a coreferential NP which is one of the main constituents of the subjectless infinitival or gerundial phrase produced by the application of RAISING to the complement of V_t .

(55) thus predicts that all sentences which fail this noncoreference condition will be ill-formed.

The crucial feature of (55) is that it relates the notion of Downgraded NP to that of subjectless infinitival/gerundial clauses produced by the application of RAISING to complement structures. The contrasts in triples like (54) show that all of the properties are relevant. (54a) has a verb with a complement, but the antecedent has not been Downgraded and the complement has not become subjectless through application of RAISING. (54b) has a Downgraded antecedent, but again the complement has not become subjectless through RAISING. In (54c) though, both conditions are met, and the restriction is manifested.

Consequently, if, as appears to be the case, a principle like (55) is valid for English, our explication of the IO-O coreference restrictions of *remind* clauses in terms of the properties of the verb *strike* is not just the reduction of the properties of *remind* to those of some individual item. Rather, the reduction of *remind* to an underlying propositionally complex structure containing *strike* reduces these properties of *remind* to a general regularity of English, (55), a regularity which, because of its reference to RAISING, cannot possibly apply to *remind* if it is not given an underlying analysis with a complex structure containing a complement. In this way, the IO-O coreference restrictions of *remind* clauses provide a striking and powerful argument for such a complex underlying structure. For such an analysis turns an apparently mysterious and ad hoc feature of *remind* clauses into a theorem of a general principle of English which relates pronominalization possibilities to Downgrading and RAISING.

Overall, then, the *strike-like analysis* reduces each of the three coreference peculiarities of *remind* clauses to an independently motivated restriction in the grammar of English. I should like here to make a comment strengthening the conclusion just reached. I have spoken of three types of constraints in *remind* clauses:

¹⁶ Downgrading should be taken as a special case of a more general notion of a change in what Lakoff (to appear) has called *Priority* relations between constituents. What I have previously treated as Intra-clause cross-over restrictions (Postal 1968) should, I think, actually be subsumed under the principle that coreferent NP within a clause cannot have their Priority relations altered.

- (56) a. S-O constraints
 b. S-IO constraints
 c. IO-O constraints

I have so far categorized these only in terms of *severity*, suggesting that those of the type (56c) might be slightly less bad than the others. There is, however, another classification of such constraints. Consider violations of each, namely,

- (57) a. *Joe_i reminds me of himself_i
 b. *Joe_i reminded himself_i of you
 c. *Joe reminded Betty_i of herself_i

If one considers (57a), it can be seen that not only is it ill-formed, but that it involves a *semantic peculiarity*. I proposed to explain the restriction in (57a) in terms of the restrictions in sentences like:

- (58) a. *Joe is like himself
 b. *Joe is similar to himself

But observe that these involve the same semantic peculiarity. We might describe this roughly as follows. To say that “*x* is similar to *y*” is to *presuppose* that *x* and *y* designate distinct entities and to *assert* that these entities share certain properties. Hence, sentences like (58) violate the presupposition involved in the English items *like* and *similar*, since with unstressed reflexive forms, there is the presupposition that reflexive and antecedent designate the same entity. What is wrong with sentences like (58) is that they contain incompatible presuppositions of the form “*x* designates same entity as *y*” and “*x* designates a different entity from *y*”. But just this property is manifested in sentences like (57a), a property explicable in terms of the *strike-like analysis*, which provides (57a) with an underlying structure of the form:

- (59) *it strikes me that Joe is similar to himself

which has just the properties of (58).

Consider on the other hand (57b). This is perceived as completely ill-formed, probably even more so than (57a). Yet when we examine the meaning of (57b), we find no semantic peculiarity whatever. (57b) says that an individual named Joe was struck by the similarity between himself and “you”, a completely natural and well-formed semantic entity. But, significantly, under the *strike-like analysis* of (57b), restrictions like those in (57b) are explained in terms of restrictions in sentences like:

- (60) a. *Joe struck himself as being similar to you
 b. *Joe struck himself as being like you

And these, while ill-formed, are free of semantic violation, a fact brought out more clearly by their paraphrase relations to the well-formed:

- (61) a. it struck Joe_i that he_i was similar to you
 b. it struck Joe_i that he_i was like you

The absence of semantic violation in sentences like (60) is a theorem of the general fact that so-called "cross-over" violations never yield semantic violations, but rather simply ill-formedness or blockage of anaphoric connections. For instance, ill-formed reflexive passives like:

- (62) *Harry was criticized by himself

have perfectly clear and normal semantic interpretations. Therefore, the explanation of the restriction in (57b) in terms of *the strike-like analysis* predicts not only the degree of severity of the well-formedness violation, but also the fact that the violation in (57b), unlike that in (57a), has no correlated semantic effects.

For (57c), the situation is analogous to (57b), not to (57a). There are no semantic violations. This is also predicted by the proposed analysis of *remind* clauses, since violations like those in (57c) are derived from those in examples like:

- (63) a. *Joe struck Betty_i as being similar to her_i
 b. *Joe struck Betty_i as being like her_i

and these are without semantic violations, as shown by their paraphrase relations to the well-formed:

- (64) a. it struck Betty_i that Joe was similar to her_i
 b. it struck Betty_i that Joe was like her_i

Consequently, *the strike-like analysis* of *remind* sentences not only accounts correctly for the degree of severity of restrictions in sentences like (57), but it also predicts correctly for all cases whether or not these will have semantic violations associated with them.

Section II Further Special Properties of *Remind* Clauses

A. Comment

The facts concerning reflexivization constraints discussed in Section I provide a central core of evidence for *the strike-like analysis* of *remind* clauses. This body of facts does not, however, by any means exhaust the grounds for such a description. There are a large number of other facts of diverse sorts which point in exactly the same direction. These may be properly divided into two types, just as the reflexive constraints can, although they were not previously so categorized.

The essential claims of *the strike-like analysis* are two. One is that the structure of *remind* clauses involves an embedded propositional structure of the Similarity Predicate (*resemble*, *similar*, *like*) sort. The other is that the main verb in the underlying structure is of the type *strike*, that is, among other things, a verb which takes animate "subjects" and abstract, propositional "objects", and which undergoes both RAISING and PSYCH MOVEMENT. Consequently, one can divide up the evidence into two groups: that which supports the postulation of an underlying embedded Similarity Predicate structure and that which supports postulation of a main verb like *strike*.

Looking back at the arguments concerning reflexivization, it can be seen that the S-O constraints support the postulation of an embedded Similarity Predicate. The S-IO, and O-IO constraints, on the other hand, support the postulation of a *strike* type main verb. Henceforth, I shall separate these two types of evidence, beginning with arguments for the *strike*-type main verb element of the *strike-like analysis*.

B. Arguments for a Strike-type Main Verb in Remind Clauses

i. *Reciprocal Arguments.* With *remind*, one observes the following pattern of acceptability:

- (65) a. *John and Bill reminded each other of Louise
- b. John and Bill reminded me of each other
- c. *I reminded John and Bill of each other
- d. *John and Bill reminded each other of each other

This pattern follows, as far as I can discern, from no *fully general* principles governing English reciprocals in Surface clauses, even those containing one verb and three NP. Compare:

- (66) a. John and Bill talked to each other about Louise
- b. John and Bill talked to me about each other
- c. *I talked to John and Bill about each other
- d. *John and Bill talked to each other about each other

The paradigm in (65) does, however, correlate closely with that in:

- (67) a. *John and Bill struck each other as being similar to Louise
- b. John and Bill struck me as being similar to each other
- c. *I struck John and Bill as being similar to each other
- d. *John and Bill struck each other as being similar to each other

Consequently, the *strike-like analysis* reduces the special reciprocal constraints of *remind* clauses to those of *strike* sentences like (67). Moreover, further investigation suggests that the properties of (67) are not totally ad hoc features of *strike*, but are a general characteristic of clauses whose derivation involves both RAISING and PSYCH MOVEMENT. Compare, for instance, the paradigm of *seem* clauses in which RAISING has applied:

- (68) a. *John and Bill seemed to each other to be fond of Louise
- b. John and Bill seemed to me to be fond of each other
- c. *Max seemed to John and Bill to be fond of each other
- d. *John and Bill seemed to each other to be fond of each other

In other words, it is apparently a general fact that in those Surface clauses which have resulted from joint application of PSYCH MOVEMENT and RAISING, the Downgraded NP can be neither a reciprocal, as in (68a, d) nor the antecedent of a reciprocal, as in (68c). The natural explanation of these facts is in terms of the

requirement that such reciprocal phrases meet the same kind of Clause Mate¹⁷ condition required for standard reflexivization. That is, the reciprocal and its antecedent must be in the same clause in structures defined before RAISING applies. Hence:

- (69) a. John and Bill know each other
- b. *John and Bill think that Mary hates each other
- c. *John and Bill talked to the boy who visited each other

Given these facts, the explanation of the distribution of acceptability in RAISING-derived clauses like those in (68) is the distribution in the pre-RAISING structures, namely, for *seem*, those in:

- (70) a. *it seemed to John and Bill that each other were fond of Louise
- b. it seemed to me that John and Bill were fond of each other
- c. *it seemed to John and Bill that Max was fond of each other
- d. *it seemed to John and Bill that each other were fond of each other

Thus the situation is as follows. The RAISING analysis of *seem* sentences like those in (68) and of *strike* sentences like those in (67) reduces their reciprocal constraints to underlying multi-clause structures like those in (70). The pattern of acceptability in *remind* clauses mirrors that in raised *seem* and *strike* sentences like (67) and (68), and not that in underived multi-NP clauses like those with *talk* in (66). This fact is explained by the *strike-like analysis* which derives *remind* clauses in a way which forces them to pass through a pattern like the sentences in (70), and then through one like that in (68). Because of this, the reciprocal constraints of *remind* clauses provide a powerful argument for the *strike-like analysis*.

Actually, the argument is somewhat stronger than has so far appeared. It can be observed that the properties illustrated in (65) are highly dependent on quite superficial properties of sentences. In particular, note the difference, if, instead of a contiguous reciprocal expression, *each other* or *one another*, one has instead the form *each* on the antecedent:

- (71) a. John and Bill each reminded the other of Louise
- b. John and Bill each reminded me of the other
- c. I reminded each one of the men of the other¹⁸
- d. ?John and Bill each reminded the other of the other

Under these conditions, all except possibly the last of the paradigmatic examples are well-formed. But, crucially, exactly this is true of *seem* and *strike* derivations in which RAISING has applied:

- (72) a. John and Bill each struck the other as being similar to Louise
- b. John and Bill each struck me as being similar to the other

¹⁷ The term is from Postal (1968). Elements are Clause Mates if there is no clause to which one belongs but the other does not.

¹⁸ The switch to plurals here and in several other examples below is due to constraints, irrelevant to our argument, on the possible Surface Structure cooccurrences of *each* and conjoined NP in nonsubject position.

- c. I struck each of the men as being similar to the other
 - d. ?John and Bill each struck the other as being similar to the other
- (73) a. John and Bill each seemed to the other to be fond of Louise
- b. John and Bill each seemed to me to be fond of the other
 - c. Max seemed to each of the men to be fond of the other
 - d. ?John and Bill each seemed to the other to be fond of the other

And these facts are of course due to the underlying principle that such sentences are not ruled out by constraints on underlying preRAISING structures containing complements and main verbs of the *seem, strike* type:

- (74) a. it struck each one of the men that the other was similar to Louise
- b. it struck me that John and Bill were each similar to the other
 - c. it struck each one of the men that I was similar to the other
 - d. ?it struck each one of the men that the other was similar to the other

Consequently, the facts in (71) also follow from the characteristics of main verb-complement constructions as in (74), (characteristics which are carried over in RAISING derivations as shown by (72) and (73)), if the *strike-like analysis* is the correct derivation of *remind* clauses.

2. *Stative Properties.* If one considers the verb *strike* in sentences like:

- (75) a. John strikes me as being intelligent
- b. John struck Barbara as having a quick mind

it can readily be determined that it falls into that class which has come to be called (Lakoff 1966) *stative* or *nonactive*. The properties typical of this class are, *inter alia*:

- (76) a. No occurrence with *do so*
- b. No imperatives
 - c. No occurrence with the modal *may* of permission
 - d. No occurrence with progressive
 - e. No occurrence as the embedded verb with main verbs such as *tell (to)*, *order, permit, force, persuade*, etc.
 - f. No occurrence with *what NP did was ...*
 - g. No occurrence with subject-selected adverbs like *enthusiastically, reluctantly*

To illustrate that this is true of *strike*, consider:

- (77) a. John thought about Bill but Tom wouldn't do so
- b. *John struck Bill as being dumb but Jack didn't do so
- (78) a. think about Bill
- b. *strike Bill as being over six feet tall

- (79) a. may I think about Bill
- b. *may Bill strike me as being clever
(on permission sense of *may*)
- (80) a. John is thinking about Bill
- b. *John is striking me as being too fat
- (81) a. I ordered John to think about the digestion of rhinoceri
- b. *I ordered John to strike Bill as being overweight
- (82) a. what John did next was think about rhinoceros digestion
- b. *what John did next was strike Bill as being overweight
- (83) a. John thought about rhinoceros digestion enthusiastically
- b. *John enthusiastically struck Bill as being dumb

It is a consequence of *the strike-like analysis* that all such properties of *strike* must be properties of *remind* sentences. And this is the case:

- (84) a. *John reminded Bill of Tom but Jack didn't do so
- b. *remind Bill of Mary
- c. *may Bill remind you of Lucille
(on permission sense of *may*)
- d. *John is reminding me of a gorilla
- e. *I ordered John to remind Betty of a tap dancer
- f. *what John did next was to remind Bill of a gorilla
- g. *John enthusiastically reminded Betty of Boris Karloff

These facts support *the strike-like analysis*, since they show that under this analysis it is not necessary to specify the verb *remind* as being stative. This property is derivable from the underlying stativity of *strike*.

3. PASSIVE. A property typical of *strike*, but not common to the whole class of verbs, nor even to the whole class of statives, is that it does not undergo PASSIVE, at least in some dialects, that of the present writer included:

- (85) a. *Harry was struck as being foolish by Jack
- b. *Harry was struck by a 1936 Chevrolet as being similar to a 1946 Packard

But the same property is true of *remind* in these dialects:

- (86) a. *Harry was reminded of a 1936 Chevrolet by a 1946 Packard
- b. *Harry was reminded by a 1946 Packard of a 1936 Chevrolet

Hence, given *the strike-like analysis*, the failure of *remind* to undergo PASSIVE is derivable without special statement from the failure of *strike* to undergo this rule. This, in turn, is itself not an accidental fact, but follows from the regularity that the applications of PSYCH MOVEMENT and PASSIVE are mutually exclusive. As we have seen, *strike* undergoes PSYCH MOVEMENT.

4. *Selectional Features.* Another class of facts relevant to the derivation of *remind* sentences from underlying *strike* structures concerns nominal-verbal selectional properties. With the verb *strike* in Surface Clauses of the form:

- (87) Harriet struck me as being clever

we find an initial subject NP, a post-verbal NP, and a clausal fragment without its subject which is understood as a coreferent of the subject of *strike*. The selectional facts, then, are these:

- (88) a. the subject in such cases is unrestricted with respect to *strike* itself, but is restricted with respect to the clausal fragment
- b. the post-verbal NP in such cases must be animate, possibly "human" in some sense (exclusive of babies, for example)

These properties can be illustrated by such examples as:

- (89) a. Harriet struck me as being nice
- b. that dump truck struck me as being nice
- c. that proposal struck me as being nice
- d. that month struck me as being a dreary one
- e. that location struck me as being a lonely one
- (90) a. ?Harriet struck the chicken soup as being too hungry
- b. ?that proposal struck most hydrogen bombs as being inconsistent
- c. ?your first home run struck my second double as being shorter than Schwarz's fifth pop up

Notice that I have made no claim as to the *nature* of such restrictions. In particular, I have taken no sides on the question as to whether they are syntactic, semantic, a mixture, facts about belief systems, facts about the world, etc. This is irrelevant, although I agree with Lakoff (1969) that they involve semantic presuppositions. What is relevant here is only that the *strike-like analysis* predicts that the properties illustrated in (89) and (90) must carry over to *remind* sentences.

In particular, the derivation from *strike* sentence structures predicts that that NP which corresponds to the derived subject of *strike* must be largely¹⁹ selectionally unrestricted with respect to *remind*, while being restricted to the remnants of the clause fragment. This NP is the Surface subject of *remind*. Just so, the analysis predicts that the NP in *remind* sentences which corresponds to the post-verbal NP in *strike* sentences must be animate, possibly "human". This NP is the IO of *remind* sentences. Both predictions are borne out:

- (91) a. Harriet reminded me of a monkey
- b. that dump truck reminded me of Harry's tractor
- c. that proposal reminded me of Harry's suggestion

¹⁹ Some facts indicating that *remind* is not completely free with respect to its subject are given and analyzed in Section IV.

- d. that month reminded me of last month
- e. that location reminded me of the place where Harry's mortuary used to be

(91) illustrates that *remind* does not restrict the nature of its subjects. However, such subjects are restricted with respect to the remnant in *remind* sentences of the clausal fragment of *strike* sentences, which is just the O NP. Observe:

- (92) a. ?Harriet struck me as being similar to Willy Mays' 434th home run
- b. ?Harriet reminded me of Willy Mays' 434th home run
- (93) a. ?your right nostril struck me as being similar to Fermat's last theorem
- b. ?your right nostril reminds me of Fermat's last theorem
- (94) a. ?this onion soup strikes me as being similar to 1943
- b. ?this onion soup reminds me of 1943

That the IO of *remind* sentences must, as predicted by *the strike-like analysis*, be animate is illustrated by such examples as:

- (95) a. ?your nose reminded my foot of Harry's armpit
- b. ?that idea reminded that nonnull set of the Declaration of Independence
- c. ?Khruschev's mother reminded the election of Nixon of Harriet's sister
- d. ?Irving's notebooks will remind the arrest of Schwarz of the fact that everything either does or does not exist

Consequently, each of the selectional predictions of *the strike-like analysis* of *remind* structures is borne out by the selectional properties of Surface *remind* clauses.

It should be further observed that if the Surface *remind* is itself taken as the entity whose selection must be stated, it becomes a unique element. Under *the strike-like analysis*, the selections are broken down into two subsets, those pertaining to a verb like *strike*, and those pertaining to a Similarity Predicate. Thus, the selections are bifurcated into selections common to two large sets of verbs, those such as *strike*, *seem*, *appear*, *impress*, *perceive*, etc. on the one hand, and *similar*, *resemble*, *like*, *different*, *identical* on the other. Thus *the strike-like analysis* not only predicts the particular selections of *remind* but it does so through general statements about selections which can be given for classes of verbal elements. In this way, *the strike-like analysis* prevents *remind* from having to be regarded as a selectionally peculiar item.²⁰

5. Relative and Question Word Extractability

A significant argument showing that *remind* sentences have an underlying structure with a main verb *strike* involves constraints on moving NP out of certain environments

²⁰ In so doing, the analysis reveals in a clear way that *Surface* verbals are not the elements which enter into the statement of selectional restrictions. Rather the relevant elements are the semantic verbals underlying the Surface elements. This confirms the point made by McCawley (1968e) that selections are properly regarded as semantic. Cf. Section V.

under transformational rules. I shall refer to such processes as *extraction* and to their potential applicability as *extractability*.

The fact is that *remind* sentences manifest a peculiar restriction on *extractability* under those rules involved in the reordering of *wh*-marked NP, rules I shall refer to as WH REL MOVEMENT and WH Q MOVEMENT.

- (96) a. Harry reminded me of a gorilla
- b. Max thought that Harry reminded me of a gorilla
- c. who did Max think reminded me of a gorilla
- d. the one who Max thought reminded me of a gorilla
- e. what did Max think Harry reminded me of
- f. the thing that Max thought Harry reminded me of

In these examples both the S and O NP can be extracted by both WH REL MOVEMENT and WH Q MOVEMENT. For me, however, this is not possible with the IO:

- (97) a. *who did Max think Harry reminded of a gorilla
- b. *the one who Max thought Harry reminded of a gorilla

It would be attractive if this constraint could be formulated generally in terms of all rules of a certain type, if, for instance, it could be stated as a restriction on the operation of any rule which extracts NP and which is not Upward Bounded in the sense of Ross (1967). However, I do not think this is possible, because it seems that *remind* sentences with extracted IO NP are all right if this NP is extracted by the rule Ross (1967) refers to as TOPICALIZATION, and which I have called (cf. Postal 1968) Y-MOVEMENT:

- (98) a. me Harry reminds of a gorilla
- b. Max Harry seemed to remind of Joe Dimaggio
- c. Pete I am sure Marsha reminded of Louise

If it is agreed that the examples of (98) are well-formed, in comparison to the starred examples of (97), it must be concluded that the ban on extractability is one relating to *wh*-forms and the rules which reorder them, rather than to unbounded reordering rules in general.

The importance of the restriction on IO extractability in *remind* clauses lies in the behavior of sentences with the verb *strike*. For, significantly, these manifest exactly the relevant extractability restriction:

- (99) a. Harry struck me as being similar to a gorilla
- b. Max thought that Harry struck me as being similar to a gorilla
- c. who did Max think struck me as being similar to a gorilla
- d. the one who Max thought struck me as being similar to a gorilla
- e. what did Max think Harry struck me as being similar to
- f. the thing that Max thought Harry struck me as being similar to

But:

- (100) a. *who did Max think Harry struck as being similar to a gorilla
- b. *the one who Max thought Harry struck as being similar to a gorilla

It follows that, under *the strike-like analysis*, the extractability constraint in *remind* sentences follows automatically from that which must be somehow built into *strike* sentences. Given in this way, however, the argument, while real enough, is not especially strong. It simply has the form that given *the strike-like analysis*, instead of two verbs, *strike* and *remind*, with an exceptional restriction, we have one. Hence, the apparent advantage of the analysis proposed for *remind* is the elimination of one exceptional property from one verb.

However, the facts in (96)–(99) provide a much stronger basis for *the strike-like analysis* than this. The argument has the following form. The restriction manifested by the verb *strike* and predictably carried over to *remind* under *the strike-like analysis* is actually not an ad hoc, exceptional feature of *strike*. Rather, it is apparently a largely predictable feature of a significant set of verbal elements, and, most crucially, predictable in terms of properties which include the presence of a complement sentence. Therefore, the alternatives with respect to properties like those in (96)–(99) are not two exceptional verbs versus one. Rather, they involve setting up as an exceptional property of a verb a feature which is really governed by regularities, and, moreover, regularities stateable just in terms of the underlying structures provided by *the strike-like analysis*. In short, the alternatives are: treating the extractability constraint of *remind* sentences as a function of the regularity operating for *strike* sentences; or treating it as an exception, a mere accident.

I do not as yet fully understand the regularity which predicts the extractability constraint, but it seems to involve *at least four* factors. First, it is limited to verbs which undergo PSYCH MOVEMENT. Second, it is, *remind* aside, limited to verbs which take complement sentences. Third, it seems to be at least partially determined by the position of the underlying complement sentence, or its deformed remnant, in the Surface clause. Finally, the position of prepositions before the extracted NP plays a distinct role in degree of acceptability.

Let us specify some properties of PSYCH MOVEMENT verbs. These occur with an NP which designates the individual who experiences whatever psychological state, process, activity, event, etc. the verbal describes. Call this NP the *Experiencer* NP. This is a fundamental category of NP like Agent, Instrument, etc. PSYCH MOVEMENT verbs have the property that the Experiencer NP ends up not as the Surface Subject, but within the Surface Predicate. They occur in clauses which cannot be reflexive. And they occur in clauses whose nonsubjects can occur with the strange adverbial *personally* in the meaning distinct from that of "in person". Compare the PSYCH MOVEMENT verbal *boring* with the non-PSYCH MOVEMENT verbal *understand*.

- (101) a. I personally understand Max
- b. *I understand Max personally
- c. I understand myself
- (102) a. that is boring to me personally
- b. *Harry personally is boring to me
- c. *Harry is boring to himself

It appears then that something like the following constraint operates in my dialect of English:

(103) Extraction Constraint

Given a verbal element V_i which takes a complement sentence S_i and which undergoes PSYCH MOVEMENT, the *derived* object of V_i , that is, its *underlying* Experiencer NP, is unextractable by the rules of WH Q MOVEMENT or WH REL MOVEMENT if S_i or its transformational remnant end up post-verbally.

Moreover, the unextractability is

- (i) *mild* if the Experiencer NP is preceded by a preposition which accompanies it under extraction or is not preceded by a preposition
- (ii) *severe* if the Experiencer NP is preceded by a preposition which does *not* accompany it under extraction

Let us begin with the most minor of the features of (103), the requirement that the complement end up post-verbally. The reason for this restriction, which emerged in conversation with G. Lakoff, is the contrast between sentences of the following sorts:

- (104) a. (the fact) that Billy kissed Greta was disgusting to Melvin
- b. it was disgusting to Melvin that Billy kissed Greta
- c. to whom was the fact that Billy kissed Greta disgusting
- d. *to whom was it disgusting that Billy kissed Greta
- e. **who was it disgusting to that Billy kissed Greta

The key contrast is between (104c) and (104d), the chief difference between them being that (104d) has undergone the rule EXTRAPOSITION, which throws the complement sentence to the end of the clause. The fact that (104d) is clearly more ill-formed than (104c) is especially noteworthy, in view of the fact that independent factors would tend to make (104c) worse. That is, (104c) has a very long, "heavy" subject NP and a very short VP, properties which generally yield unacceptable sentences. (104d) has a maximally short subject and the "heavy" complement has been placed post-verbally, normally a happy condition for an English sentence. Yet, in spite of this, (104d) is not nearly as acceptable as (104c), a clear indication, I think, of the operation of that part of (103) which mentions post-verbal position of the complement.

Other examples include those which show that, with a gerundive complement

in subject position, there is no extraction constraint, even when the other conditions are met:

- (105) a. Harry's proposing to Sally annoyed Louise the most
- b. who did Harry's proposing to Sally annoy the most
- c. the one who Harry's proposing to Sally annoyed the most was Max

Such sentences seem to suffer only from the property of having too heavy a subject.

Having indicated now that the post-verbal position of the complement is relevant, let us next indicate that the presence of a complement sentence is required to induce extractability constraints. Compare:

- (106) a. that was obvious to me
- b. that Max was a Hungarian was obvious to me
- c. it was obvious to me that Max was a Hungarian
- d. to whom was that obvious
- e. who was that obvious to
- f. *to whom was it obvious that Max was a Hungarian
- g. **who was it obvious to that Max was a Hungarian

Consider, too, sentences with a pure verb, rather than an adjectival verbal:

- (107) a. that disturbed me
- b. that Max was a Hungarian disturbed me
- c. it disturbed me that Max was a Hungarian
- d. who did that disturb
- e. *who did it disturb that Max was a Hungarian
- f. *the one who it disturbed that Max was a Hungarian

The difference between (107d) and (107e) illustrates the role of an occurring complement sentence in inducing the constraint on Experiencer NP extraction for verbals that have undergone PSYCH MOVEMENT, and hence have this NP in their predicates.

There are several hundred verbal elements like *disturb*, i.e., forms like *annoy*, *disgust*, *puzzle*, *amuse*, *bore*, etc. These have the interesting feature of occurring in several different kinds of verbal constructions, both adjectival and pure verbal. Typically, they have at least the following possibilities:

- (108) a. A pure verbal construction in which the Experiencer NP is Surface Object
 - (i) Max disgusted me
- b. An adjectival construction in which the Experiencer NP is a Surface Object, the verbal has present participle-like form together with a following preposition *to*:
 - (ii) Max was disgusting to me

- c. An adjectival construction in which the Experiencer NP is Surface Subject, and the verbal has a past participle-like form followed by prepositions like *with*, *at*, *by*, etc.:
 - (iii) I was disgusted with Max

Now, of these three, the a and b types are characterized by the obligatory occurrence of PSYCH MOVEMENT, the c type by its absence. This is shown by, among other things, the possibility of reflexive sentences in the c construction, their impossibility in the others:

- (109) a. *Max disgusted himself
- b. *Max was disgusting to himself
- c. I was disgusted with myself

Consequently, such constructions provide a clear testing ground for the Extraction Constraint (103). According to (103), the derived objects in the a and b constructions should be unextractable for all such forms, in the presence of a post-verbal complement. And this appears to be exactly the case:

- (110) a. it disgusted Max that I refused to play
- b. *who did it disgust that you refused to play
- c. *the one who it disgusted that you refused to play
- (111) a. it was disgusting to Max that I refused to play
- b. **who was it disgusting to that I refused to play
- c. **the one who it was disgusting to that I refused to play
- d. *to whom was it disgusting that I refused to play
- e. *the one to whom it was disgusting that I refused to play

Observe, on the contrary, that the Experiencer NP in the c construction may be freely extracted in the presence of a complement, due to the inapplicability of PSYCH MOVEMENT:

- (112) a. Max said Barbara was disgusted by the fact that Pete quit
- b. who did Max say was disgusted by the fact that Pete quit
- c. the one who Max said was disgusted by the fact that Pete quit

I will now give evidence that for the two types of elements in (108) which have undergone PSYCH MOVEMENT, the presence of a complement is necessary to induce the extraction constraint:

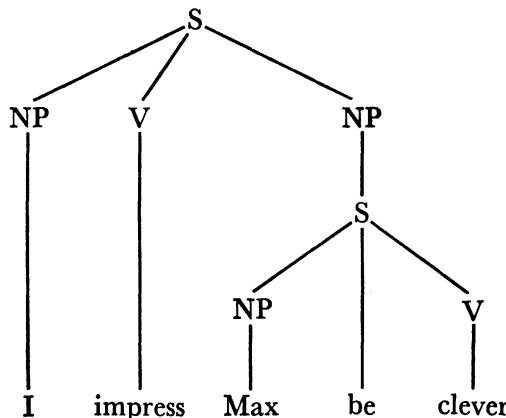
- (113) a. Max disgusted me the most
- b. who did Max disgust the most
- c. it disgusted me the most that Max quit
- d. *who did it disgust the most that Max quit
- (114) a. Max was most disgusting to me
- b. who was Max most disgusting to
- c. to whom Max was most disgusting

- d. the one to whom Max was most disgusting
- e. it was most disgusting to me that Max quit
- f. **who was it most disgusting to that Max quit
- g. *to whom was it most disgusting that Max quit
- h. *the one to whom it was most disgusting that Max quit

We have thus illustrated with verbals of the type *disgust*, *puzzle*, etc. the relevance of both PSYCH MOVEMENT, and an occurrence of a complement sentence. This class of verbals by no means exhausts the set for which the Extraction Constraint in (103) holds. This is also predictably the case for the elements *seem*, *appear*, and *impress* in sentences like the following. The reader can easily determine for himself that these are PSYCH MOVEMENT verbs in terms of the position of the Experiencer NP, the impossibility of reflexives, and the distribution of *personally*.

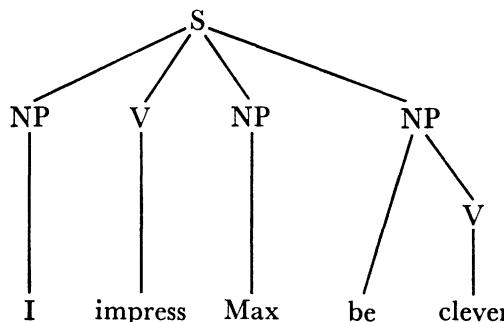
Consider first *impress*. This verb must undergo PSYCH MOVEMENT, and, if it takes a complement, it must also undergo RAISING. Consequently, an underlying structure such as:

(115)



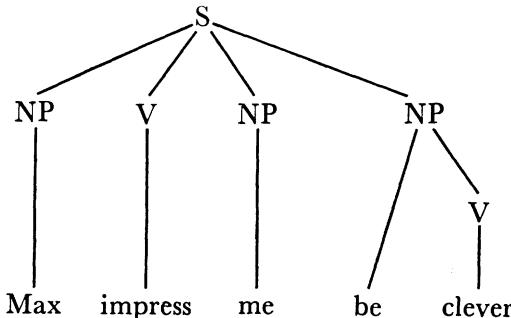
becomes:

(116)



by RAISING, which precedes PSYCH MOVEMENT on a cycle, and then:

(117)



by PSYCH MOVEMENT, ending up finally as:

(118) Max impresses me as (being) clever

by certain late rules and constraints of an unclear sort. No complement is, however, required:

(119) that impressed me

The functioning of the Extraction Constraint is clearly illustrated by such examples as:

- (120) a. Max impressed everyone as (being) honest
- b. that impressed everyone
- c. *who did Max impress as (being) honest
- d. *the one who Max impressed as (being) honest
- e. who did that impress

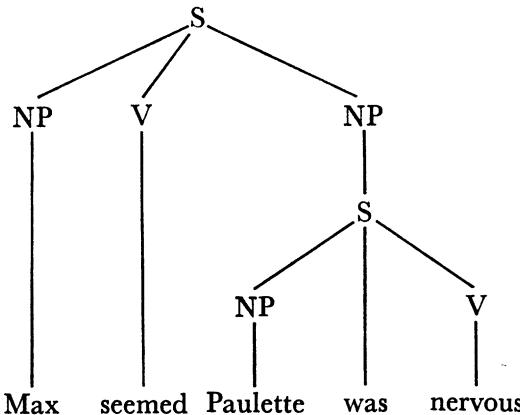
In particular, observe how the contrast between (120c) and (120e) illustrates the role of a complement sentence.

The verbs *seem* and *appear* are like *impress*, except for a number of minor features. First, they do not take the *as* element in their complement remnants. Secondly, for them, a complement in their underlying object is obligatory, not optional. Thirdly, in the presence of this complement, the application of RAISING is optional, not obligatory. A final difference is that *seem* and *appear* preserve the *to* preposition associated with Experiencer NP, while *impress* requires it to delete. As with *impress*, however, PSYCH MOVEMENT is obligatory in all cases. One finds:

- (121) a. it seemed to Max that Paulette was nervous
- b. Paulette seemed to Max to be nervous (seemed nervous to Max)

These have essentially the same underlying structure, roughly:

(122)



The difference is that (121b) has undergone optional RAISING, while (121a) has not. Consequently, when PSYCH MOVEMENT comes to apply, it makes a subject, not out of the raised complement subject in (121b), but out of the whole complement in (121a). This latter complement is then later thrown to clause-final position by EXTRAPosition. Observe, then, the constraints predicted by (103):

- (123) a. **who did it seem to that Paulette was nervous
 b. *to whom did it seem that Paulette was nervous
 c. **who did Paulette seem nervous to (*seem to to be nervous)
 d. *to whom did Paulette seem (to be) nervous
 e. *the one to whom it seemed that Paulette was nervous
 f. *the one to whom Paulette seemed nervous

The constraints for *appear* are exactly the same, and I will illustrate them only briefly:

- (124) a. it appeared to Max that Paulette was nervous
 b. Paulette appeared nervous to Max
 c. **who did Paulette appear nervous to
 d. *to whom did Paulette appear nervous
 e. *to whom did it appear that Paulette was nervous
 f. *the one to whom it appeared that Paulette was nervous

The properties of *seem* and *appear* just illustrated not only support the formulation of (103) as given, but indicate something further. The Extraction Constraint holds in these cases, regardless of whether or not RAISING has applied, i.e., in both (123b, c) and in both (124d, e), demonstrating that this rule is not a relevant factor in the constraint.

A class of verbal elements with behavior similar to *seem*, *appear*, *impress*, and *strike*,

is the set of verbs of sensation, *smell*, *feel*, *sound*, *look*, *taste*, in those constructions where these have complements and undergo PSYCH MOVEMENT. In these cases, the complement clauses are of the type which begin with *like* or *as if*:

- (125) a. this book $\begin{cases} \text{feels} \\ \text{looks} \end{cases}$ to me as if it is made of iron
- b. *to whom does this book $\begin{cases} \text{feel} \\ \text{look} \end{cases}$ as if it were made of iron
- c. *the one to whom this book $\begin{cases} \text{feels} \\ \text{looks} \end{cases}$ as if it were made of iron
- d. *it was Harry to whom this book $\begin{cases} \text{felt} \\ \text{looked} \end{cases}$ as if it were made of iron
- (126) a. that monkey $\begin{cases} \text{sounds} \\ \text{smells} \end{cases}$ to me as if it were dying
- b. *to whom does that monkey $\begin{cases} \text{sound} \\ \text{smell} \end{cases}$ as if it were dying
- c. *the one to whom that monkey $\begin{cases} \text{sounds} \\ \text{smells} \end{cases}$ as if it were dying
- d. *it was Harry to whom that monkey $\begin{cases} \text{sounded} \\ \text{smelled} \end{cases}$ as if it were dying
- (127) a. that soup tasted to me like it was made out of wombat meat
- b. **who did that soup taste to like it was made out of wombat meat
- c. **the one whom that soup tasted to like it was made out of wombat meat
- d. *it was Harry who that soup tasted to like it was made out of wombat meat

In all of these cases, the occurrence of PSYCH MOVEMENT in the derivation is indicated by:

- (128) a. the fact that the Experiencer NP is the Surface Object
- b. the fact that *personally* can occur with the Surface Object
- c. the fact that the Surface Object cannot be (a noncontrastively stressed) reflexive

It is significant to compare these sentences with others containing phonologically identical verbals, but where PSYCH MOVEMENT has not applied and there is no complement.

Consider for instance:

- (129) a. I smelled the statue
- b. what did you smell
- c. the thing that you smelled

Here the objects are freely extractable, as we would expect. It is particularly striking to take pairs like:

- (130) a. I smelled the gorilla
- b. I smelled funny to the gorilla

(130a) has not undergone PSYCH MOVEMENT, and has no complement, while (130b) meets both of these conditions. And predictably:

- (131) a. who did you smell
- b. **what gorilla did you smell funny to
- c. *to what gorilla did you smell funny

As further evidence of the role of PSYCH MOVEMENT, it is significant to consider those verbals like *believe*, *regard*, *consider*, *find*, etc. which take complements which end up post-verbally, and which undergo RAISING, giving them a derived object suitable for questioning and relative formation. Uniformly, we find that these derived objects are extractable.

- (132) a. I believe (that Max is a vampire)
- b. I believe Max (to be a vampire)
- c. who do you believe to be a vampire
- d. the one who he believes to be a vampire
- (133) a. I regard Max as a vampire
- b. who do you regard as a vampire
- c. the one who he regards as a vampire

However, this follows from our analysis, since (103) requires the application of PSYCH MOVEMENT and verbs like *believe*, *regard*, *consider*, etc. have not undergone this, as indicated by the free reflexivization possibilities together with the position of their Experiencer NP as Surface Subjects:

- (134) a. I believe myself to be a vampire
- b. Max regards himself as a genius
- c. I find myself unable to go
- d. I consider myself to be innocent

Returning now to a more direct discussion of *remind*, the following facts are relevant:

- (135) a. The IO NP of *remind* clauses is unextractable by the rules WH REL MOVEMENT and WH Q MOVEMENT.
- b. There is a general constraint, formulable roughly and preliminarily as (103),²¹ blocking the extractability of derived object NP which

²¹ Clearly, (103) must be reformulated in a more general way, so that it will at least take account of similar behavior of many sentences which have undergone PASSIVE rather than PSYCH MOVEMENT. Thus observe:

- (i) a. it was claimed by Max's mother that Arthur was a vampire
- b. *by whom was it claimed that Arthur was a vampire

- are the Experiencer NP of verbals which undergo PSYCH MOVEMENT, and which take complements which end up post-verbally.
- c. The regularity in b holds for the hundreds of verbals in the class *annoy*, *bother*, *disgust*, in their pure verbal forms, and in their *ing-to* adjectival forms, for pure verbs like *seem*, *appear*, *impress*, *smell*, and other verbs of sensation, for pure adjectives like *obvious*, *important*, *vital*.
 - d. The regularity in b holds predictably for the verb *strike*.
 - e. Given a superficial analysis of *remind* as a deep verb occurring with no complement and three NP within its immediate clause, fact a and fact b are unrelated, merely accidental cofeatures of English.

However:

- (136) Given the *strike-like analysis*, (135b), by way of its special case, (135d), automatically has (135a) as a consequence.

(136) is thus the deeper argument for the *strike-like analysis* derivable from the extractability constraints on *remind* clauses. It shows that this analysis permits reduction of the apparent exception in (135a) to the regularity in (135b), which must somehow be part of English grammar, regardless of how *remind* sentences are analyzed. In fact, this regularity would exist in English even if *remind* were not part of the vocabulary. The *strike-like analysis* thus shows the extractability constraint on *remind* clauses to be a predictable consequence of the deeper generalization about English which is roughly formulated in (103). The precondition for this is a description of *remind* clauses which provides them with an underlying Main Verb + Complement Sentence Structure, where the main verb is like the verb realized elsewhere as *strike*, a verb which undergoes PSYCH MOVEMENT.

C. Arguments for an Embedded Similarity Predicate Clause

1. Remarks. In part B of this section, several arguments were given showing that the underlying structures of *remind* sentences must contain a main verbal element with the properties of that verb *strike* which undergoes both RAISING and PSYCH MOVEMENT. In the present section, I take up arguments suggesting that this main

- c. **who was it claimed by that Arthur was a vampire
- d. who was that claimed by
- e. by whom was that claimed

Hence quite possibly, the proper formulation of the constraint sketched in (103) will refer to a notion like Downgrading, or its more general basis in Priority relations, rather than to particular rules like PSYCH MOVEMENT per se.

One should also consider whether the constraint in (103), and that indicated by (i), are linked to the constraint observed by Ross (1967) which prevents indirect objects from undergoing *wh*-movements after they have undergone the rule which places them directly post-verbally:

- (ii) a. I gave a shrunken head to someone
- b. I gave someone a shrunken head
- c. who did you give a shrunken head to
- d. to whom did you give a shrunken head
- e. *who did you give a shrunken head

verb takes as complement clauses with a Similarity Predicate, that is, one with the properties of members of the class *like*, *similar*, *resemble*, etc. At least one such argument has already been given, namely, the fact that the S-O coreference constraint of *remind* sentences corresponds to the restrictions in examples like:

- (137) a. *Martha is like herself
- b. *you no longer resemble yourself
- c. *I used to be similar to myself

2. *Plural Generic Objects.* In sentences like:

- (138) a. Chevrolets resemble Volkswagens
- b. monkeys are similar to acrobats
- c. reptiles are like diplomats

Similarity Predicates occur with plural generic NP as their *objects*. However, this occurs under a special condition, namely, that such NP also occur in the subjects. When this condition is not met, sentences with Similarity Predicates²² and plural generic NP are ill-formed, in my dialect:

- (139) a. *Harry is like gorillas
- b. *Joan resembles tap dancers
- c. *I am similar to researchers

I do not even find such sentences acceptable when the subject is conjoined or a nongeneric plural:

- (140) a. *you and I resemble linguists
- b. *Jack and Jill were like idiots
- c. *the men were similar to villains

This generic restriction provides support for the embedded Similarity Predicate aspect of the *strike-like analysis*, since exactly the same restriction shows up between S and O of *remind* sentences:

- (141) a. Chevrolets remind me of Volkswagens
- b. monkeys remind me of diplomats
- c. *that Chevrolet reminds me of Volkswagens
- d. *Jack reminds me of tap dancers
- e. *Jack and Jill remind me of travellers

It should be emphasized that the constraint on Similarity Predicates is not a general one having to do with verbal forms per se, but is a special property of this class:

- (142) a. John is fond of diplomats
- b. Jack and Jill are friendly to travellers
- c. Harry understands monkeys

²² This regularity is one of those holding for the wider class of predicates mentioned in footnote 6.

Therefore, the restriction in *remind* sentences requires special explanation, unless *the strike-like* analysis is taken as the derivational basis.

3. *Average, Typical.* Words like *average* and *typical*, when preceded by the definite article, function like quantifiers in sentences like:

- (143) a. the average linguist is a university employee
- b. the typical Nazi liked to hit people on the head

That is, the NP of which they are part are semantically interpreted as *variables* rather than as *constants*, just like NP such as *every dog, most employees*, etc.

In general, it might be assumed that the subject and object of a Similarity Predicate are related to it symmetrically. It is not clear that this is the case, however, when quantified NP are involved. And it is definitely not the case when *average* or *typical* occurs in either subject or object.

Thus:

- (144) a. the typical linguist is similar to Max
- b. ?Max is similar to the typical linguist
- (145) a. the typical communist is like that man over there
- b. ?that man over there is like the typical communist
- (146) a. the average gorilla resembles your mother
- b. ?your mother resembles the average gorilla
- (147) a. the average bureaucrat is like Nixon
- b. ?Nixon is like the average bureaucrat

That is, in my dialect at least, when we have two NP with a Similarity Predicate, one of which is a normal constant-interpreted one with definite reference, the other a variable NP of the kind with *average* preceded by a definite article, there are natural sentences only when the variable NP is subject.²³ Notice that this restriction on *average, typical*, etc. is limited in scope to Similarity Predicates, and other members of the wider class including *different, equivalent*, etc. It is not true for verbals in general. Thus the b sentences in (144)–(146) are fine if one replaces the Similarity Predicate by *know, fond of*, etc.

Significantly, the analogous restriction on *typical, average*, etc. exists for me in *remind* clauses between S and O NP:

- (148) a. the typical linguist reminds me of Max
- b. ?Max reminds me of the typical linguist

²³ The reason for this probably lies in the fact that in these symmetrical predicate cases there is an asymmetry between subject and object in that the object NP serves as the "standard". To say:

(i) John is like Bill

is to presuppose that the listener knows what Bill is like and to assert that in some respect John matches Bill. Consequently, it is odd to have in the "standard" position an NP which does not designate a particular (set of) entities.

- (149) a. the typical communist reminds me of that man over there
- b. ?that man over there reminds me of the typical communist
- (150) a. the average gorilla reminds me of your mother
- b. ?your mother reminds me of the average gorilla
- (151) a. the average bureaucrat reminds me of Nixon
- b. ?Nixon reminds me of the average bureaucrat

Consequently, the strange variable NP restriction of Similarity Predicates is automatically carried over to *remind* clauses under *the strike-like analysis*. Without this analysis, the facts in *remind* clauses are again ad hoc restrictions related to nothing else in the grammar.²⁴

It should be observed that the argument goes somewhat beyond *average*, *typical* and similar adjectives (such as *usual*, *normal*) to include, for me, certain ordinary quantifiers. Hence, the distribution of acceptability in (144)–(151) is, for example, unaffected by substituting *every* for *the* {^{average}_{typical}} in all of these examples.²⁵

4. *in that + S.* Arguments for *the strike-like analysis* of *remind* clauses can be obtained by investigation of the rather special construction of the form *in that + S* (henceforth abbreviated Z). Z occurs with *remind* sentences:

- (152) a. Johnson reminded me of de Gaulle in that he had a long nose
- b. Pete reminded me of Fast Louis Parsons in that he could run the mile in 4.2 seconds

However, obviously Z does not occur freely with most types of verbals:

- (153) a. *Joe_i punched Bill in that he_i was sick for a week
- b. *my doctor_i fell down in that he_i knows French very well
- c. *Harry_i knows algebra in that his_i mouth is open
- d. *Lucille_i is singing in that she_i is wiggling her vocal cords²⁶

²⁴ In the light of footnote 23, one could formulate an argument in somewhat different terms as follows. *The strike-like analysis* predicts that in *remind* clauses that NP which serves as the "standard" of comparison is the O, not the S.

²⁵ What is, I believe, the same restriction also carries over to the generic form *one*, not surprisingly, since such forms also involve in some way universal quantification. Hence observe:

- (i) one is similar to other people
- (ii) ?other people are similar to one

As a consequence of (ii), *the strike-like analysis* predicts that sentences like:

- (iii) ?other people reminded Harry of one

should be out, which is correct. It also seems that the well-formedness of (i) should predict that:

- (iv) ?one reminded Harry of other people

is well-formed, and this is not obvious. Observe, however, that (iv) seems no worse than the explicitly embedded structure:

- (v) ?one struck Harry as being similar to other people.

²⁶ If (153d) seems better than the other examples, it is, I believe, due to the fact that there is a distinct *in that + S* construction interpreted as meaning roughly "because". This is subject to the constraint that its main verbal be active. I am concerned in the text only with the "parameter" reading of *in that + S*.

That is, there must be a cross-classification of verbals with respect to whether or not they occur with Z. Observe, though, that Z does occur with Similarity Predicates:

- (154) a. Harry_i is similar to Jack in that he_i has a big nose
- b. that man_i resembles my brother in that he_i has red hair
- c. Betty_i is like Lucille in that she_i has an enormous liver

Thus there exists the following situation:

- (155) a. Z does not occur with most verbals
- b. Z occurs with Similarity Predicates (and also the related forms *different*, *equivalent*, etc.)
- c. Z occurs with *remind*

The argument is clear. Under *the strike-like analysis*, the asymmetry of (155) is eliminated, since case c is reduced to case b. Without this analysis, there is the preposterous situation of a construction occurring with a set of elements, symmetrical predicates, which take two NP, not occurring with most other verbals, but then occurring with a special verb, *remind*, which takes three NP.

This argument is stronger than appears at first, for the following reason. Obviously, the syntactic fact that Z occurs with Similarity Predicates, *different*, *equivalent*, etc. is no accident, semantically. This is a semantically natural association, since Z serves to characterize the parameter(s) along which the similarity (difference) specified by the predicate is defined. In short, given *the strike-like analysis*, one can say simply that Z occurs with the class of symmetrical predicates, serving to specify the relevant parameter of relatedness. One thus *expects* Z to occur with such items, and under the analysis proposed here, this expectation carries over naturally to *remind*.

Another argument for *the strike-like analysis* can be derived from the facts of the Z construction. This second argument actually supports the claim that the main verb underlying *remind* is *strike*, and thus properly belongs in part B.

I have considered only cases where Z occurs with an unembedded Similarity Predicate. Yet if these are to be the sources of Z with *remind* clauses, it is necessary that Z be embeddable. This is in fact possible in such cases as:

- (156) a. Lucille impressed me as resembling her mother in that both of them have red hair
- b. this meat looks to me like it is rotten in that it is covered with bugs
- c. that child seems to me to resemble Pete in that it has dark skin
- d. that dog appears to me to be similar to my wolf in that it eats rabbits

However, quite strangely, Z with a Similarity Predicate can *not* be freely embedded with many sorts of main verbs:

- (157) a. *Fred believes that Harry was similar to Kennedy in that he had no judgment
- b. *I claim Lucille resembles her mother in that both of them have blonde hair

I do not get Z readings for either of these. If they are well formed at all, it is only on a "because" reading of *in that* + S, where the phrase is interpreted as a constituent of the main clause. Observe the contrast between (157), on the one hand, and:

- (158) a. Fred believes that Harry was similar to Kennedy
- b. I claim Lucille resembles her mother

These show that the constraint is one concerning Z, and not Similarity Predicates as such.

How can one characterize the difference between those verbs like *impress*, *look*, *seem*, *appear* in (156), which permit embedded Z, and those like *believe* and *claim* in (157), which do not? The answer, if one recalls the analysis of verbs presented in part B(5), is that the verbs in (156) undergo PSYCH MOVEMENT, while those in (157) do not. Hence the latter have their Experiencer NP in subject position, while the former have them in the predicate. There would then appear to exist in English, in some form, the restriction:

- (159) Z can occur with an embedded Similarity Predicate, just in case the first verb above the Similarity Predicate undergoes PSYCH MOVEMENT.

Now, given (159), we predict that it must be the case that *strike*, a PSYCH MOVEMENT verbal, can occur with an embedded Z. This is exactly right:

- (160) a. John struck me as being similar to Pete in that he was excitable
- b. John struck me as resembling his mother in that he was not too bright
- c. John struck me as being like his father in that he was musically inclined²⁷

Therefore, given (159) and the *strike-like analysis*, it is an automatic fact that *remind* sentences can occur with the Z construction. Under the *strike-like analysis*, this follows from two necessary facts: (i) Z occurs with Similarity Predicates; (ii) Z can occur with an embedded Similarity Predicate only if the next verbal up undergoes PSYCH MOVEMENT. Hence, in a double sense, it can be seen that the occurrence of Z with *remind* clauses is not exceptional but follows from regularities statable on structures provided by the *strike-like analysis* of *remind* clauses.

There is a further detail to the relation between Z and the next verb above the symmetrical predicate it modifies. Sentences like (156) show that Z can occur with

²⁷ Notice that to preserve the regularity in (159), we must either claim that *be* is not a real verb, or else indicate in some other way that it is "transparent" to this restriction. This property of *be* is not particular to this case. Note that it is, for example, also transparent to such restrictions as that the first verb below a verb like *tell* must be a "self-controllable" verb (cf. Kuno, to appear).

- (i) I told John to visit Sally
- (ii) *I told John to resemble Mary
- (iii) I told John not to be seen in public without his beard
- (iv) *I told John not to be found guilty
- (v) *I told John not to be betrayed by Sally

PSYCH MOVEMENT verbals. This is necessary, but not sufficient, however, as seen from:

- (161) a. *Lucille impressed Max as being similar to her mother in that she had red hair
- b. *that child seemed to Bob to resemble Pete in that he had dark skin
- c. *that dog appeared to you to be similar to my wolf in that it eats rabbits

These show that in unembedded, declarative, nongeneric sentences, the PSYCH MOVEMENT verbal must have a *first person* derived object, i.e., Experiencer NP. However, this is not a fully general form of the restriction. For we notice that when the relevant constructions are explicitly embedded below a verb of saying or thinking, the restrictions are rather different:

- (162) a. John_i says Lucille impressed him_i as being similar to Mary in that she was very emotional
- b. *John says Lucille impressed me as being similar to Mary in that she was very emotional
- (163) a. Doris_i claimed that Lucille seemed to her_i to resemble Gladys in that she was seven feet tall
- b. *Doris claimed that Lucille seemed to me to resemble Gladys in that she was seven feet tall

In these sentences, the restriction is clearly that the Experiencer NP of the PSYCH MOVEMENT verbal must be a coreferent of the Agent NP of the next higher verb of saying. This restriction can be generalized to cover unembedded cases like (161), where it seems that the requirement is that the Experiencer NP be first person, by adopting the analysis suggested by Ross (to appear b) which provides each declarative sentence with an underlying performative verb of saying. Under this view, most first person NP are coreferents of the Agents of deleted performative verbs. I will not go into this matter further here, other than to say that the restrictions uncovered provide further support for the deleted performative verb analysis. Almost exactly parallel restrictions are uncovered in part (6) below.

It appears then that there exists the following restriction:

- (164) Z can occur with a symmetrical predicate which is embedded below a PSYCH MOVEMENT verbal just in case the Experiencer NP of the PSYCH MOVEMENT verbal is a coreferent of the Agent NP of the next higher verb of saying or thinking.

Given (164) and the *strike-like analysis*, one predicts that *remind* should occur naturally with Z only when its IO NP is first person. But this is the case:

- (165) a. Lucille reminded me of Betty in that she was beautiful
- b. *Lucille reminded Max of Betty in that she was beautiful

On the other hand, when *remind* is embedded below a verb of saying, one predictably finds:

- (166) a. Max_i says Lucille reminded him_i of Betty in that she was beautiful
- b. *Max_i says Lucille reminded me of Betty in that she was beautiful

It follows that *remind* reveals a property otherwise manifested by main verbs occurring with complement symmetrical predicates modified by Z constructions. Thus the facts provide clear evidence that underlying *remind* there is, indeed, a Main Verb + Complement Sentence Structure, as *the strike-like analysis* claims.

5. *in + the + way + that + S*. Arguments quite similar to those derivable from *in that + S* are derivable from the related construction *in + the + way + {that in which} + S* (henceforth abbreviated X). Again, this occurs with Similarity Predicates, and the wider set of related elements including *different*, *equivalent*, etc., but not with most other verbals. X does, however, occur with *remind* clauses:

- (167) a. Max is similar to Pete in the way that he talks
- b. Max reminds me of Pete in the way that he talks
- (168) a. Max resembles Barbara in the way he gives an argument
- b. Max reminds me of Barbara in the way he gives an argument

Thus the same kind of argument as the first given for the Z construction is immediately derivable.

6. *Parallel Deletions*. Sentences of the form:

- (169) a. meeting Mary is like kissing a gorilla
- b. hitting a home run is similar to finding a hundred dollars

reveal a peculiar restriction between the nominalized clauses in the two nominals. For me, such sentences are only natural when the deleted subject NP in both are coreferents. Moreover, the subject deletion in both clauses is obligatory.

Hence:

- (170) a. shaving is like cutting one's throat
- b. shaving oneself is like torturing oneself
- c. *shaving himself was like torturing herself
- d. *shaving himself was like scratching myself
- e. *Mary's criticizing herself was similar to Pete's praising himself
- f. *criticizing Mary was similar to Pete's praising himself
- g. *Mary's criticizing Lou was similar to praising yourself

There are, then, the following restrictions on the subjects and objects of Similarity Predicates in these cases:

- (171) a. the underlying subjects of the nominalized clauses must be coreferents
 b. these subjects must be deleted²⁸

However, (171) by no means exhausts the restrictions peculiar to sentences like (169). A further restriction is that the subject NP which are deleted in both clauses must be either the special general pronominal element *one* or else they must be coreferents of an NP in the clause of the immediately higher *verb of saying or thinking*.²⁹ Consequently:

- (172) a. Harry_i says that shaving himself_i is like torturing himself_i
 b. *Harry_i says that shaving herself_i is like torturing herself_i
 c. (Harry_i says) shaving oneself is like torturing oneself
- (173) a. Mary_i thinks criticizing herself_i is similar to torturing herself_i
 b. *Mary_i thinks criticizing myself is similar to torturing myself
 c. (Mary_i thinks) criticizing oneself is like torturing oneself
- (174) a. Pete_i told Louis_j that criticizing himself_i would be like torturing himself_i
 b. Pete_i told Louis_j that criticizing himself_i would be like torturing himself_i
 c. Pete told Louis that criticizing oneself would be like torturing oneself

Now, on the face of it, this restriction does not hold for the unembedded constructions like those in (169). For these, the restriction is that the deleted subjects must be either of the type *one* or else must be first person elements in declarative sentences or second person elements in interrogatives:³⁰

- (175) a. shaving myself is like torturing myself
 b. *shaving yourself is like torturing yourself
 c. *is shaving myself like torturing myself
 d. is shaving yourself like torturing yourself

However, it is natural to regard facts like those in (175) not as indicative of some

²⁸ Both of the conditions (171) are valid only for noncontrastive NP. With strong contrastive stress, the deletion is unnecessary and coreference is not only not required but unnatural:

(i) yoúr shaving Max is like mí torturing Pete
 (ii) ?mý criticizing Billy is like mí attacking Tom

²⁹ A better statement would be one which referred to verbs that are "world creating" in the sense of Lakoff (1968c). That is, some verbs are such that their complements describe the world not fully in the terms of the speaker but at least partially in the terms of the individual designated by the Experiencer NP of the verb itself.

³⁰ Even this statement is too general and requires further restriction at least for plurals, and to distinguish yes-no questions from others:

(i) *is shaving myself like torturing myself
 (ii) is shaving yourself like torturing yourself
 (iii) why is shaving myself like torturing myself
 (iv) *why is shaving yourself like torturing yourself

Also, modality is relevant:

(v) is shaving myself going to be like torturing myself

I have held these factors constant in the text, rendering them, I think, thereby irrelevant to the argument.

special restrictions distinct from those operative in (172)–(174), but rather as instances of the same restrictions defined in terms of the performative verbs occurring in the underlying structures of (175).³¹ That is, it is natural to reduce the facts of (175) to the principles underlying those of (172)–(174) by way of an analysis like that suggested in Ross (to appear b), which provides every declarative sentence with a performative verb which is a verb of saying.³² Hence this induces restrictions just like the undeleted nonperformative verbs of saying and thinking in (172)–(174). Assuming this, then, we can summarize the restrictions on constructions of the type (169) as follows:

- (176) a. the underlying subjects of the nominalized clauses must be coreferents
- b. these subjects must be deleted
- c. (i) these subjects must be coreferents of an NP in the clause of the immediately higher verb of saying or thinking, or:
- (ii) they must be the general pronominal element *one*.^{33, 34}

³¹ Observe that such an analysis of sentences like (175a) serves in part to bring the deletion in such constructions under general principles operative for other cases of complement subject deletion. That is, in general, such deletion takes place only when the subject has a coreferent "controller" in a dominating construction. But the proposed performative analysis of sentences like (175) provides them with just such a higher NP. The deletion still remains partially unique, however, since in this case, but not in others, the "controller" NP is not in the next highest clause, but is two away. This is very peculiar.

³² As with the facts mentioned in part (5) about *in that + S* and Agents of higher verbs of saying, these facts can, of course, be developed into a very strong argument supporting the postulation of performative verbs of saying which are deleted.

³³ Ross (personal communication) points out that these generalizations are not quite right since there is also the possibility, without contrastive stress, of having *there* in both positions:

- (i) there being no love between us is similar to there being no food in China
- (ii) there being trouble in Africa is equivalent to there being trouble in Persia

Moreover, in these cases *there* is undeletable:

- (iii) *being no love between us is similar to (there) being no food in China

I do not understand these facts.

³⁴ The peculiar element *one* must be represented as a *variable* NP, quantified over by the same kind of universal quantification typical of generic NP, in contrast to *I* and *you*, whose representations must involve constants. Intuitively, though, *I/you* and *one* are closely, if obscurely, related. I think this relation can be described something like this. *One* is a variable over just the range of entities that can be designated by *I* or *you*. That is, roughly, *one* varies over sentient beings, beings capable of addressing or being addressed. Hence, if we can say:

(i) on Mars, one builds one's house near a canal
to refer to Martians, then we can say:

- (ii) do you like having your house near a canal

to a Martian. However, this does not exhaust the relation between the variable element *one* and *I/you*. For in fact, *one* has the same inherent subjectivity that *I* does. Thus observe the contrast between a science-fiction computer saying:

- (iii) people (sentient beings) should not destroy valuable property
- (iv) one should not destroy valuable property

In using (iv), the computer assumes itself to be a being of the type covered by *one*. Thus in using (iv) the computer expresses a law which covers the computer itself. This is not the case with (iii). Consequently, *one* is, in unmarked cases, used to express purported laws which necessarily cover their speaker. In this sense *one* is a quantified NP whose scope necessarily includes the individual designated by *I*. This provides, I think, the beginning of an understanding of why sentences like those in the text should allow either *I/you* on the one hand, or *one* on the other. There is a common structure here, differentiated by the constant-variable distinction. This analysis also makes it seem less arbitrary that the colloquial form of *one* in many dialects is *you*. Similarly, it provides some insight into that dialect of British English which, in some styles at least, uses *one* as a variant of *I*, i.e., as a constant rather than variable NP.

It should be emphasized that the properties of (176) are valid not only for the Similarity Predicates *similar*, *resemble*, *like*, etc., but also for their negative cousins, *different*, *differ*, *distinct*, *contrast*, and for the wider set of logically symmetrical predicates, *equivalent*, *identical*, *same*, *equal*, *equal (to)*.

We observe next that these peculiar properties carry over to Similarity Predicate clauses which are embedded below *strike*, with this verbal acting as a verb of saying/thinking:

- (177) a. it strikes me that shaving myself is like torturing myself
- b. *it strikes me that shaving himself is like torturing himself
- c. it strikes me that shaving oneself is like torturing oneself
- (178) a. it struck Harry_i that shaving himself_i was like torturing himself_i
- b. *it struck Harry that shaving myself was like torturing myself
- c. it struck Harry that shaving oneself is like torturing oneself
- (179) a. it struck Lucille_i that praising herself_i was similar to criticizing herself_i
- b. *it struck Lucille_i that my praising her_i was similar to Pete's criticizing her_i
- c. *it struck Lucille_i that praising herself_i was similar to Pete's criticizing her_i
- d. *it struck Lucille_i that my praising her_i was similar to criticizing herself_i

Given the *strike-like analysis* then, the grammar must predict that the restrictions summarized in (176) must all carry over to *remind* clauses. And this is the case:

- (180) a. shaving myself reminds me of torturing myself
- b. *shaving himself reminds me of torturing himself
- c. shaving oneself reminds me of torturing oneself
- (181) a. shaving himself_i reminded Harry of torturing himself_i
- b. *shaving myself reminded Harry of torturing myself
- c. shaving oneself reminded Harry of torturing oneself
- (182) a. praising herself_i reminded Lucille_i of criticizing herself_i
- b. *my praising her_i reminded Lucille_i of Pete's criticizing her_i
- c. *praising herself_i reminded Lucille_i of Pete's criticizing her_i
- d. *my praising her_i reminded Lucille_i of criticizing herself_i

The key fact in the *remind* examples is that condition c(i) of (176), which requires coreference with an NP in a higher clause, predicts, given the *strike-like analysis* of *remind* clauses, that in *remind* sentences this identity will be to the IO of *remind* clauses, either when these stand in Surface Structure unembedded, or when embedded below some other verb. But this is right:

- (183) a. shaving myself reminds me of torturing myself
- b. shaving himself_i reminded Harry of torturing himself_i
- c. *shaving myself reminded Harry of torturing myself
- d. *shaving himself reminded me of torturing himself

- (184) a. Max thought that shaving myself reminded me of torturing myself
 b. *Max thought that shaving himself reminded me of torturing himself
 c. I thought that shaving himself reminded Max of torturing himself
 d. *I thought that shaving myself reminded Max of torturing myself

One can imagine no more striking piece of evidence for the claims of *the strike-like analysis* than the fact that the IO of *remind* sentences behaves like an NP of an immediately dominating clause with respect to the application of principle (176) to the prediction of the facts in sentences like (183)–(184), facts which are, given *the strike-like analysis*, perfectly regular deductions from (176).

I have shown, then, in this section on parallel deletions that *remind* clauses obey in detail the law (176), a regularity whose domain must be given as two-term logically symmetrical predicates³⁵ embedded below some verb of saying/thinking. *Remind* clauses act *vis-à-vis* (176) just like a construction with a two-term symmetrical predicate, with the IO acting like an NP Clause Mate of the dominating verb of saying/thinking. But this is just the structure provided by *the strike-like analysis*.

To appreciate the strength of this argument in favor of *the strike-like analysis*, it must be observed that what has been shown is not only that the analysis predicts the properties of *remind* *vis-à-vis* the restrictions under consideration. In addition, it is obvious that *without* this analysis the grammar must specify both that: (i) *remind* is an exception to the regular rule (176c (i)); and (ii) there is a special rule for *remind* alone specifying that the NP which must be a coreferent of the deleted subjects is the IO. Thus the alternative to *the strike-like analysis* in this case is a grammar in which there is:

- (185) a. a regular rule (176c (i))
 b. a statement to the effect that *remind* is an exception to (176c (i))
 c. a special rule limited in scope to *remind* which says just what (176c (i)) says for the regular cases

(185) shows that the alternative to *the strike-like analysis* is an account in which the perfectly regular properties of *remind* must be taken to involve two separate irregularities, an exception statement for (176c (i)) and a special rule to do the work of (176c (i)) in the single case. It is hard to conceive of a stronger argument for an analysis of the type under discussion.

7. Constraints Across Conjunctions. If we consider sentences of the form:

- (186) a. Max_i thinks Greta_j is similar to Pete_k but Lucille_l can't see that they are similar
 b. Max_i thinks Greta_j is similar to Pete_k and I can see they are similar too

³⁵ That is, the regularity in (176) governs not just Similarity Predicates but the wider class mentioned in footnote 6.

where in each case the *they* is pronounced with weak, anaphoric stress, there is a restriction of interpretation of this *they* such that, in examples like (186), it is a coreferent of the NP subscripted *j*, *k* and no others. That is, *they* must be a coreferent of the n-ad of those NP which function as subject and object of the Similarity Predicate in the preceding clause. The same point is made when the second clause contains a nominalization:

- (187) a. Max_i thinks Greta_j is similar to Pete_k but Lucille_i can't see the similarity between them
- b. Max_i thinks Greta_j resembles Pete_k and I can see the resemblance between them too

Here it is weakly stressed *them* that must be a coreferent of the pair subscripted *j*, *k* and no others. The natural regularity here is that *they/them* in the second clauses must refer to the terms of the contrasting Similarity Predicate in the complement sentence of the preceding clause of thinking/saying. But exactly this regularity predicts the properties of sentences like:

- (188) a. Harry_i reminds me of Larry_j but Lucille_k can't see that they are similar
- b. Harry_i reminds me of Joe Dimaggio, but Lucille_k can't see the resemblance between them

in which *they/them* must be a coreferent of the pair of S and O NP of the *remind* clause, if the *strike-like analysis* is accepted. That is, here again, *remind* clauses behave like complex clauses with a saying/thinking main verb and a complement containing a two term predicate of similarity, as the *strike-like analysis* predicts.

There is, obviously, another argument based on the same facts. The one just given was based on pronoun interpretation. But equally well one can point out that those clauses which can occur as the first in sentences like (186)–(187) are just those with a thinking/saying main verb, and Similarity Predicate complement. Hence, in general, complementless verbs are banned:

(189) *Harry said something to Betty but Lucille can't see that they are similar as are verbs with complements of the nonSimilarity Predicate type:

(190) *Harry said that Max liked Bill but Lucille can't see the resemblance between them

Consequently, the occurrence of *remind* clauses in this position as illustrated by (188) is quite anomalous if these have any structure other than that provided by the *strike-like analysis*. Given the latter, on the other hand, the occurrence is predicted directly.

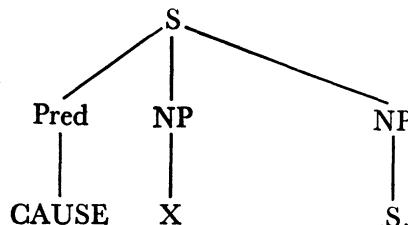
Section III The Strike-Like Analysis and Predicate Raising

In a series of papers, McCawley (1968a, 1968b,³⁶ 1969) has proposed that there

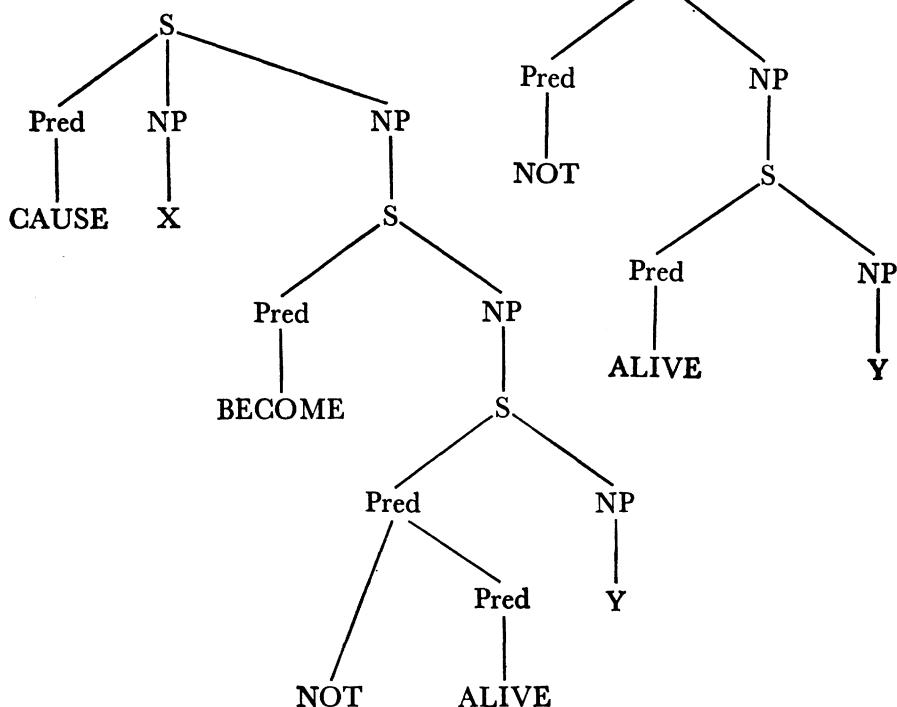
³⁶ Cf. also the discussion in de Rijk (1968) and Green (1969).

exists in English a rule which he refers to as PREDICATE RAISING. This operation has the effect of taking the main verb of a complement sentence and lifting it into the immediately higher main clause, attaching it to the main verb of that clause, thus producing a kind of compound verb. This rule is taken to operate prelexically, that is, before the lexicon has been used to fill in the phonological form of constituents. Hence, an example of the operation of PREDICATE RAISING would be, according to McCawley, the successive conversion of (191) into (192), (193), (194) by applying the rule cyclically from bottom to top of (191).

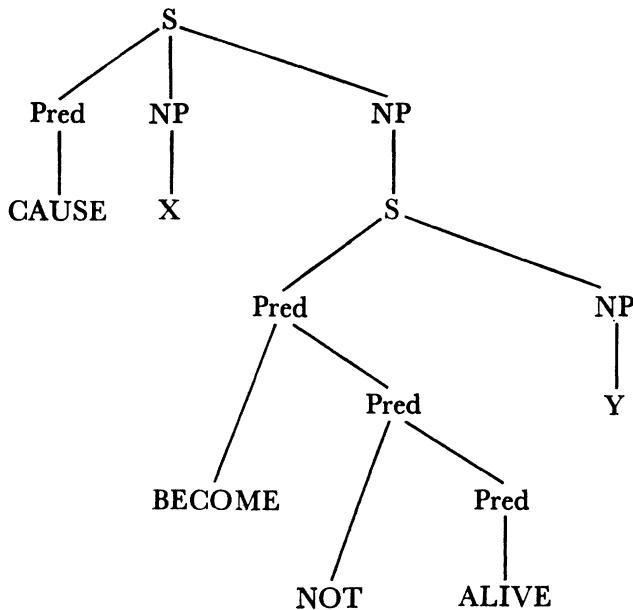
(191)



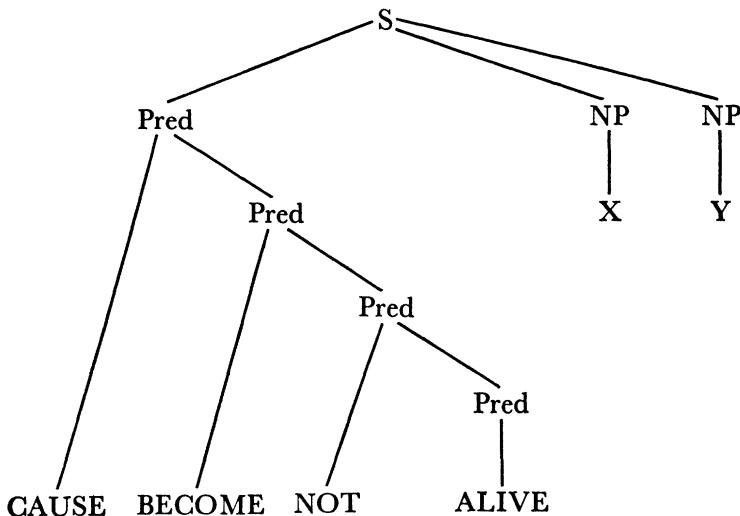
(192)



(193)



(194)



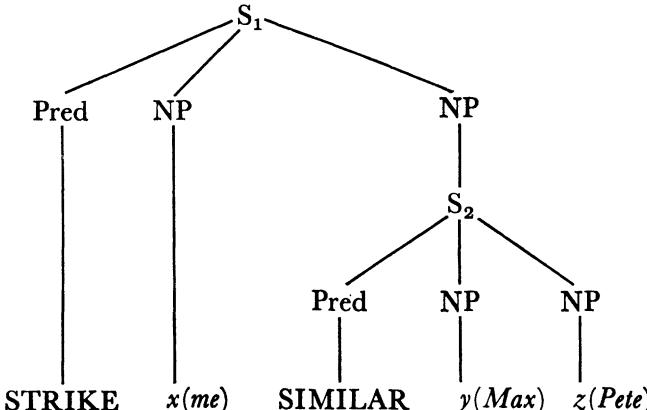
(194) is then the structure which, according to McCawley, underlies sentences of the form *x kill y*.

I have argued in Sections I and II that *remind* clauses have an underlying structure containing a main verb-complement sentence complex. Thus a sentence like:

(195) Max reminded me of Pete

would have, schematically, an underlying form like (196), where Predicates are capitalized and where I adopt for the first time McCawley's (1968b) notion that English has a VSO underlying order:

(196)



As I observed earlier in the discussion of Section I. B, some rule is necessary to convert structures that would otherwise end up as:

(197) Max struck me as resembling Pete

into those like (195). I referred to such an operation in passing as REMIND FORMATION, but without serious discussion or justification. Observe, however, that what REMIND FORMATION would have to do is simply take the predicate SIMILAR out of the complement clause of structures like (196) and attach it to STRIKE to yield a compound verb, *strikesimilar* = *strikelike* = *strikeresemble*. But this operation is just what McCawley's PREDICATE RAISING would do. In other words, there is no reason or need to propose a special rule of REMIND FORMATION to make the *strike-like analysis* yield the right Surface Structures. The needed operation is simply a special case of McCawley's PREDICATE RAISING.

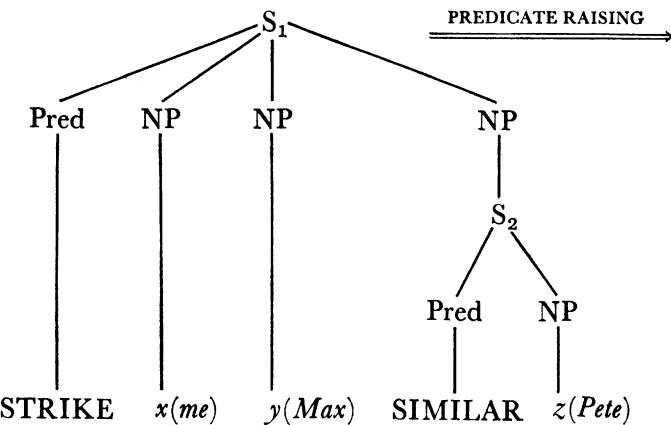
Thus, one way of looking at the justification given in Sections I and II for the *strike-like analysis* is that this provides considerable support for the existence of the rule of PREDICATE RAISING, in other words support for the existence in English of a general operation which generates compound predicates out of main clause verbs and the main verbs of their complement clauses.

In these terms, sentences like (195) have a derivation from structures like (196) which involves the rules RAISING, PREDICATE RAISING, PSYCH MOVEMENT, and SUBJECT FORMATION, where the latter is the rule which converts the underlying VSO order to the SVO order typical of English Surface Clauses. The derivation would proceed schematically as follows:

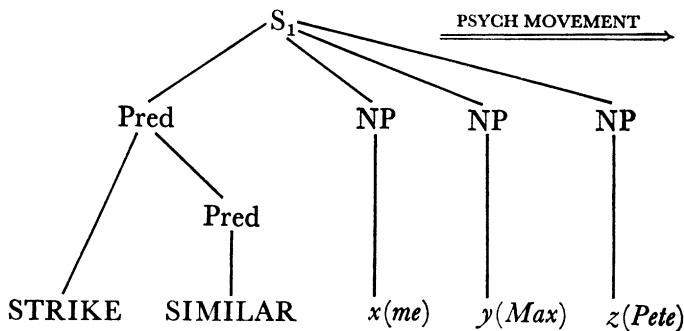
(198) = (196) RAISING →

ON THE SURFACE VERB 'REMIND'

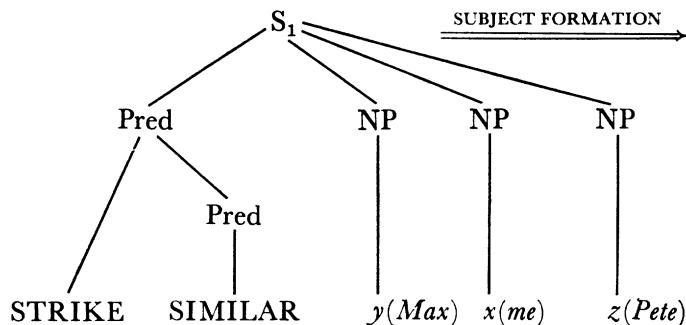
(199)



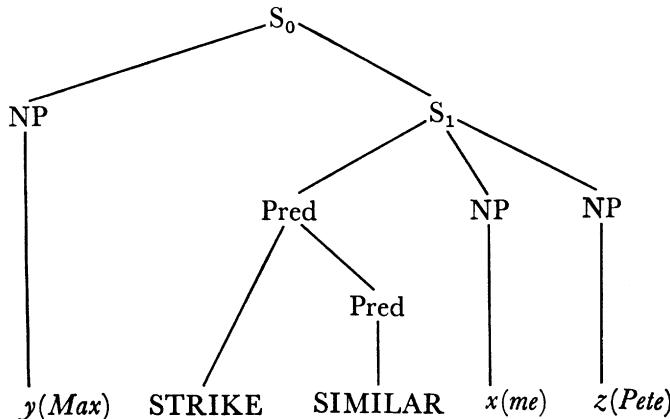
(200)



(201)



(202)



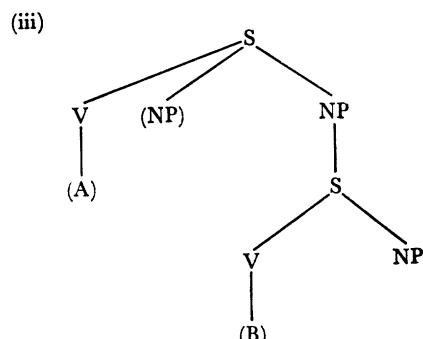
In the passage from (199) to (200), the node S_2 is destroyed by the operation of PREDICATE RAISING, which leaves it without any branching structure. That is, S_2 is pruned, as posited by Ross (1969). It is the operation of PSYCH MOVEMENT on (200) which guarantees that SUBJECT FORMATION will make a subject out of *Max*, rather than *me*, since this rule operates on the NP immediately following the verb. At some point, of course, the dictionary or lexicon must be used to provide the derived compound verb in (202) its phonological form, *remind*. I leave open here just when this takes place.

It goes without saying that there are features of the derivation just discussed which are as yet unaccounted for; for instance, the origin of the preposition *of* of *remind* clauses. A more serious difficulty is the absence of any *single word* multi-morpheme verb such as *strikesimilar*. This is, so far, an unexplained gap. However, this seems to be a general difficulty with McCawley's rule of PREDICATE RAISING. That is, although the structures produced by this rule are *compounds*, the clear cases of outputs seem to be monomorphemic. This fact requires analysis and explication.³⁷

³⁷ This problem may be related to the question of how to describe the properties of a verb like *put* in sentences such as:

- (i) Harry put the garbage in the can
- (ii) I put the cat under the table

Put clearly represents one of the causative verbs, but it is restricted to occurring with complements of locative type. This means that grammatical theory must be able to represent restrictions on the distribution of phonological lexical items in terms of the nature of the main verbs of their complement sentences. Given this fact, together with the postulated analysis of *remind* by way of PREDICATE RAISING, one can begin to see a suspicious duplication. That is, given underlying, semantic structures of the form:



Section IV Some Apparently Opposing Facts

In Sections I and II, I have given what I believe are many strong arguments supporting *the strike-like analysis* of *remind* clauses. In Section III, I have sketched the transformational derivation of such clauses from underlying main verb + complement sentence structures given in the prelexical form suggested by McCawley.

There are, however, some facts not yet considered which might easily be taken to throw doubt on the validity of *the strike-like analysis*. I have taken as supporting data all those facts which show that *remind* clauses manifest properties of underlying *strike* + Similarity Predicate complement sentence structures. Counterevidence would therefore arise if there were properties of the latter sentences which did not carry over to *remind* clauses. And there are apparently some such properties.

Similarity Predicates can occur with nominalized prepositional phrases of the form:

- (203) a. Max is similar to Pete in size
- b. Joe resembles you in weight
- c. Tom is like Bill in coloring and eyebrow texture

These can, moreover, occur embedded below *strike*:

- (204) a. Max struck me as being similar to Pete in size
- b. Joe struck me as resembling you in weight
- c. Tom struck me as being like Bill in coloring and eyebrow texture

Given *the strike-like analysis* then, one predicts that there should exist *remind* clauses of the type:

- (205) a. *Max reminded me of Pete in size
- b. *Joe reminded me of you in weight
- c. *Tom reminded me of Bill in coloring and eyebrow texture

there are now two different mechanisms by which the shape of the main verb which represents (A) in Surface Structure can be determined. One is by way of constraints like those between *put* and a locative complement, the other by way of PREDICATE RAISING analysis, as in the case of *remind*. That is, CAUSE is pronounced *put* if its complement verb is locative. PERCEIVE is pronounced *remind* if it undergoes PSYCH MOVEMENT, and PREDICATE RAISING with a Similarity Predicate. Since there is no obvious way to reduce the description of *put* to an analysis in terms of PREDICATE RAISING, one must consider reducing PREDICATE RAISING descriptions to those of the type involved in *put*. This would mean rejection of a rule of PREDICATE RAISING adjoining a complement verb to a main verb in favor of a rule deleting complement verbs given certain types of main verb. This proposal deserves consideration both as a way of eliminating the suspicious redundancy of two ways of stating main verb-complement verb restrictions and as a way of explaining why putative PREDICATE RAISING outputs, which would be formally compounds, never show up as phonological compounds. Such a revised analysis would, as far as I can see, be as harmonious with all of the facts discussed in this paper as the PREDICATE RAISING analysis. However, this proposal runs into considerable difficulties when complex cases involving more than one embedding are considered, such as McCawley's derivation of *die* from the semantic structure underlying *become not alive*. Under the deletion proposal, the lexical item *die* would have to be inserted in the position of the predicate underlying *become*, just in case the complement verbal has been deleted on both previous cycles. Since this process is recursive, the constraints between lexical items, underlying structures and deletion become very complex and peculiar indeed.

But this deduction from the analysis is uniformly incorrect, and on the face of it, such a prediction failure is a serious blow to the analysis I have been trying to support.

I think, however, that on somewhat deeper investigation, this real problem will be seen as no serious obstacle to the validation of *the strike-like analysis*. For while I cannot *explain* the facts in (205), it is possible to provide a way of stating them without abandoning the analysis, and this description turns out to be necessary to account for certain further facts about *remind* clauses. Thus I will claim that while (205) reveals an ad hoc property of *remind* clauses, it is not a fully ad hoc property, since the restriction there revealed does other work.

It seems on the surface that Similarity Predicates, and, more generally, symmetrical, reflexive predicates like *equivalent*, *identical*, etc. can occur with almost any kind of NP whatever, regardless of what these refer to. This seems somewhat suspicious, because, intuitively, what are similar, identical, or not are only the properties of things. It is notable, therefore, that in general there are paraphrase sentences for Similarity Predicate sentences whose terms are not superficially property designators where the NP terms do refer to properties. Thus we can find pairs like:

- (206) a. Max is similar to George in the way he treats girls
- b. the way Max treats girls is similar to the way George treats girls
- (207) a. Max resembles Pete in coloring
- b. Max's coloring resembles Pete's coloring
- (208) a. this proposal is equivalent to that proposal in empirical content
- b. the empirical content of this proposal is equivalent to the empirical content of that proposal

No method of relating such sentence pairs grammatically has, to my knowledge, ever been proposed, but clearly an adequate grammar must contain devices for accomplishing just this.³⁸

Let us distinguish a-type from b-type sentences in examples like (206)–(208) as *Entity Sentences* and *Property Sentences*, respectively. It seems, then, that one must make at least the following distinction. For some kinds of properties, Similarity Predicate sentences may be of either the Entity or Property varieties. But for some properties, Entity form is required. Thus, in the former class are properties represented

³⁸ J. R. Ross (personal communication) observes that the rules involved in relating pairs like (206)–(208) in the text are essentially the same as those involved in pairs including *by* constructions like:

- (i) a. Harry's calling Mary annoyed me
- b. Harry annoyed me by calling Mary
- (ii) a. Harry's leaving early bothered me
- b. Harry bothered me by leaving early

Similarly, the same type of process seems involved in such pairs as:

- (iii) a. Mary's flashing smile brightened up the party
- b. Mary brightened up the party with her flashing smile
- (iv) a. Max's discovery excited everyone
- b. Max excited everyone with his discovery

Hence the rules involved seem to be a quite general and pervasive feature of English grammar.

by such words as *coloring*, *gestures*, *voice*, *speech*, *mannerisms*, *accent*, *expression*. In the latter are *size*, *height*, *weight*, *length*, etc. Hence:

- (209) a. Max resembles Pete in weight
- b. *Max's weight resembles Pete's weight
- (210) a. the Queen Mary is similar to the New Jersey in gross tonnage
- b. *the Queen Mary's gross tonnage is similar to the New Jersey's gross tonnage

But:

- (211) a. the saint resembled Louis in mannerisms
- b. the saint's mannerisms resembled Louis's mannerisms

There is, evidently, a semantic generalization about which properties require Entity sentence form, namely, just those which are abstract, and not directly perceptible, and which are mathematically measurable.

The distinction between examples like (209) and (210), on the one hand, and (211), on the other, carries over when Similarity Predicates are embedded below *strike*:

- (212) a. it struck me that Max resembled Pete in weight
- b. *it struck me that Max's weight resembled Pete's weight
- (213) a. it struck me that the Queen Mary was similar to the New Jersey in gross tonnage
- b. *the Queen Mary's gross tonnage struck me as being similar to the New Jersey's gross tonnage
- (214) a. it struck me that the saint resembled Louis in mannerisms
- b. the saint's mannerisms struck me as resembling Louis's mannerisms

However, as already observed, the grammatical variants in (212)–(214) do not have *remind* analogues. If we replace the sentences in (212)–(214) by the "analogous" *remind* forms, all of them, except the analogue to (214b), will be ill-formed. This is an apparent disconfirmation of our analysis.

However, one can, without great difficulty, describe the facts as follows, while maintaining the analysis. As described in Section III, the difference between sentences like (212)–(214) and their potential *remind* analogues devolves on the optional application of the rule of PREDICATE RAISING. The facts indicate, then, that no Similarity Predicate can undergo *both* PREDICATE RAISING and that sequence of rules which converts Property Sentences into Entity Sentences. This is a kind of incompatibility between rule applications in a derivation which must be recognized as a general feature of grammar.³⁹ Suppose we refer to the sequence of rules in question

³⁹ For an obvious example of rule incompatibilities in a grammar, cf. the discussion in Postal (1968), where it is shown how a condition of incompatibility between PASSIVE and the rule which positions indirect objects can serve to eliminate the duplication of indirect object positioning rules found necessary by Fillmore (1965) on the basis of his observation that *to* indirect objects have two passives, but *for* indirect objects only one.

jointly as PROPERTY FACTORING. Then it is claimed that English contains the derivational constraint:

- (215) No Similarity Predicate may undergo both PREDICATE RAISING and PROPERTY FACTORING⁴⁰

(215) is to be regarded as a filter which marks any sentence arising through a derivation which violates (215) as ill-formed. Hence, it will correctly mark sentences like (205) as ill-formed.

Now it might be claimed that (215) is a special ad hoc addition to the grammar required only by *the strike-like analysis* of *remind* sentences. That is, it could be argued that (215) is an act of desperation forced by the incompatibility of our analysis with the ungrammaticality of sentences like (205). First of all, even if this were the case, it seems to me that the result is acceptable. That is, *the strike-like analysis* is so strongly supported by facts like those given in Sections I and II, that (215) would be a small price to pay for maintaining it in the face of facts like (205). There are, however, properties of *remind* clauses which show that (215) is not as ad hoc as it seems.

As observed earlier, in Similarity Predicate clauses, properties like that represented by *weight*, etc. must be represented by structures which result from PROPERTY FACTORING, unlike those represented by words like *gestures*, etc. for which this is optional. Let us represent this as:

- (216) PROPERTY FACTORING is obligatory in Similarity Predicate clauses for abstract, measurable nominalizations

Notice, then, that given *the strike-like analysis*, together with (215) and (216), we predict that no well-formed *remind* clause can contain S nominals of the type *John's weight*, *Pete's height*, etc. although nothing blocks the occurrence as *remind* clause S of nominals like *John's gestures*, *Pete's coloring*, etc. But these predictions are correct:

- (217) a. *Pete's height reminds me of Joe's height
 b. *Pete's length reminded everyone of the box's length
 c. *Pete's weight reminded everyone of Max's mass

⁴⁰ Actually, this is too general. It really only governs those occurrences of PROPERTY FACTORING which yield nominalizations, not those which yield full clauses. Hence while there is a contrast in (i):

- (i) a. John's gestures are similar to Pete's gestures
 b. John is similar to Pete in gestures
 c. John's gestures remind me of Pete's gestures
 d. *John reminds me of Pete in gestures

there is none in (ii):

- (ii) a. the way John gesticulates is similar to the way Pete gesticulates
 b. John is similar to Pete in the way he gesticulates
 c. the way John gesticulates reminds me of the way Pete gesticulates
 d. John reminds me of Pete in the way he gesticulates

The ultimate formulation of the constraint in (215) must thus take account of the difference between structures like *in gestures* and *in the way he gesticulates*.

- (218) a. Pete's gestures reminded me of Harry's mannerisms
 b. Pete's coloring reminded me of Lucy's coloring
 c. Pete's accent reminded me of Herbie's accent

The ill-formedness of (217) is predicted as follows. (216) requires that NP like those in the subject of (217) undergo PROPERTY FACTORING when they occur in Similarity Predicate clauses. *The strike-like analysis* specifies that structures like (217) can only be derived from underlying representations in which the S NP of (217) are in Similarity Predicate clauses. However, given *the strike-like analysis*, Surface forms like (217) can only be derived by application of PREDICATE RAISING. Therefore, Surface strings like (217) can only be derived by operation of both PROPERTY FACTORING and PREDICATE RAISING to the same Similarity Predicate. But (215) predicts that all such derivations will yield ill-formed examples.

Consequently, while initially (215) seems totally ad hoc, it turns out that this principle plays a real explanatory role in the grammar. That is, it shows how the peculiar properties of sentences like (217) are automatic consequences of the principle (216), required for Similarity Predicates. Further, it explains why Similarity Predicate clauses have both Entity and Property sentence variants, while *remind* clauses have only Property sentence versions. That is, under the analysis suggested here, (215) explains in addition the contrast between:

- (219) a. Harry's gestures struck me as being similar to Pete's gestures
 b. Harry struck me as being similar to Pete in gestures

and:

- (220) a. Harry's gestures reminded me of Pete's gestures
 b. *Harry reminded me of Pete in gestures

The ill-formedness of (220b) and all similar examples is an otherwise totally mysterious fact about *remind* clauses, especially in view of the fact noted earlier that *remind* is in general almost selectionally free with respect to its S NP. Consequently, *the strike-like analysis* serves to show that the facts in (205), and (217)–(220) are all functions of the two underlying principles (215) and (216).

Still, one would be happier about (215) if it were not so limited. That is, while stated quite generally and in a way which, in particular, does not mention the lexical item *remind*, all data supporting (215) so far in fact derives exclusively from the properties of clauses containing this single lexical item. Hence suspicions about the validity of (215) are well-founded, unless data independent of the lexical item *remind* can be found which bears positively on (215). That is, we need to find other lexical items whose behavior is partly predicted correctly by (215).

Fortunately, such items exist. One finds sentences such as:

- (221) a. this function's value is identical to that function's value
 b. this function is identical to that function in value

Both Entity and Property sentence variants are well-formed. There exist as well, however, sentences with the verb *identify*:

- (222) a. I identified the value of this function with the value of that function
- b. I identified this function's value with that function's value

Now it is right, I think, to claim that *identify* in sentences like (222) arises from a Main Verb + Complement Sentence structure in which the verbal of the complement is the *identical* occurring in sentences like (221). The main verb is probably some variety of "judging" element.⁴¹ Naturally, the derivation will precede by way of application of PREDICATE RAISING. If this were the case, and if these derivations were subject to constraints analogous to (215), one would predict that sentences with *identify* could only have Property form. But this is true:

- (223) a. I identified the value of this function with the value of that function
- b. *I identified this function with that function in value

A parallel argument can be given for *equate* and $\left\{ \begin{array}{l} \text{equal} \\ \text{equivalent} \end{array} \right\}$:

- (224) a. Harry's proposal's value is equivalent to your proposal's value
- b. Harry's proposal is equivalent to your proposal in value
- (225) a. I equated Harry's proposal's value with your proposal's value
- b. *I equated Harry's proposal to your proposal in value

Just so for *differ*, *differentiate*:

- (226) a. Harry's proposal's value differs from your proposal's value
- b. Harry's proposal differs from your proposal in value
- (227) a. I differentiated Harry's proposal's value from your proposal's value
- b. *I differentiated Harry's proposal from your proposal in value

A parallel pair is *distinct* and *distinguish*:

- (228) a. Harry's proposal's meaning is distinct from your proposal's meaning
- b. Harry's proposal is distinct from your proposal in meaning
- (229) a. I distinguished Harry's proposal's meaning from your proposal's meaning
- b. *I distinguished Harry's proposal from your proposal in meaning

Another such pair is *connected* and *connect*:

- (230) a. my idea's origin is connected to your idea's origin
- b. my idea is connected to your idea in origin
- (231) a. I connected my idea's origin with your idea's origin
- b. *I connected my idea to your idea in origin

⁴¹ Or, there may be an ambiguity with one reading such that the main verb has a meaning like the term *set*, used in discussions of computer programming, referring to the specification of a variable at a certain point as some particular constant. These remarks carry over to the following examples as well.

Finally, the same properties hold for *related* and *relate*:

- (232) a. this invention's cost is related to that invention's cost
- b. this invention is related to that invention in cost
- (233) a. I related this invention's cost to that invention's cost
- b. *I related this invention to that invention in cost

These facts show that (215) is both correct and general, that is, that it is not limited in coverage to *remind* clauses. In fact, it is obviously more general than I have stated. A correct formulation should refer not to Similarity Predicate per se but to the wider class of symmetrical predicates including Similarity Predicates, *identical*, *equivalent*, *different*, *related*, etc. Thus the facts in (223)–(233) show that there is indeed a valid constraint in English blocking the joint application of PREDICATE RAISING and PROPERTY FACTORING to the same predicate in the course of a derivation. This being the case, far from being an ad hoc or desperation device, (215), or rather a correct, more general reformulation of it, is a constraint which must be part of the grammar of English, no matter how *remind* clauses are described. Consequently, the facts in (215) with which we began this section can in no sense be looked upon as throwing any doubt on the validity of *the strike-like analysis*. Rather, they should only be taken as indicating the existence of the previously unsuspected regularity indicated roughly in (215), as well as indicating the need for those principles I have tagged PROPERTY FACTORING. These latter principles I have, of course, not been able to give any serious account of here.⁴²

Section V Theoretical Implications

A. Remarks

In Sections I, II, and IV a variety of arguments were presented, which, taken together, show unambiguously that Surface *remind* clauses are derived by way of *the strike-like analysis*. In Section III, I sketched the transformational mappings involved. In the present section, I will consider the theoretical ramifications of this conclusion about the derivation of the Surface verb *remind*.

One might sum up the result of previous sections as follows:

- (234) There is no Deep verb *remind*

That is:

- (235) The Surface verb *remind* does not correspond to any single verbal element in those structures which are the input to transformational rules

⁴² I note, however, that these principles have a good deal in common with the operation of what has been called *conjunction reduction*.

Consequently:

- (236) In general, those structures which provide the input to transformational rules are not defined even in part by a relation to Surface Structures which is "lexical item preserving"

That is, one *cannot* assume that:

- (237) the lexical items occurring in the Surface Structure of a sentence provide a minimal skeleton out of which its "Deep Structure" is formed

To understand the implications of these facts, it will be well to consider general aspects of the development of the generative-transformational theory of grammatical structure. In particular, I am concerned with what (234)–(237) show about the role of the lexicon in a grammar, as well as with certain more general issues of which this question is a part.

The development of generative-transformational grammar began in the early 1950's with the attempt of Chomsky to provide a generative formulation for some of the ideas of Zellig Harris. The early growth of transformational theory is, from the point of view of current concerns at least, quite strange, although this strangeness is understandable if one considers the state of linguistic theory in the early 1950's and the fact that the source of part of the development of generative grammar lay in Harris's work and conception of linguistic data. The strangeness lies in the fact that for some time no specific account of semantics was attempted. It was assumed that there was an independent syntax which was the basis of a possible semantic description, relegated to the future. This is clearly Chomsky's position throughout the first decade (1953–63) of work in this genre (cf., for example, Chapter 9 of Chomsky 1957).

In 1963, a significant change took place in generative-transformational thinking, with the development in the work of Katz and Fodor (1963) of a semantic theory which was linked to transformational grammar. While the notion that there is an autonomous syntax on which semantic description must be based was maintained, indeed elaborated, a conception of semantic structure itself emerged and its relation to grammatical form began to be specified. Largely under the stimulation of continued work by Katz,⁴³ there evolved a conception of transformational grammar in which a semantic component was accorded a central place. This conception, arrived at partially in Katz and Postal (1964) and more or less fully specified in Chomsky (1965), I will refer to as *Classical Transformational Theory*.

In this view, there are three components in a grammar, one, the syntactic, being generatively basic in the sense that the other two components, semantic and phonological, operate on its output. The syntactic component was itself regarded as binary, containing a Base Component, which generated Deep Structures, and a Transfor-

⁴³ The relevant items include Katz (1964a, 1964b, 1966, 1967a, 1967b, 1968, to appear).

tional Component, which mapped Deep Structures onto Surface Structures. The claim was that Deep Structures were the input to the Semantic Component, and Surface Structures the input to the Phonological Component. In this sense, then, transformational operations were regarded as semantically "irrelevant", in a restricted way.

The Semantic Component was, according to Katz, assumed to contain a set of Projection Rules which mapped Deep Structures onto Semantic Representations, or sets of *Readings* for sentences and for the constituents which make them up. Under Katz's conception, Projection Rules require from Deep Structures the inherent meanings of lexical items which are included in their terminal elements, together with a specification of the various "Deep" grammatical relations holding between the constituents of which these lexical items are terminal representatives. A first key point is that Katz-type Projection Rules are assumed to be defined minimally on lexical item-sized chunks of meaning, and to operate successively to derive "larger" meanings for macro-constituents up to the sentence level. A second feature is that, for Katz, individual Readings consist of *sets* of semantic elements, so-called *Semantic Markers*, some of which are atomic, but some of which have a complex internal structure.⁴⁴ In this regard, then, Katz's semantic representations contrast with syntactic structures, of either the Deep Structure, Surface Structure, or intermediate structure sort, since these are without exception in transformational theories *trees* of elements, that is, labelled bracketings of, rather than sets of them. A third point is that Katzian Projection Rules are assumed to be quite distinct from grammatical transformations in structure, operation, and output. Where a transformation is a rule which takes a tree as input and gives a tree as output, a Projection Rule, in Katz's sense, takes a (subpart of a) Deep Structure tree with the meanings of lexical items specified in terms of Semantic Markers as input and gives as output a (possibly, null, possibly unary) set of Readings, each consisting of a set of Semantic Markers. A final relevant point about Classical Transformational Theory is that in it all of the rules of the transformational component are "post-lexical", that is, all operate at a point after Deep Structures have already been fully specified by the insertion of lexical items like *dog*, *boy*, *pick up*, *fall*, *fat*, *intelligent*, etc.⁴⁵

Overall, then, Classical Transformational Theory recognizes the following significantly different levels of linguistic representation:

- (238) a. Semantic Representation = sets of Readings
- b. Deep Structure

⁴⁴ The fact that some markers have a complex internal structure, one which includes a bracketing, makes the claim that Readings are simply sets of markers of dubious import. That is, it is not clear what arguments could be given for taking this view, rather than the view that a Reading is a single complex, bracketed object, as in the view of Generative Semantics, which will be discussed below. This is a crucial matter, since taking the latter point of view makes Readings, i.e., semantic objects, much more like syntactic objects, which are labelled bracketings.

⁴⁵ One point where there is not full specification in Classical terms concerns *suppletions* like *go/went*, where the proper suppletive forms are often determined by application of post-Deep Structure transformations. No explicit theory of how this is to be described was part of the Classical Theory.

- c. Surface Structure
- d. Phonological Representation⁴⁶
- e. Phonetic Representation

Moreover, these levels are generated and related by at least the following distinct types of grammatical rules:

- (239) a. Base Syntactic Rules, whose function is to generate Deep Structures, or at least their nonlexical skeletons
- b. Grammatical Transformations, whose function is to map Deep Structures onto Surface Structures
- c. Projection Rules, whose function is to map Deep Structures onto sets of Readings
- d. Phonological Rules, whose function is to map Surface Structures onto Phonetic Representations

Almost everyone working within the overall generative-transformational framework now seems convinced in one way or another that Classical Theory is incorrect, and incorrect in two ways. In the most minor sense, it is inadequate in that it has to be *supplemented* by further types of apparatus, for example, by Output Conditions of the sort discussed by Ross (1967) and Perlmutter (1968). The latter provides what I think is overwhelming evidence for their inclusion in a grammar. More seriously, however, there is roughly equal conviction that at least some of the assumptions of the Classical Theory are wrong. Here, however, there is a great division of opinion with much disagreement as to just what is wrong, and as to how the theory should be reconstructed in a more adequate fashion.

To the present writer, the significant proposals are those of Bach (1968), Gruber (1967), Lakoff (1968a, to appear), and McCawley (1967, 1968a, 1968b, 1968c, 1968d, 1968e, 1969, to appear). They and others have arrived at a conception of grammatical structure in which the major revision lies in the relation between syntax and semantics, and how semantic representations are to be defined and generated. One can best describe this new approach which has, rather unhappily,⁴⁷ come to be called *Generative Semantics*, with the help of some terminology. In the Classical Framework, the notion Deep Structure is substantively defined by the output of the Base Rules, together with general conditions which require that Deep Structures be suitable for defining "Deep" grammatical relations and for specifying selectional restrictions. Suppose, however, one defines Deep Structure in a way which is largely substantively neutral, as follows: The Deep Structure of a sentence is that constituent tree which is input to

⁴⁶ One might, of course, assume that the Phonological Representation is simply a proper part of the Surface Structure.

⁴⁷ Unhappily, because (i) any theory of semantics must be generative in the sense that it must provide a formal means of generating the infinite class of semantic representations and (ii) what is crucial about Generative Semantics is its claims of the *homogeneity* of semantic and syntactic representations and the homogeneity of the mapping between them.

the grammatical transformations. Suppose further one defines the notion Semantic Representation as that level of structure concerned with specifying the meaning of a sentence. The proposal of Bach, Gruber, Lakoff, McCawley and others in this approach is, then, just this:

- (240) The Deep Structure of a sentence (in the neutral sense just given) is its Semantic Representation⁴⁸

This view has, *inter alia*, the following consequences and corollaries:

- (241) a. The Base Component of the grammar must generate Semantic Representations directly
- b. There are no Projection Rules
- c. Semantic Representations must be trees, rather than sets of markers
- d. There must be transformations operating on "pre-lexical" structures

The key feature of this proposal is that syntactic and semantic structures are taken to be homogeneous enough for the mapping between them to be accomplished by a single type of rule,⁴⁹ transformations. The homogeneity is, moreover, substantively assumed to mean that both types of structures are representable as labelled bracketings, i.e., trees.

If there is a homogeneous mapping of Semantic Representations onto Surface Structures, it follows, as stated in (241d), that some transformational rules will operate before lexical items, that is, before the phonological forms and the markings for arbitrary irregularities, have been inserted into representations. These "pre-lexical" transformations will be operating intuitively in part of that domain where Projection Rules were thought to operate in Classical terms. That is, pre-lexical transformations, in the new framework, will mediate between structures whose levels of abstractness correspond to Semantic Representations and Deep Structures in the Classical Theory.⁵⁰

B. Remind, *The Classical Theory, and Generative Semantics*

In terms of the account in part A, one can understand the relevance of the conclusions reached in earlier sections. (234)–(237) indicate that the correct analysis of *remind*

⁴⁸ Actually, it is clearly the case, as assumed by Lakoff (to appear), that the input to the transformations is only a subpart of the Semantic Representation; in particular, a large body of structure providing in some sense the *presuppositions* of a sentence may not be in any natural sense input to transformations. However, some presuppositions are. For instance, *most* restrictive relative clauses are presuppositional in nature. (But those in Predicate Nominals are not.)

⁴⁹ If one identifies the single type of rule to be found in a homogeneous Generative Semantic theory with traditional transformations, then the theory will clearly be inadequate. Rather, it seems, as Lakoff (to appear) has insightfully observed, that the general type of rule consists of *Derivational Constraints*, where these are conditions on the possible trees in a derivation. Transformations, as he observes, can then be treated as *Local Derivational Constraints*, where by Local one refers to constraints on successive pairs of trees in a derivation. The degree to which the claim of homogeneity can be taken seriously in these terms will depend on the tightness with which the class of Derivational Constraints, both Local and Global, can be constrained.

⁵⁰ They will, of course, have a wider field of operation, since, as we have seen, pre-lexical transformations like RAISING were also taken in Classical terms to be accomplishing part of the mapping between Deep and Surface Structures.

clauses is simply incompatible with the Classical Theory of transformational grammar. In particular, it is incompatible with its assumption that there is a level of Deep Structure which is *distinct from* the level of Semantic Representation and which contains in it structures corresponding directly to the lexical items of the Surface Structure. We have seen that in those structures which are input to the transformations deriving Surface *remind* clauses, there can be no single element corresponding to the lexical item *remind*, since such clauses are derived from complex Main Verb + Complement Sentence structures.

Consider the relation between this fact and the claim made by the Classical Theory that there exists an interpretive semantic component containing a special type of grammatical mapping, namely, Projection Rules. While the validity of the *strike-like analysis* of *remind* clauses does not, as such, show that this assumption is necessarily incorrect, it provides a crushing blow to its *plausibility*. The plausibility of such an assumption lay in the view that there was some *natural* level of structure containing syntactic atoms, i.e., lexical morphemes, which could be assigned meanings. That is, the plausibility depended on there being a natural level of structure to provide just those elements which would serve as the units provided with meaning by dictionary entries. The Projection Rules then were to show how, given information about grammatical relations, these meaning "molecules" were combined into the macro-meanings of larger and larger constituents.

But the analysis of *remind* constructions shows that no such level exists for *remind* clauses. The lexical item *remind* cannot be inserted into representations at some major juncture in the mapping of Semantic Representations onto Surface Structures which is such as to define grammatical relations and contain all other lexical items. *Remind* cannot be inserted until after certain definite transformational rules have already operated, in particular RAISING and PREDICATE RAISING. Hence, there is no basis for assuming an independently defined level of structure which is suitable to serve as the input to the putative Projection Rules. The claim of the Classical Theory that there is a basic juncture in the process of relating Readings to Surface Structures is seen to have no support. As it stands, it is an arbitrary assumption. There is no known evidence for it. It is notable that in the literature on interpretive semantics this assumption is not defended but is more or less taken as a necessary assumption. But it is certainly not true that it is a necessary assumption.

Moreover, given the *strike-like analysis*, it is quite unclear as to what principles could, in the face of the breakdown of the lexical item principle, determine the primitive semantic clusters which serve as the *meaning molecules* which form the input to Projection Rules. Anyone who continues to claim that there exist such Projection Rules must find just such a principle, a principle hitherto implicitly provided by the assumption that lexical items provide the boxes in which the semantic molecules are found. Supporters of interpretive semantics must state a principle alternative to the view that the meaning molecules upon which Projection Rules work are the lexically

listed Readings of lexical items like *dog*, *beard*, *good*, *fat*, *chew*, *chase*, *kill*, and *remind*. Needless to say, no such principle is in sight.

From the point of view of Generative Semantics, the absence of such a principle is expected. Since there are no Projection Rules in this view, there is no need for a semantic principle to determine appropriate semantic molecules from the semantic atoms. Readings will be constructed directly out of the set of primitive predicates and indices defining semantic NP on the basis of whatever turn out to be the appropriate organizational principles. The organization of these structures into lexical item-sized constituents of meaning is carried out by the mapping of Semantic Representations into phonetics, i.e., by the (relatively) homogeneous grammar. But the only role played by the derived, molecule-sized chunks of meaning assigned to lexical items is in the determination of how particular Readings can be represented phonetically. That is, the organization of semantic primitives into lexical molecules is of no relevance to semantic description per se.⁵¹ Because of this, the destruction of the lexical item principle for defining the semantic molecules that are needed as input to Projection Rules in the Classical Scheme provides indirect, though relatively strong, support for the view of Generative Semantics. Notice, however, that the questions of inadequacy of the Classical Theory and of the truth of Generative Semantics, are independent. The former has been demonstrated sufficiently, both above and in several others places.⁵² The latter naturally remains open.

The support provided for Generative Semantics by the *strike-like analysis* can and should be looked at in another way. Let us assume for English a specification of a large set of Surface Structures. That is, assume that we have some good idea of what the Surface Structures of many sentences are like. Then one can consider arguments justifying the existence of certain transformational rules. The literature of the last dozen years contains an array of such arguments. Each transformational rule which is justified in turn justifies the existence of a level of syntactic structure, that is, some class of trees, distinct from the Surface Structure and, in an obvious sense, "more abstract" than Surface Structure. Given a transformation T_i , with input structure R_i and output structure R_{i+1} , I shall speak of R_i as a *Remote Structure* (with respect to R_{i+1}). Hence, a set of justified transformations justifies a sequence of successively more abstract Remote Structures. For example, if two transformations of genitive NP preposing and pronoun stem deletion after genitives can be justified, Surface Structures like:

(242) I washed Harry's

will have successively more remote Structures like:

(243) I washed Harry's one

⁵¹ For discussion of the role of lexical insertion in a grammar of this type, cf. especially McCawley (1968a) and Morgan (1968).

⁵² Cf. Bach (1968), Lakoff (1968b, to appear), McCawley (1968c, 1968d).

(244) I washed the one of Harry's

If then it could further be argued that constructions like *of Harry's* in sentences like (244) are derived from reduced relative clauses (say with the verb *have*), (244) might have a more Remote Structure:

(245) I washed the one which Harry had

etc.

Transformations have usually been wholly or largely justified on assumptions independent of hypotheses about the Semantic Representations of sentences. Consequently, to a large extent, the Remote Structures which have been justified have a "directionality of abstractness" which is *defined independently* of assumptions about Semantic Representation. By the term in quotes in the last sentence, I mean the following. For a particular sentence (that is, Surface Structure) whose derivation contains a single application of each of a set of transformations T_1 , T_2 , T_3 there are three levels of Remote Structure R_1 , R_2 , R_3 . Assuming that T_1-T_3 are extrinsically ordered, or at least that they necessarily apply always in the assigned order, R_1 provides in a clear sense the most abstract Remote Structure, from the point of view of Surface Structure. That is:

(246) $R_1 \xrightarrow{\text{by } T_1} R_2 \xrightarrow{\text{by } T_2} R_3 \xrightarrow{\text{by } T_3} \text{Surface Structure}$

Now, by saying that the "directionality of abstractness" is defined independently of assumptions about Semantic Representation, I mean that it is not a logical truth in any sense that in general R_3 , R_2 , and R_1 will provide successively closer approximations to structures which are semantically relevant than the Surface Structure will. Consequently, if it is in fact true that for arbitrary sentences the various sequences R_3-R_1 , etc. do come, in a clear sense, closer and closer to Semantic Representation, this is a fundamental empirical fact about human language, and a fact of the utmost importance. For it shows that the abstract syntactic structures uncovered by transformational analysis are not, as they might be, semantically arbitrary, but rather are in a direct way steps along the path of the mapping, known to exist, between Semantic Representations and Surface Structures.

I framed the above remarks conditionally. There is, however, no need to do this. For it can be shown that the transformations which have been discussed and accepted for English are overwhelmingly such that successively more Remote Structures are increasingly Semantic-like. I will illustrate this with a few examples. Consider sentences like:

(247) stab yourself

It is a celebrated argument in transformational work that such sentences must be derived from structures *from which a second person subject is deleted*. One argument for this

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is the peculiar restriction on the distribution of reflexive forms in such imperatives, namely, that only second person reflexives are allowed:

- (248) a. *stab himself
b. *stab myself
c. *stab themselves

This distribution follows automatically, given the general conditions on reflexives, that is, conditions valid for sentences other than subjectless imperatives,⁵³ from the assumption of a Remote Structure of the schematic form:

- (249) you stab yourself

Notice that there is nothing in this argument which assumes anything about the meaning of sentences like (247). However, a consideration of the meaning of such sentences shows that structures like (249) provide a closer approximation to a Semantically relevant structure than do those like the Surface Structure of (247) itself. That is, semantically, (247) involves a binary predicate⁵⁴ relating two terms, and these are represented by the two NP in the Remote Structure (249). Of course, (249) is still very far from a structure which could represent the meaning of (247), but then only one jump in Remote Structure has been considered, that mediated by the transformational rule which deletes the subjects of imperatives.

For a second example, consider the rule at work in sentences like (250a):

- (250) a. Harry wants to kiss Greta
b. Harry wants Max to kiss Greta

It is well known that (250a) must be derived by a rule which deletes the subject of the infinitival clause, a rule sometimes called EQUI-NP DELETION. This rule operates subject to the condition that the subject be a presupposed coreferent of the

⁵³ Completely parallel arguments can be given on the basis of other forms which involve "agreement" with subject NP. These include the form *own*, and expressions such as *blink NP's eyes*:

- (i) a. Harry visited<sup>{his
*my}</sup> own father
b. you visited<sup>{your
*my}</sup> own father
(ii) a. Harry blinked<sup>{his
*my}</sup> eyes
b. you blinked<sup>{your
*my}</sup> eyes

But:

- (iii) a. visit your own father
b. *visit my own father
(iv) a. blink your eyes
b. *blink my eyes

⁵⁴ This is actually only a gross approximation. There is no doubt that on a deeper level *stab X* must be further analyzed into something like "pierce the surface of X with a pointed instrument" or the like.

subject of *want*. I have discussed such derivations extensively in Postal (to appear a). Such a derivation provides a sentence like (250a) with a Remote Structure like:

- (251) Harry_i wants Harry_i to kiss Greta

where identically subscripted lexical items serve as a gross and inadequate way of indicating nominal coreference.⁵⁵ The arguments for an analysis like (251) of sentences like (250a) are many. One is the parallelism with sentences like (250b), which shows that *want* takes infinitival complements with full sentence form. Hence, to block complement subjects which are coreferents of the main clause subject would require an ad hoc statement. Similarly, the possibility of reflexive forms and *own* possessives in such subjectless complements reveals the existence of underlying subjects:

- (252) a. Harry wants to justify himself
 b. Harry wants to visit his own father

since these forms are in general subject to the constraint that a coreferent in the same clause must precede them. Other arguments include the fact that the deletion analysis from Remote Structures like (251) explains such gaps as:

- (253) *I want me to go

Thus the analysis is established without appeal to semantic facts. Again, however, we find that the Remote Structure provides a closer approximation to a semantic representation than does the Surface Structure. For clearly, the meaning of (250a) will involve a relation between an individual, Harry_i, and some hypothetical state of affairs described by the statement Harry_i kiss Greta, just as (250b) involves a relation between this individual and a state of affairs described by the statement Max kiss Greta. But in such representations there are at least three terms, two of which happen to be coreferents in (251). The structure in (251) provides three NP to correspond to these terms, while (250a) does not.

Other obvious examples of the principle being illustrated would include the rules which deform relative clauses yielding structures like (254a) from those like (254b):

- (254) a. the boy who is sitting on the corner
 b. the boy sitting on the corner

also the rules which yield preposed adjectives by deforming structures like (255a) into those like (255b):

- (255) a. the rocket which is unstable
 b. the unstable rocket

⁵⁵ A more natural, but still only diagrammatic, method might be an adaptation of the diagrammatic approach of Geach (1962, 137), yielding something like the following for (251):

(i) [i] want [i] to kiss Greta
 └ Harry ┘

and also the rules which yield "gapped" structures like (256a) from those like (256b) (cf. Ross, to appear a):

- (256) a. Morton singled to left and Tom to right
- b. Morton singled to left and Tom singled to right

There is thus ample basis for the claim that it is an empirical fact that as one follows transformational derivations in reverse, one moves in a direction of semantic relevance, not in some arbitrary direction. This, I emphasize again, is an empirical fact, and one which does *not* follow as such from the definitions of transformation and transformational derivation.

Consider in this light *the strike-like analysis* of *remind* clauses. A vast array of evidence has been presented which shows that such clauses involve an underlying Main Verb + Complement Sentence structure, where the main verb is a perceptual verbal like *strike*, and the embedded verbal a Similarity Predicate. The evidence for this was of a nonsemantic nature. But, as noted almost at the outset, just such a structure is required to account for the semantic interpretation of *remind* clauses. Semantically, these do not involve a single ternary predicate, but rather a binary predicate relating an individual to a perceived state of affairs, where the state of affairs is itself representable as involving a binary predicate of similarity. Thus the structure appropriate for representing the meaning of *remind* clauses turns out to provide the appropriate syntactic basis for the derivation of these clauses. Consequently, *the strike-like analysis* itself is a very clear and striking case of the fact that the directionality of abstractness justifiable in transformational derivations is not arbitrary but rather oriented toward structures of increasing semantic relevance.

Now, although this state of affairs is unexplained by the definitions of transformation and transformational derivation per se, it is a consequence of the assumptions of Generative Semantics, since in this view the input to the transformations is (a subpart of) the Semantic Representation. Consequently, every step in reverse along the route of transformational derivation from Surface Structure is necessarily, in this view, a step toward the Semantic Representation.⁵⁶

It might be claimed that the same prediction is made by the Classical Theory of transformational grammar, with its assumption that Semantic Representations are completely determined by the Deep Structure. It might seem that under this older view, every reverse step from Surface toward Deep Structure must be a step toward increasing similarity with the Semantic Representation. In this way, it might be claimed that, with regard to this parameter at least, Generative Semantics and the

⁵⁶ It might still be possible for a move from a less to a more Remote structure to yield a less semantic-like structure, if derivations were allowed to "bulge" in certain ways, that is, if the class of possible rules permitted relatively arbitrary kinds of changes. The natural way to eliminate this possibility in Generative Semantic terms is with a very narrow and substantive set of universal constraints on derivations and the rules which generate them, for example, constraints preventing the insertion of arbitrary constituents, preventing most possible classes of restructurings, etc.

Classical Theory are not distinguished in their empirical claims. There are two negative points to be made with respect to this claim, however.

First, given the existence of Projection Rules, rules of a type totally different from transformations, and the fact that the possible range and complexity of meanings of lexical items is enormous, there is no reason why Deep Structures should resemble Semantic Representations much more than Surface Structures do. In fact, in the Classical Theory, the only conditions which Deep Structures must meet but which Surface Structures are supposed to fail *vis-à-vis* semantics is that the former must contain all relevant lexical items, often deleted from the latter, and that grammatical relations must be definable. But, although hitherto ignored by many, including the present writer, these conditions have a necessarily restricted content, especially restricted from the point of view of requiring Deep Structures to be more semantic-like than Surface Structures. I will illustrate.

Consider a sentence like:

- (257) Harry likes meat from pigs

Here the phrase *from pigs* must be viewed as a reduced restrictive relative clause. Consequently, (257) is just a variant of:

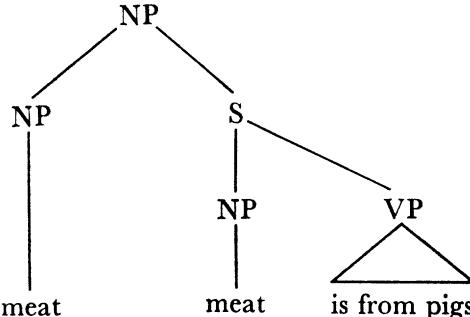
- (258) Harry likes meat which {^{is}
_{comes}} from pigs

Now, it would be claimed by the Classical Theorist that, in order to get the right meaning for the object NP in (257), the Deep Structure of this NP must be such as to indicate that *from pigs* bears some particular "Deep" relation to the subject of the restrictive relative. And it would be claimed that this relation is the same as that in sentences like:

- (259) a. this meat is from pigs
b. most meat is from pigs

Consequently, it would be argued that a Deep Structure for (257) which provides its object NP with a structure something like:

(260)



is required on grounds of grammatical relations.

My claim that such requirements have only the most limited content is illustrated by sentences like:

- (261) Harry likes pork

The key fact about (261) is that it is an essential paraphrase of (257). However, in the Classical Theory, the object NP of (261) will have an entirely different Deep Structure from that in (260), a structure in which the lexical item *pork* itself occurs, together with some nonsyntactic, purely semantic, representation of the meaning, indicating that *pork*, in fact, designates meat from pigs.

What this shows, then, is that the Semantic Component of the Classical Theory was intended to be powerful enough to derive the meaning of sentences like (261) from Deep Structures which are hardly more abstract than their Surface Structures. Since the meaning of (257) is the same as that of (261) (or close enough to it for purposes of argument), it follows that a Classical Semantic Component was intended to be powerful enough to derive the meaning of (257) from a Deep Structure as gross as the Deep Structure of (261). But such a Deep Structure is less closely related to the Semantic Representation of (257) than the Surface Structure of (257) is. In particular, where the Surface Structure of (257) provides an explicit analysis of the object NP into an element designating a type of substance, meat, and into another element designating the animal from which this substance originates, the Deep Structure of (261) provides, syntactically, no such analysis at all.⁵⁷ Consequently, it turns out the Classical Theory does not really require the Deep Structure of the object NP in (257) to determine its meaning, since it must be able to determine such meanings from Surface NP with no structure, like the object in (261). It could do this in the case of the object NP of (257) by treating it in effect as an idiom, and assigning the same reading assigned to the lexical item *pork* to the whole NP *meat from pigs*. The Classical Theorist might, of course, object that while this could be done for the object NP of sentences like (257), it cannot be done for all constituents which have single lexical item paraphrases, still less for all constituents, because there are an infinite number of them. Thus, to a certain extent, the Classical Theory does require Deep Structure and does make use of the recursive structure assigned by the syntax. This is certainly true. The point is, however, that there is no nonarbitrary principle to determine when Classical Semantic Theory assigns Readings to nodes by way of Projection Rules and when it does so by simply assigning the node a Reading in the lexicon (i.e., treats the node as an idiom). The assumption was that this principle is provided by lexical items, i.e., that these elements of Deep Structure (together with complex idioms) were assigned Readings in the lexicon, all other structures by Projection Rules. But *the strike-like analysis* shows that this cannot be the case for *remind*, since the node corresponding to the lexical item *remind* is not present at a level corresponding to Classical

⁵⁷ This information would be provided in Classical terms by the semantic Reading of the lexical item *pork*, which would be given as its dictionary entry.

Deep Structure and cannot enter derivations until after certain transformational operations, thus at a post-Deep Structure point in Classical Theory.

In other words, we see that the Classical Theory necessarily must have the power to derive arbitrarily many, complex semantic representations such as [MEAT WHICH COMES FROM PIGS] from Deep Structure representations which are related to them only in arbitrary ways, i.e., in this case Deep Structures like:

(262) Noun

|
pork

Because of this fact, the claim that Classical Theory requires "Deep" grammatical relations defined by the Deep Structures of the syntax (but not definable on Surface Structures) to generate semantic representations is a very restricted truth, since, at least in the case of meaning subparts realized by a lexical item, the theory must have the power to derive Readings on the basis of no "Deep" grammatical relations at all.

Consequently, if the derivation of sentences in general is seen to yield Remote Structures of successively greater similarity to Semantic Representations, this fact is not explicable in terms of the semantic requirements of Classical Transformational Theory, which, of necessity, is compatible with Deep Structures that are only most indirectly related to semantic form. One can even give a vague principle *partially* specifying the degree to which Classical Theory fails to provide an explanation of this fact. Namely, it must fail to do so at least to the extent that particular lexical items like *pork* can serve as realizations of Semantic Representations which are realizable also as syntactic structures of considerable complexity (*meat which is from pigs*). For in these cases, the Classical Semantic Theory must provide a technique for representing structure "inside" of lexical items which is an essential duplication of the structure provided by the syntax for the cases with Surface Structure complexity.⁵⁸ In the case of *pork*, a Classical description must analyze it into units referring to meat and to the animal pig, and must, furthermore, specify that these units are related by a predicate "comes from". From the semantic point of view, the structure relating such elements as "meat" and "pig" must be given in two entirely different ways: once by the syntax for cases which show up as Surface Structure phrases, once by the readings of the lexical items for the cases which show up monomorphemically (or idiomatically).⁵⁹

⁵⁸ For comments critical of this duplication, together with a general advocacy of a movement in transformational grammar away from the Classical position and toward Generative Semantics, cf. also Anderson (1968).

⁵⁹ The duplication of structure and relations for elements of meaning in Classical Theory (i.e., given semantically for lexical items and idioms, syntactically for productive Surface phrases) was bad enough initially when there seemed to be a natural juncture between Projection Rule and Transformation, hence between semantics and syntax. But it is doubly intolerable now that (i) there is no principle to draw this line; and (ii) there is the beginning of a conceptually more elegant theory which avoids the duplication entirely, namely, Generative Semantics.

Thus lexical items provide a clear area in which Classical Deep Structures must be unrelated to semantic form.⁶⁰ This is not the only area, however.

Given the existence of the special class of Projection Rules, rules which have not been characterized in a general way, which have not had their possible limitations seriously constrained (in the sense that transformational rules have, for example),⁶¹ it is possible to derive Semantic Representations from Deep Structures of more or less arbitrary (semantically) structure. For example, nothing in the semantic assumptions of Classical Theory precludes setting up a Deep Structure for sentences like:

(263) John believes that Bill didn't come

of the form:

(264) John doesn't believe Bill came

and having Projection Rules operate on the structure of (264) to determine, among other things, that the scope of the negative element is the subordinate clause, despite its Deep Structure appearance in the main clause. Thus in this case, the Surface

⁶⁰ The full extent of duplication is unclear, though obviously vast, since it is not known what constraints there are on the possibilities for individual lexical items to represent meanings. Nonetheless, it is probably the case, as observed by Weinreich (1966) that: "... every relation that may hold between components of a sentence also occurs among the components of a meaning of a dictionary entry." Further, it seems clear that there are no relations between the meaning components of lexical items which are not matched by overtly syntactic relations. That there are certain constraints, however, on the possibilities of representing structures with single lexical items is pointed out by Morgan (1968), who provides two constraints. Further restrictions are given in Postal (to appear b), where it is shown that the same constraints govern lexical items and certain types of Surface phrases. A particularly important general point made by Morgan (1968) is that the meanings of lexical items appear to obey the constraints on syntactic rules, a necessary consequence of the position of Generative Semantics. Thus Morgan observes that there are no lexical items with meanings whose parts could only be combined by rules which violated such syntactic constraints as those discussed in Ross (1967). For example, there are no lexical items like *bralch* such that sentences like:

- (i) a. Harry bralched Max
- b. Harry bralched a zebra

mean respectively:

- (ii) a. "Harry saw Max and a gorilla"
- b. "Harry saw a zebra and a gorilla"

In Generative Semantic terms this is explicable, since such a derivation would involve a rule of noun incorporation, which is possible in many languages (cf. in English the derivation of *kick* from "strike with foot", etc.), but a rule which violated Ross's Coordinate Structure Constraint, which holds for syntactic constructions. The theory of Projection Rules offers, as far as I can see, no basis for such facts at all. Moreover, even if constraints are added to this theory such that no Projection Rule can derive the relevant meanings from structures like (i), these constraints will have to be essential duplications of the syntactic constraints, which must be present in the syntactic theory underlying the Projection Rule semantics. Only Generative Semantics seems to offer the possibility of generalization here, since only this theory claims that the internal semantic structure of lexical items is syntactic structure. Similar points are made in Lakoff (1968a) and Postal (to appear b).

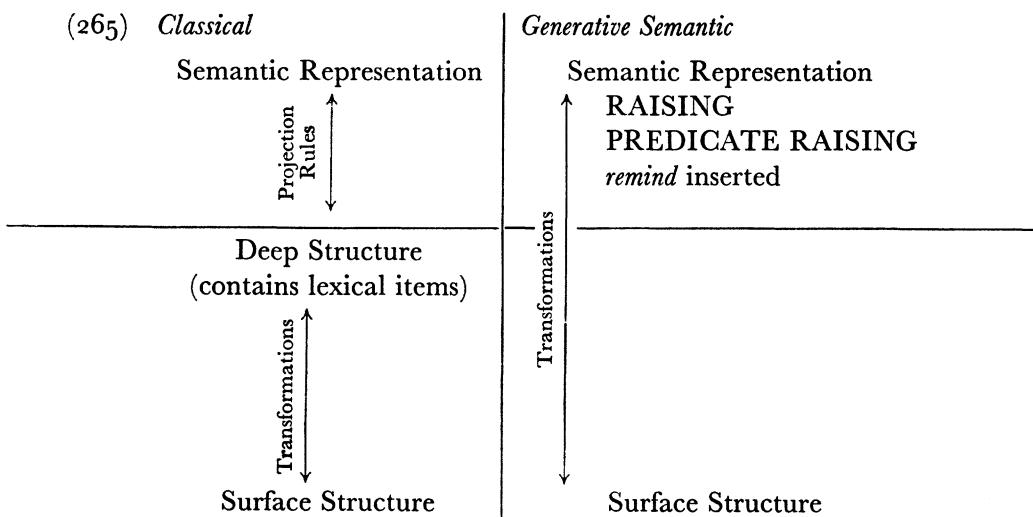
As a general argument that the semantic structure of lexical items must largely duplicate the structure of phrases, one can note that in many styles of discourse, lexical items can be introduced as essential abbreviations for meanings whose previous description required complex form. This would force a Projection Rule theory to allow for arbitrarily complex Readings as both the output of Projection Rules and as the input (dictionary entries) to such rules.

⁶¹ This is not to deny, of course, that transformations remain relatively unconstrained, i.e., that the theory of such rules is much too weak. Nothing in the theory prevents all sorts of absurd rules. For example, one could give rules which would bring about situations in which subjects of verbs agreed with the tenses of other verbs embedded below them, where adjectives on subject nouns agreed with object nouns, etc.

Structure, which has the negative element in the subordinate clause which defines its scope semantically, would be closer to Semantic Representation in a clear sense than the Deep Structure. In fact, just such logical possibilities for "interpretive" rules applied to superficial, Surface Structure-resembling structures provide the heart of the recent proposals of Chomsky, Jackendoff, and others⁶² advocating an even greater use of "interpretive" rules than is permitted in Classical Theory. However, the chief difference between these newer proposals and those of the Classical Theory is that the former advocates application of "interpretive" rules to structures other than Deep Structures.

I said above that there were two things to be said against the view that the Classical Theory predicts the fact that transformational analysis yields structures of increasing semantic relevance. The second is that *the strike-like analysis* shows that the transformationally justified directionality of Remote Structures in the direction of Semantic Representations continues beyond a point countenanced by Classical Theory. That is, as we have seen, *the strike-like analysis* must provide sentences with Remote Structures which are *pre-lexical* and hence on the other side of the Classical juncture between Projection Rules and Transformational Rules. This fact is perfectly compatible with the assumptions of Generative Semantics.

One can diagram the conflicting claims of Generative Semantics and the Classical Theory in context with *the strike-like analysis* as follows:



In the Classical Theory, all lexical items, hence in particular the item *remind*, must be inserted into the representations of Deep Structures, thus inserted before any transformations apply. In the theory of Generative Semantics, lexical items are inserted at some points in derivations, not necessarily all in a block. Transformations

⁶² Cf. Chomsky (to appear), Jackendoff (1968a, 1968b, 1968c, 1969), and Dougherty (1968, 1969).

apply before lexical insertion as well as after it. (265) then reveals graphically how the *strike-like analysis* is incompatible with the Classical Theory, since in this analysis, transformations, in particular RAISING and PREDICATE RAISING,⁶³ must apply before the lexical item *remind* can be inserted into linguistic representations.

The *strike-like analysis* shows then that in fact transformations, and not Projection Rules, are operating in that part of the range of mediation between Semantic Representation and Surface Structure which is pre-lexical. Consequently, the analysis reveals that part of the domain of mapping *claimed to be covered* by Projection Rules in the Classical Theory is *in fact covered* by transformational rules and conditions.⁶⁴ In other words, the rules operating *before* lexical insertion are of the same type as those operating *after* it. The full claim of Generative Semantics is that this particular case is typical, and that the range of Projection Rule application is null. This has, of course, not yet been shown.

However, the homogeneous theory of Generative Semantics is methodologically preferable on several grounds. It has a narrower theory of rule types (no Projection Rules, more generally no "interpretive" rules), and requires no unique, intermediate level of Deep Structure. Generative Semantics assumes only the levels of Semantic Representation and Surface Structure, which no linguistic theory can do without. The Classical Theory posits in addition the level of Deep Structure and a distinct kind of grammatical rule. Thus the two views are not symmetrical, are not, as it were, equals from a methodological point of view. The Classical View requires extra justification because of its necessary postulation of extra aspects of linguistic structure. The fact that the burden of justification lies with the supporter of these extra additions is important to stress in view of the fact that the historical priority of the Classical Theory within the framework of generative grammar tends to give it an air of validity that it does not have. That is, one tends to assume, wrongly, that its priority puts the newer theory in need of special justification.

But, notably, no justification for the extra apparatus of Classical Theory *vis-à-vis* Generative Semantics is known, and, as observed earlier, destruction of the insertion point of lexical items as a principled basis for the juncture between Projection Rule and Transformation leaves the Classical Theory (and, in fact, any theory claiming the existence of a level of Deep Structure distinct from Semantic Representation) with no known principle to determine this juncture. Thus at the moment a Projection Rule theory must necessarily be at least partly incoherent. Such a theory says that part of the mapping between Semantic Representations and Surface Structures is mediated by Projection Rules, but it cannot specify just how the juncture between

⁶³ That PREDICATE RAISING is pre-lexical is self-evident from the discussion. That RAISING is depends on the point, which was made by Lakoff, and discussed in de Rijk (1968), that application of PREDICATE RAISING is dependent on prior application of RAISING.

⁶⁴ The expression "and conditions" here is meant to cover the various Derivational Constraints we have considered, including that which makes PREDICATE RAISING and PROPERTY FACTORING incompatible. This matter is related theoretically to the discussion in footnote 49.

Projection Rule and Transformation is characterized. That is, there is no supportable notion of Deep Structure distinct from Semantic Representation.

Needless to say, on a deeper theoretical level, such a theory gives no explanation of why such a bifurcation of this mapping should exist. And this is the crux of the whole matter. The original plausibility of this so far unjustified assumption was the view that lexical items provided atomic elements with meanings from which the meanings of macroconstituents could be determined by rule. But this idea has collapsed. In the light of present knowledge, it can, I think, be seen to be nothing more than the traditional mistake of assuming that Surface Structures are relevant for Semantic description, a view which Classical Theory, despite its emphasis on the role of Deep Structure in semantic interpretation, has not really moved very far away from.

I have argued *for* the Generative Semantic and *against* the Classical view of transformational grammar by showing that in the derivation of *remind* clauses, there must be transformational rules operating at a point *prior* to, or on more "abstract", more semantic-like structures, than the Deep Structure permitted by Classical Theory. This will be, I think, a special case of the kind of argumentation which should be sought for to disconfirm the Classical Theory in these respects. That is, if the Classical Theory is wrong and something more along the lines of Generative Semantics is right, it will be possible in many cases to show that the mapping between Semantic Representations and structures approximating the abstractness of Classical Deep Structures is mediated by grammatical transformations and not by some other special sort of rules like Classical Projection Rules. Most striking cases of this sort have been found by Lakoff (to appear), who shows in a complex and revealing argument that items like *dissuade* cannot be inserted into linguistic representations until after some transformational operations have taken place. He gives a different argument for *prefer*. In Postal (to appear b), I have given another argument to this effect, claiming that items like *pork* cannot be inserted until after certain compounding transformations have applied if generalizations covering both *pork* and words like *wombat-meat* are to be incorporable in the description.

Clarifying the general nature of at least one type of argumentation which is relevant to the choice between Classical and Generative Semantic theories is important, both inherently, and because of some recent remarks by Chomsky, which seem to have obscured the issues here. In a paper in which are proposed modifications of the Classical Theory in a direction very different from that of Generative Semantics, Chomsky (to appear) suggests that much of the apparent difference between the Generative Semantic view and Classical Theory is merely notational. This statement is surprising in view of the empirical contrasts between the claims in (238)–(239) above on the one hand and (241) above on the other. It must be based on some terminological equivocation made possible by the introduction of a new term *Standard Theory*. This term, as far as I can see, distorts the properties of the Classical Theory, which Chomsky purports the term *Standard Theory* is general enough to characterize.

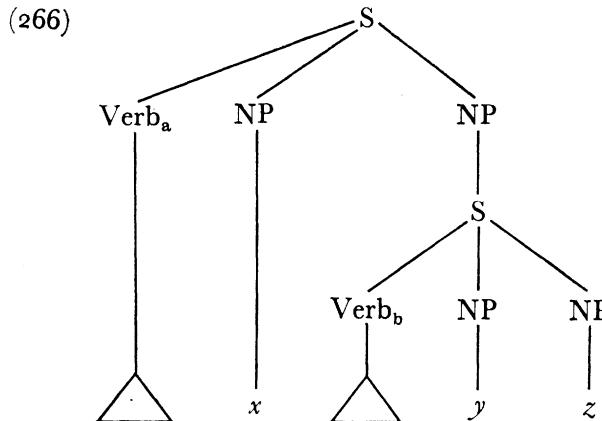
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I will not go into this matter in detail here. Cf. Lakoff (to appear) for some discussion. Chomsky (to appear) suggests that the difference between Classical Theory and Generative Semantics resides only in the "directionality" of the mappings. This follows, he claims, since both views generate quadruples of Semantic Representation, Phonetic Representation, Deep Structure, and Surface Structure for each sentence, with the two differing only in what is regarded as the "basic" structure, a question Chomsky takes rightly to be terminological or notational only.

However, (238)–(239) and (241) above differ in *substantive* ways, for example, in whether there is a level of Deep Structure “preceding” all transformational applications and containing all lexical items. Consequently, the warning that theories must be shown to be distinct both substantively and notationally is, though true, irrelevant to the choice between (238)–(239) and (241), a choice which is evidently factual, as we have seen. For example, (238)–239 are incompatible with *the strike-like analysis*, while (241) is perfectly compatible with this feature of English. One must take into account such basic empirical differences between the two views as whether Semantic Representations are sets or trees, whether there exists in the mapping between Semantic Representations and Surface Structures a nonnull set of Projection Rules distinct from transformations, whether all lexical insertion can be pre-transformational, etc.

C. Concluding Remarks on The Strike-Like Analysis

In the light of the discussion in part B, a few clarifying remarks about *the strike-like analysis* can be made. I have claimed that the underlying structure of *remind* clauses is of the form:



where Verb_a is an element like *strike*, Verb_b an element with the properties of a Similarity Predicate. In the context of the discussion of Generative Semantics, it is clear that there is no suggestion that these underlying verbals are *lexical items*, in particular

none that they are the lexical *strike*, *resemble*, etc. The idea is that the underlying elements are *semantic verbs*, that is, predicates. Consequently, the claim is only that the underlying elements of *remind* clauses are those predicates which are lawfully connected to the various regularities documented for *strike* and Similarity Predicates. In particular, I would like to emphasize that it is not excluded that the actual lexical verb *strike* may have certain special properties not associated with the underlying predicate or predicate complex which shows up as the Surface Verb *remind*. Just so, the particular predicate of similarity which underlies *remind* may lack some ad hoc features of any or all of the verbals *similar*, *resemble*, *like*. In short, I have not intended to claim that *remind* is in any sense derived from underlying structures which contain the lexical verbs *strike*, or *resemble/similar/like*. Rather, I have argued that the derivation must be from elements whose properties are *included* in these lexical elements.

This fact raises the possibility of revealing some equivocation in earlier discussion. For instance, in footnote 12, it was observed that it is not clear that applicability of PSYCH MOVEMENT can be predicted from the meaning of a verb. If then the fact that *strike* undergoes PSYCH MOVEMENT were a mere idiosyncrasy of this lexical item, there would, in the terms just discussed, be no real explanation from the *strike-like analysis* of the behavior of *remind* with respect to PSYCH MOVEMENT.⁶⁵ Consequently, I am forced at this point to assume that the application of PSYCH MOVEMENT to a verb like *strike* is *not* idiosyncratic, but is rather a function of regularities describable in terms of the predicates which underly *strike*. That is, I am forced, for example, to assume that there is a meaning difference between *strike* and *perceive*, analogously between *seem/appear* and *think*, etc. and, moreover, that the difference between these pairs is systematic and predicts applicability or nonapplicability of PSYCH MOVEMENT. I believe this is right and would now like to indicate briefly an outline of what I take this systematic semantic difference to consist in.

One can note that all the relevant verbals which undergo PSYCH MOVEMENT must, in nonhabitual, nonmodal, present tense, declarative⁶⁶ contexts have an

⁶⁵ An analogous remark would hold about other properties of *remind* predicted by the *strike-like analysis* from properties of *strike* if these were functions of something other than the semantic elements which underly the lexical item *strike*.

⁶⁶ In interrogative contexts like:

- (i) Harry is asking Joan, whether Max strikes her, as crazy
- (ii) *Harry is asking Joan whether Max strikes him as crazy

the Experiencer NP must apparently be a coreferent of the "indirect object" of the next highest verb of saying/thinking. Consequently, in superficially unembedded interrogatives, the Experiencer NP must be second person:

- (iii) does Max strike you as being crazy
- (iv) *does Max strike [Lucy] as being crazy

To get a uniform account of the coreference restriction for both declaratives and interrogatives, it will apparently be necessary to represent interrogatives with a structure schematically along the lines of:

- (v) x ask y that y tell z (S)

This will reduce the interrogative case to the "subject" condition. For simplicity, I ignore interrogatives in the text.

Experiencer NP which is a coreferent of the "subject" NP of the next highest verb of saying/thinking. In superficially unembedded declarative clauses, this means co-reference to the "subject" of the deleted performative verb, discussed earlier in Section II. C (6). Such coreference requires the Experiencer NP to be first person:

- (267) a. *it seems to Pete that you are crazy
- b. it seems to me that you are crazy

Compare:

- (268) a. Pete thinks you are crazy
- b. I think you are crazy

Similarly:

- (269) a. *it strikes Pete that you are unfriendly
- b. it strikes me that you are unfriendly
- (270) a. Pete perceives that you are unfriendly
- b. I perceive that you are unfriendly

When the relevant verbs are even superficially embedded, the requirement is that the Experiencer NP be a pronoun coreferential to the relevant "subject". Hence:

- (271) a. Harry_i says I strike him_i as being a vampire
- b. *Harry_i says Max strikes me as being a vampire

Compare:

- (272) a. Harry_i says he_i perceives that I am a vampire
- b. Harry_i says I perceive that Max is a vampire

Similarly:

- (273) a. Lucy_i says I seem to her_i to be an egomaniac
- b. *Lucy_i says Max seems to me to be an egomaniac

but:

- (274) a. Lucy_i says she_i thinks I am an egomaniac
- b. Lucy_i says I think Max is an egomaniac

I conclude that this is a reflection of the fact that the PSYCH MOVEMENT verbals have some property not possessed by the parallel nonPSYCH MOVEMENT verbals, a property which is such as to require first person/second person elements in the contexts indicated. What might this property be? Intuitively, it seems that in some way the PSYCH MOVEMENT elements are "more subjective" than the others. The question is, then, how this vague notion can be characterized semantically. I would propose a very rough analysis along the following lines. All verbals like *think*, *perceive*, *seem*, *strike*, etc. are descriptive of inner, subjective events, states, occurrences, etc. The PSYCH MOVEMENT verbals not only describe subjective matters, but manifest a presupposition that what they describe is subjective. That is, taking *seem* and *think* to contrast, it is true that both describe inner affairs which are, in fact, directly knowable only by the one who experiences them. However, *seem* not only describes such a

domain, but it says it describes such a domain. A test of this contrast is provided by the possibilities of describing telepathy or mind reading devices of various sorts. Suppose that Pete is a telepath, reading the mind of Harry, and describing Harry's inner goings on to someone. It seems to me quite clear that he could do so by use of (275a) but not by use of (275b) or (275c):

- (275) a. Harry is thinking that you are an idiot
- b. ?it seems to Harry that you are an idiot
- c. ?you seem to Harry to be an idiot

Just so, suppose Pete has a mind/feeling reading machine attuned to Harry. Again, it is clear that he could report the output of this machine by way of (276a), but not by way of (276b) or (276c):

- (276) a. (the machine says) Harry perceives that you are a vampire
- b. ?(the machine says) it strikes Harry that you are a vampire
- c. ?(the machine says) you strike Harry as being a vampire

Given the hypothesis that there are machines for telepathy, mind reading, etc., everyone's subjective experience is available to others. Consequently, it becomes possible to say directly what others are thinking, perceiving, etc. And one would do this by way of verbals like *think*, *perceive*, etc. This shows that these verbals do not, in their meanings, involve any presupposition that the realm they describe is inherently subjective. On the other hand, even given the hypothesis that subjective experience is objectifiable by way of telepathy, etc., objectified experiences cannot be described by way of verbals like *seem*, *strike*, etc. This shows, I conclude, that these verbals involve in their meanings the presupposition that the experiences they represent are inherently subjective.⁶⁷

⁶⁷ Another way of saying this might be to specify that the PSYCH MOVEMENT verbals are incorrigible because phenomenological. This is particularly clear with pairs like *look* (PSYCH MOVEMENT) *see* (non-PSYCH MOVEMENT).

Thus, if one says:

- (i) the wall looked green to me (it looked to me as if the wall were green)
- (ii) I saw that the wall was green

one could be wrong only in the latter case. That is, if it is pointed out that the wall was blue and only seemed green due to artificial light, one would agree that (ii) expressed a false statement. But (i) would still express a truth. And indeed, if used honestly, it is difficult to conceive of circumstances in which (i) could fail to express a truth. This difference also seems valid for such pairs as *seem*, *think*, although possibly not so clear for them. Note the contrast between the following dialogues:

- (iii) a. John seemed sick to me (it seemed to me that John was sick)
- b. you're wrong
- (iv) a. I thought John was sick
- b. you're wrong

If acceptable at all, (iii b) is interpreted, I think, as meaning that it is false to say John was sick. (iv b), however, is interpreted as meaning that it is false to say the speaker thought John was sick. This follows from the fact that, being incorrigible, one cannot deny what *seem* claims. Notice further that in reply to (iv a) one could say:

- (v) you didn't *think* John was sick, you *felt* he was sick

But to (iii a) one cannot reply:

- (vi) ?it didn't *seem* to you John was sick, it *sounded* to you as if he were sick

Again, the statement made by the PSYCH MOVEMENT verbal is incorrigible.

Now, notice that this property of inherent subjectivity explains the restriction on such verbals that their Experiencer NP must be a coreferent of the "subject" of the next-higher verb of saying/thinking, because it is just such verbs which are used to specify the reporting of inner experiences. But under the subjectivity presupposition, only the individual who has the experience is in a position to report it. Thus, (275b, c) and (276b, c) violate this coreference requirement.

It is not immediately obvious how this account explains the permissibility of sentences like:

- (277) it struck Harry that you were a vampire

which are in the *past tense*. However, the natural interpretation of the conditions under which these are used is that the individual designated by *Harry* has informed others of his subjective experience in the time interval whose existence is guaranteed by the past tense. In short, sentences like (277) seem equivalent to those of the form:

- (278) Harry_i said that it struck him_i that you were a vampire

and may indeed be derived from the same source.

Similarly, one must account for the acceptability of the modal examples like:

- (279) I must strike {you
everyone} as being insane

Here, however, it is noteworthy that there is no claim of direct knowledge of the inner experience of the individual designated by the Experiencer NP of *strike*. Rather, such modal sentences really purport to be able to determine this indirectly by inference from some general law, regularity, or principle. That is, sentences like (279) are appropriate in contexts where the behavior of the subject is such as to guarantee, by assumption, such a reaction in an individual under general conditions.

While it is obvious that this semantic analysis of the contrast between pairs like *seem/think*, *strike/perceive*, etc. has barely begun and remains in a very gross state, I think it is sufficient to indicate that there are real, systematic semantic differences between such pairs. Consequently, I think it is justifiable to assume that the application of PSYCH MOVEMENT to verbals like *seem*, *strike* but not to the others is a systematic fact, which is predictable on the basis of the meaning of the predicates involved, and independent, by and large, of arbitrary lexical irregularities associated with the phonological form of the lexical items which represent these predicates.

Given this fact, the prediction of PSYCH MOVEMENT application to *remind* goes through, even under the Generative Semantic interpretation of the *strike-like analysis*. Notice, moreover, that this analysis predicts in addition that *remind* must have an inherently subjective interpretation, i.e. that the Experiencer NP must be a coreferent of the subject of the next highest verb of saying/thinking, and that *remind*

is not appropriate for the description of hypothetically objectified subjective experience. And these claims are both true:

- (280) a. Harry reminds me of a gorilla
b. *Harry reminds Max of a gorilla
- (281) a. Max_i says I remind him_i of a gorilla
b. *Max says Mary reminds me of a gorilla
- (282) ?(the machine says) Max reminds Pete of a gorilla

Consequently, not only has it been shown that the *strike-like analysis* is compatible with a Generative Semantic analysis of its underlying elements as semantic elements, but we have thereby uncovered another argument for this analysis. Namely, this analysis can explain why *remind* is interpreted as an inherently subjective verbal.

Finally, let me emphasize that there is no need to assume that the analysis given is as fine-grained as possible. Both the underlying main verbal element and the Similarity Predicate underlying *remind* clauses might themselves turn out to be susceptible of further analysis into more primitive semantic elements. That is, there is no need to assume that *strike* or *similar* necessarily corresponds to a single predicate. Indeed, the discussion of inherent subjectivity just finished already shows that this is not the case for *strike*. One can easily imagine an analysis of forms like *similar* which which would provide them with a predicate common to items like *equivalent* and *identical*. Consequently, structures like (266) above, may turn out to be derived Remote Structures rather than a subpart of the Semantic Representation itself.

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