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THE GRAMMAR OF ENGLISH PREDICATE COMPLEMENT CONSTRUCTIONS

by

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A. B., Wesleyan University
(1962)

SUBMITTED IN PARTIAL FULFILLMENT OF THE

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PETER STEVEN ROSENBAUM

Submitted to the Department of Modern Languages on May 14, 1965 in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

A set of phrase structure rules and a set of transformational rules are proposed for which the claim is made that these rules enumerate the underlying and derived sentential structures which exemplify two productive classes of sentential embedding in English. These are sentential embedding in noun phrases and sentential embedding in verb phrases.

First, following a statement of the grammatical rules, the phrase structure rules are analyzed and defended.

Second, the transformational rules which map the underlying structures generated by the phrase structure rules onto appropriate derived structures are justified with respect to noun phrase and verb phrase complementation.

Finally, a brief treatment is offered for the extension of the proposed descriptive apparatus to noun phrase and verb phrase complementation in predicate adjectival constructions.

Thesis Supervisor: Noam Chomsky
Title: Professor of Modern Languages

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CHAPTER 1

The Results of the Inquiry

The aim of the present study is to develop an adequate framework for describing certain types of sentential complementation in English. In particular, this study deals with instances where sentences are embedded in noun phrases (henceforth noun phrase complementation) and in verb phrases (verb phrase complementation). In terms of the theory of syntax developed by Chomsky in his Aspects of the Theory of Syntax[1] the descriptive apparatus postulated to explain noun phrase and verb phrase complementation consists of 1) a set of phrase structure re-writing rules which generate underlying sentence structures and 2) a set of transformational rules which map underlying structures onto new derived structures. The various considerations brought to bear in this study lead to the conclusion that an adequate description of noun phrase and verb phrase complementation contains the phrase structure and transformational rules which are summarized in the following pages.

I. Phrase Structure Rules

Operating in conjunction with two basic rules which expand S (sentence) and PDP (predicate phrase) into NP, AUX,

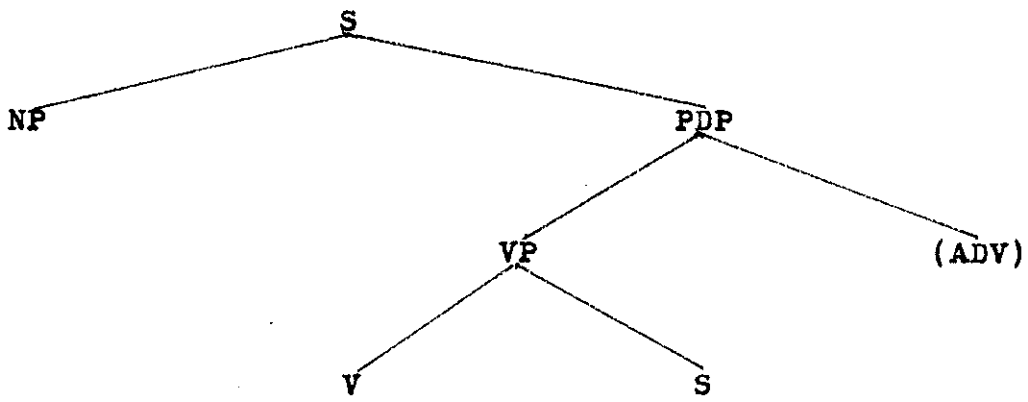
PDP and VP, ADV respectively, the two phrase structure rules which are central to the complement systems under discussion can be stated as follows:

PS Rule 1 VP----> V (NP) (PP) $\left\{\begin{matrix} S \\ PP \end{matrix}\right\}$

PS Rule 2 NP----> DET N (S)

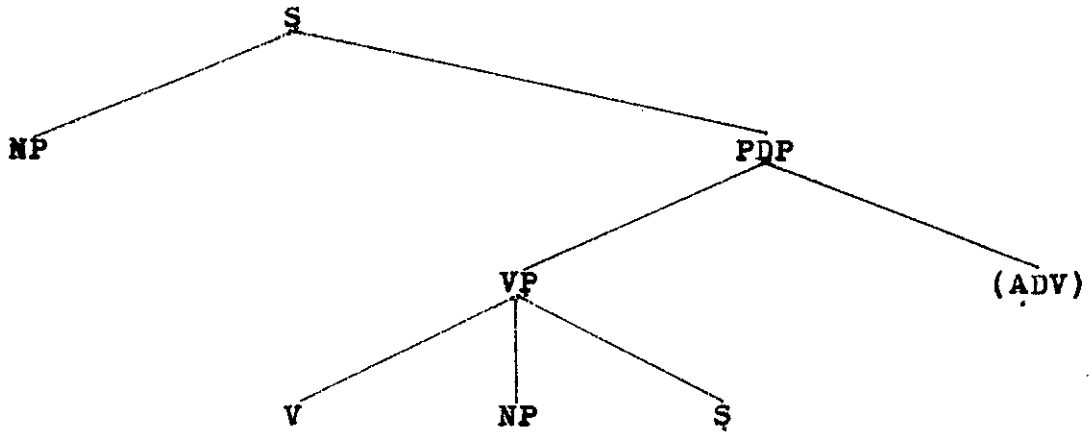
The two phrase structure rules above allow for the generation of a variety of underlying structures. Most pertinent to the present study are the following:[2]

(1)



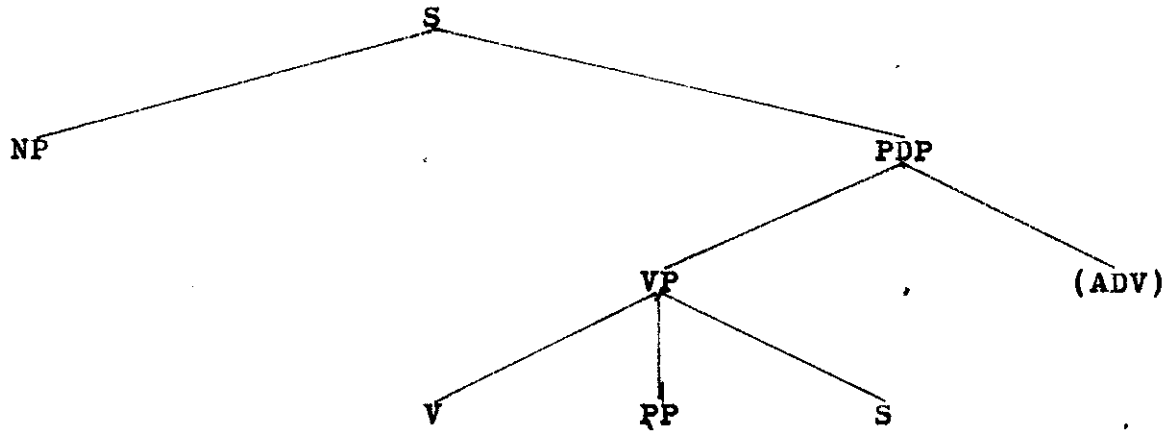
The above underlying structure, an instance of <u>intransitive verb phrase complementation</u>, is generated as the result of the particular application of PS Rule 1 which expands VP into V, S.

(2)



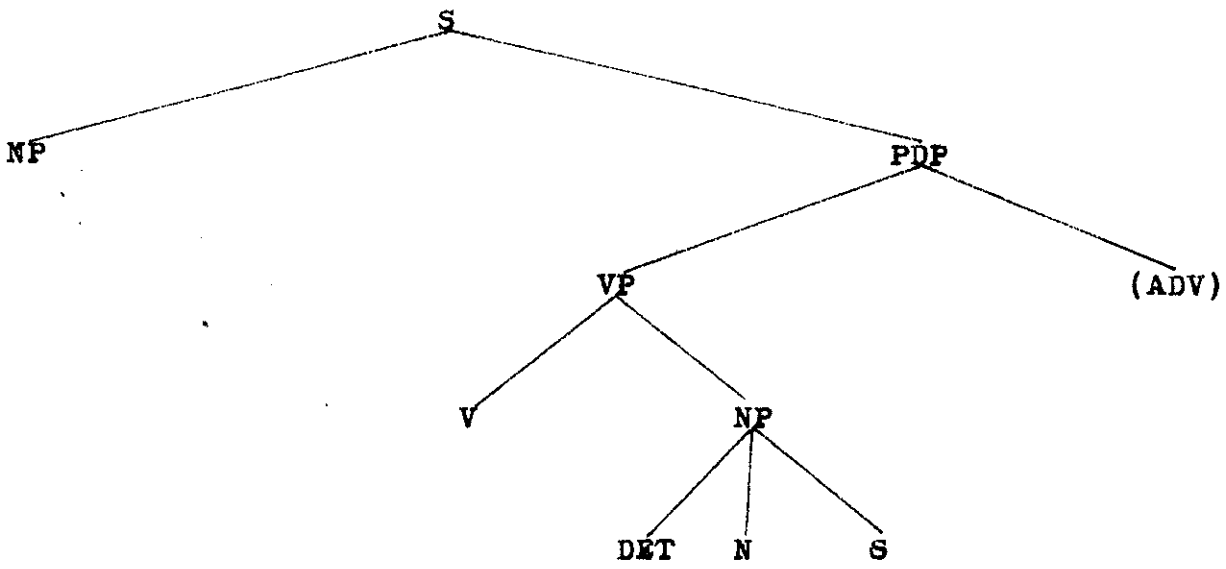
The application of PS Rule 1, in which VP is expanded as V, NP, S, yields instances of <u>transitive verb phrase complementation</u>.

(3)



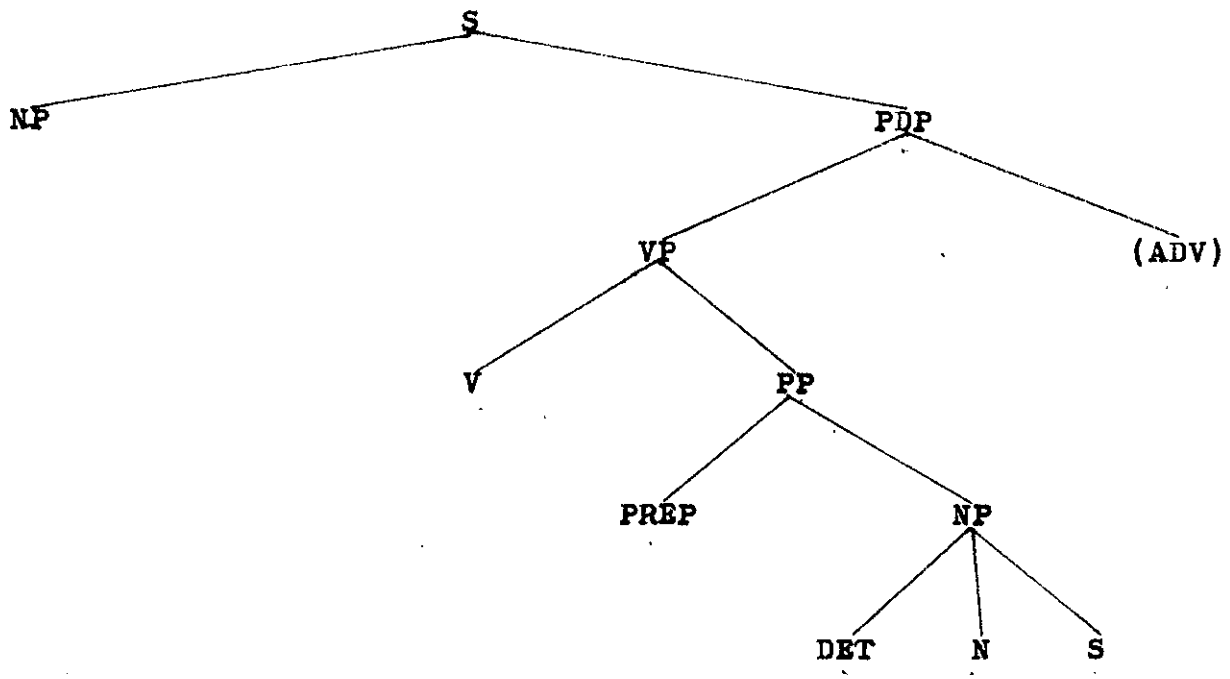
Where VP is expanded into V, PP, S, PS Rule 1 generates instances of <u>oblique verb phrase complementation</u>.

(4)



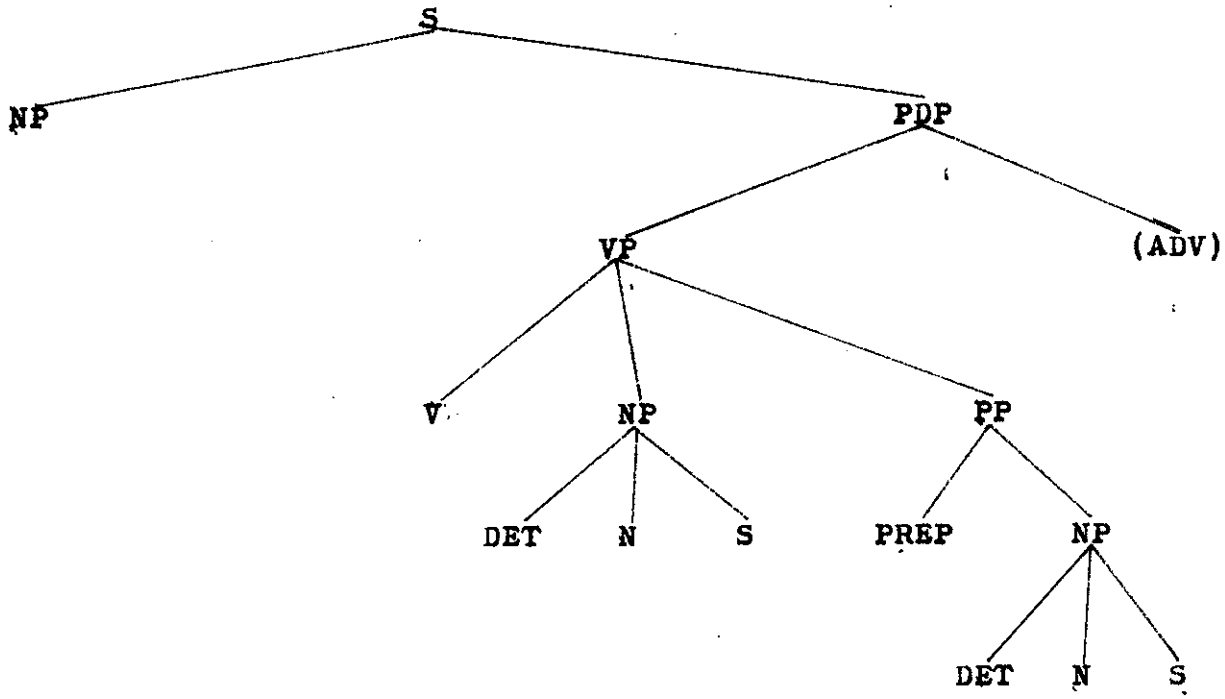
The underlying structure above, an instance of <u>object noun phrase complementation</u>, requires the application of PS Rule 1 through which VP is expanded into V, NP, and the application of PS Rule 2 to this NP, (henceforth the underlying object NP).

(5)



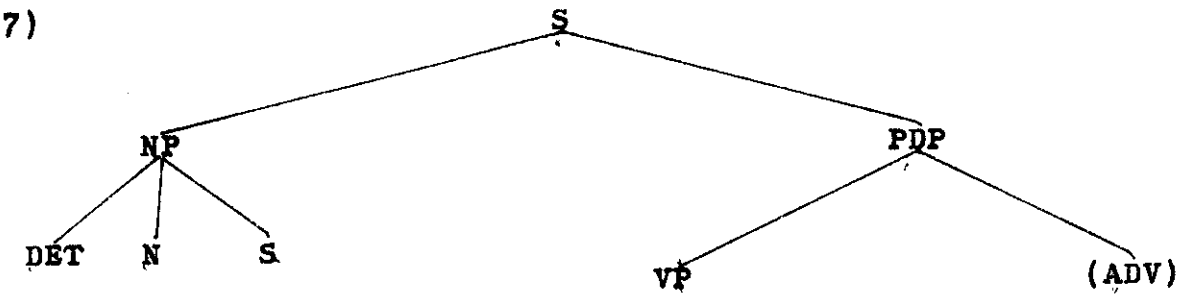
When PS Rule 2 is applied to the NP produced through the application of PS Rule 2 which expands VP into V, PP, the grammar generates instances of <u>intransitive oblique noun phrase complementation</u>, as in (5) above.

(6)



The expansion of VP into V, NP, PP permits the generation of instances of <u>transitive oblique noun phrase complementation</u>. In this case, the underlying object NP may be expanded by PS Rule 2 along with the NP dominated by PP.

(7)



Since the phrase structure expanding S yields NP, AUX, VP, PS Rule 2 may apply to the NP in this configuration (henceforth the underlying subject NP) to generate instances of subject noun phrase complementation.

II. Transformational Rules

PS Rules 1 and 2 suffice to generate the most central structures underlying noun phrase and verb phrase complementation (predicate complementation collectively) in English. The transformational rules necessary to the generation of appropriate derived structures are given below. These rules are strictly ordered, apply cyclically, and are obligatory unless otherwise marked.

1. Complementizer Placement Transformation -- T_{CP}

A. $X \quad \underset{[-D]}{N} \quad [NP + Y]_S \quad Z$

$1 \quad 2 \quad 3 \quad 4 \Longrightarrow$

$1,2,[-D]+3,4$

B. $X \quad \underset{\left[\begin{smallmatrix}+D\\ \alpha E\end{smallmatrix}\right]}{N} \quad NP + PDP \quad Z$

$1 \quad 2 \quad 3 \quad 4 \Longrightarrow$

$1,2,\left[\begin{smallmatrix}+D\\ \alpha E\end{smallmatrix}\right]+3,4$

C. $X \quad \underset{\left[\begin{smallmatrix}+D\\ \alpha E\end{smallmatrix}\right]}{V} \quad (NP) \quad NP + PDP \quad Z$

$1 \quad 2 \quad 3 \quad 4 \quad 5 \Longrightarrow$

$1,2,3,\left[\begin{smallmatrix}+D\\ \alpha E\end{smallmatrix}\right]+4,5$

D. X $\begin{bmatrix} +D \\ \alpha E \end{bmatrix}$ NP $\left\{ \begin{matrix} V \\ have \\ be \end{matrix} \right\}$ + Y

1 2 3 4====>

1,2,3, 2 + 4

2. Identity Erasure Transformation -- T_{IE}

W	(NP)	X	+D	NP	Y	(NP)	Z
1	2	3	4	5	6	7	8

(i)[3] 5 is erased by 2

(ii) 5 is erased by 7

The following conditions (henceforth the <u>erasure principle</u>) govern the application of the identity erasure transformation. A NP_j is erased by an identical NP_i if and only if there is a S_α such that

(i) NP_j is dominated by S_α

(ii) NP_i neither dominates nor is dominated by S_α

(iii) for all NP_k neither dominating nor dominated by S_α, the distance between NP_j and NP_k is greater than the distance between NP_j and NP_i where the distance between two nodes is defined in terms of the number of branches in the path connecting them.

3. Subject-Object Inversion Transformation -- T_{SOI}

X	NP	AUX	V [+SOI]	NP	S	Y
1	2	3	4	5	6	7====>

1,5,3,4,6,to+2,7

4. Passive Transformation -- T_P^4 (usually optional)

X NP AUX V (PREP) NP by + P Y

1 2 3 4 5 6 7 8 9====>

1,6,3,4,5,Ø,7,2,9

5. Extraposition Transformation -- T_E (usually optional)

$$X \quad \begin{bmatrix} N \\ +PRO \\ NOT \begin{bmatrix} +D \\ +E \end{bmatrix} \end{bmatrix} \quad S \quad Y$$

1 2 3 4====>

1,2,Ø,4+3

6. Optional Complementizer Deletion Transformation -- T_{OCD} (usually optional)

$$X \quad \begin{Bmatrix} V \\ ADJ \end{Bmatrix} \quad \left\{ \begin{array}{llll} a. & N & [+D] & \\ & [+PRO] & & \\ b. & (NP) & [-D] & \end{array} \right\} \quad NP \quad Y$$

1 2 3 4 5 6====>

1,2,3,Ø,5,6

7. Auxiliary Transformation -- T_{AUX}^4

X Af v Y (in particular where Af is [+E] and v is V, <u>have</u>, <u>be</u>, or NP)

1 2 3 4====>

1,Ø,3+2,4

8. Pronoun Replacement Transformation -- T_{PR}

X	N [+PRO] NP	(AUX	V / be ADJ [+PR]	(MAN))	[+D]	NP	Y
1	2	3	4	5	6	7	8====>

1,7,3,4,5,6,ø,8

9. Pronoun Deletion Transformation -- T_{PD}

X	N [+PRO]	a. ø / b. ADV	S	Y	(a. has a few exceptions) (b. is usually optional)
1	2	3	4	5====>	

1,ø,3,4,5

In addition to the transformational rules defined above, there are several others which are partially ordered. The most essential of these are the preposition deletion transformation which must precede the pronoun replacement transformation and the obligatory complementizer deletion transformation which must follow the pronoun replacement transformation.

10. Preposition Deletion Transformation -- T_{PPD}

X	PREP	N [+PRO] / [-D] / [-E]	Y
1	2	3	4====>

1,ø,3,4

11. Obligatory Complementizer Deletion Transformation -- T_{CD}

X	[+C]	VP	Y
1	2	3	4====>

1,Ø,3,4

The discussion to follow is concerned with exploring the justification of both the rules and their ordering in the description of predicate complementation in English. In the course of this discussion, it will prove necessary to refer to various additional transformation rules. These rules are not listed here in part because the present study is not of sufficiently broad scope to allow for a precise formulation of these rules and in part because, in comparison with the rules stated above, these additional rules are not critically pertinent to the primary goal of this study: to establish a general framework for describing predicate complementation in English.

NOTES

1. N. Chomsky, Aspects of the Theory of Syntax (in press).

2. In the discussion to follow the constituent AUX will be excluded from consideration. Although the behavior of the auxiliary, including at least Tense and Modal, is a pertinent dimension of the predicate complement system, the details of this behavior and its description go beyond the range of this study. It is unlikely, however, that a deeper study of the auxiliary in predicate complement constructions will result in a significant alteration of the general outlines of the predicate complement system as developed in this study.

3. When a constituent A is erased by a constituent B, A====>$\emptyset$ just in case A and B meet the conditions stipulated by the erasure principle.

4. For a detailed study of the passive transformation, see J. B. Fraser, "The Passive Construction in English," (forthcoming).

5. For discussion of the auxiliary transformation, see N. Chomsky, Syntactic Structures, The Hague, 1957.

CHAPTER 2

A Defense of the Phrase Structure Rules

In the previous chapter, two phrase structure rules were shown to enumerate a variety of underlying phrase structures containing the constituent S. These rules constitute an assertion that either NP or VP may optionally dominate S in the underlying phrase structure representation for an infinite set of derivations. Underlying the formulation of these rules lies the belief that the laws or rules governing allowable sequences of words in any natural language can be given in a simple manner and the empirical hypothesis that the simplest formulation of the rules best characterizes the varied instances of human linguistic competence. The purpose of this chapter is to show that diminished simplicity accompanies analyses of predicate complementation which do not postulate the recursion of S under the immediate domination of both NP and VP.

Noun Phrase Complementation

Consider the following pair of sentences which are traditionally described as active (1a) and passive (1b).

(1) a. the little boy took the book

b. the book was taken by the little boy

There is hardly a simpler formulation of the passive transformation than that according to which the noun phrases preceding and following the main verb of a sentence are inverted with a concurrent insertion of the passive morphemes be+en and by. Any speaker of English will attest that it is just this transformational process (in the literal sense) which relates sentences (1a) and (1b). Chomsky has shown, furthermore, that a passive transformation of this general form follows as a logical consequence from a general theory of language seeking to explain the linguistic abilities possessed by normal speakers of a language in some systematic fashion.[1]

But the generality of the passive transformation in its usual formulation, i.e., roughly the formulation given in Chapter 1, is at least superficially questionable with respect to certain observed phenomena of which sentences (2a) and (2b) are instances.

(2) a. Columbus demonstrated that the world is not flat

b. that the world is not flat was demonstrated by Columbus

It is as easy to believe that the phrase "that the world is not flat" is an instance of the constituent S as it is to believe that it is an instance of the constituent NP. For instance, phrases of this sort contain the constituent

structure common to other instances of S. Under the appropriate conditions such phrases can be passivized, e.g., I think that John hit the ball====>I think that the ball was hit by John. It seems only good sense to assert that any linguistic description which does not postulate that this phrase is an instance of S at some level of derivation could not achieve empirical adequacy. But it is not a priori obvious that successful linguistic descriptions must identify this phrase as an NP at some level of derivation.

Let us look more carefully at the passive transformation in terms of the most conservative analysis of the phrase "that the world is not flat," where this phrase is analyzed solely as an instance of S. Applying the same considerations which led us to relate(1a) and (1b), one observes that a new formulation of the passive transformation is required according to which a noun phrase preceding a verb and a sentence following the verb are inverted. The pair of sentences in (3) suggests an additional modification by which a sentence preceding a verb and a noun phrase following the verb are inverted.[2]

(3) a. that the doctor came at all surprised me

b. I was surprised that the doctor came at all

On the assumption that the phrases presented in the examples above are instances of S, one is forced to a more elaborate formulation of the passive transformation, (4), in which sentences, in addition to noun phrases, can be inverted.

(4) X $\begin{Bmatrix} NP \\ S \end{Bmatrix}$ AUX V (PREP) $\begin{Bmatrix} NP \\ S \end{Bmatrix}$ by+P Y

1 2 3 4 5 6 7 8 9=====>

1,6,3,be+en,4,5,Ø,7,2,9

The diminished generality of the passive transformation results not from the fact that phrases like "that the world is flat" must be analyzed as instances of S, but from the assumption that such phrases are not also instances of NP. For if these phrases are assumed to be dominated by NP in the structures underlying (2) and (3), then the original, more general formulation of the passive transformation is seen to be entirely adequate. Allowing that S as well as N can be dominated by NP, (the formulation given by PS Rule 2 in Chapter 1), the original passive transformation will effectively generate the sentences in (1), (2), and (3). This is a consequence of the generalization that both N and S may be instances of NP.

The simpler statement of the passive transformation, made possible by the assumption that NP may dominate S, receives powerful support from the fact that the contrary assumption is simply not confirmed by observation. For instance, English contains a great many sentences, e.g., (5), in which infinitival constructions, which must be analyzed as instances of S at some level, never undergo passivization.

(5) a. 1) I tended to think slowly

2) *to think slowly was tended by me

b. 1) John needs to go home early

2) *to go home early is needed by John

c. 1) she began to cry

2) *to cry was begun by her

Observations of this sort indicate that persistence in the assumption that S cannot be dominated by NP obliges us to propose further modifications in addition to a more complex statement of the passive transformation. In particular, it becomes necessary to include in the description a variety of apparently unsystematic restrictions on the application of the transformation in (4) so as to prevent the occurrence of sentences (5,a2, b2, c2). If, on the other hand, NP can dominate S, then we can view the sentences in (5) as constructions which are instances of something other than noun phrase complementation, that is, as constructions whose underlying structures are quite distinct from those in (2) and (3). If NP dominates S in (2) and (3), but not in (5), then the ungrammaticality of the sentences (5a2, b2, c2) is an automatic consequence since the passive transformation in its most general form applies only to NP's (dominating either N or S) and not to an S which is not dominated by NP.

The assumption that an NP can dominate S is instrumental in explaining a great many observed regularities in complement

constructions which are superficially unrelated, that is, unrelated on the basis of simple inspection. The fact that the contrary assumption, discarded above for independent reasons, does not lead to an account of these regularities provides further support for the hypothesis being proposed here. By way of example, consider the following pairs of sentences.

(6) a. 1) Columbus demonstrated that the world is not flat
2) that the world is not flat was demonstrated by Columbus
3) it was demonstrated by Columbus that the world is not flat

b. 1) that the doctor came at all surprises me
2) it surprises me that the doctor came at all

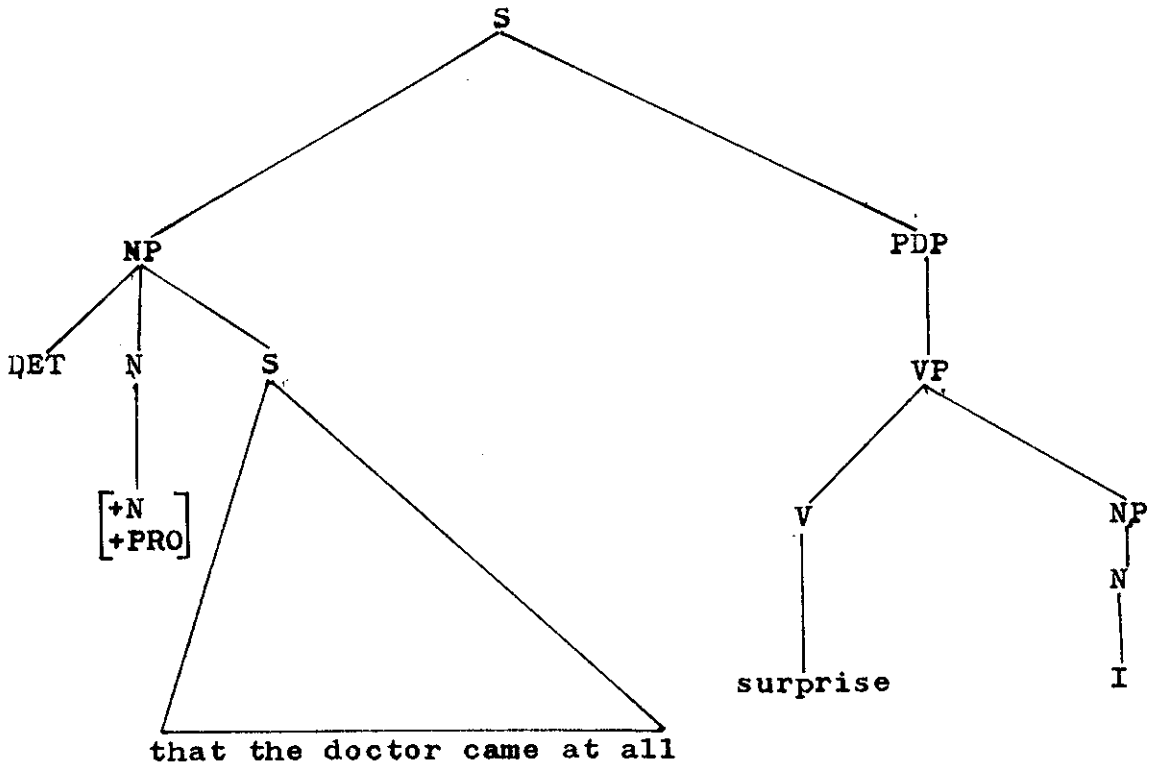
For much the same reason that led us to relate the sentences in (2), or the sentences in (3) for that matter, to a common underlying form, it is also necessary to relate sentence (6a1) to (6a2,3) and the sentence (6b1) to (6b2). Careful observation indicates that there is no phrase, e.g., "that the doctor came at all," which appears before verb phrases like "surprised me" which cannot appear following the verb phrase. To assume that the two sentences are not derived from a common source is to diminish simplicity greatly. We shall return to a proposal for capturing this generalization shortly.

A reconsideration of PS Rule 2, as given in Chapter 1, reveals that the expansion of NP into the constituents DET and N is obligatory. The expansion into DET N S is optional. If the foregoing considerations are correct, if the phrase "that the doctor came at all" is an S dominated immediately by NP, then one may question the formulation of PS Rule 2 since no N is observed preceding the phrase in (6b1). One might consider taking this fact as evidence that the expansion of NP into DET N is optional also. There is one general fact, however, which advises us that such a conclusion is in error. The sentences in (6) show that the pronoun "it" may appear in sentence initial position just in case the "that" phrase appears at the end of the sentence. Furthermore, the pronoun may not appear when the "that" phrase is in sentence initial position, as sentence (7) indicates.

(7) *it that the doctor came at all surprised me

These facts are convincingly explained on the assumption that it is the pronoun which determines the application of a transformational rule which moves the "that" clause to the end of the sentence. Thus the structure underlying the sentences in (6b) might be formalized in terms of the following phrase structure representation.[3]

(8)



The phrase structure configuration in (8) asserts that NP has been expanded into a N which carries the pronominal feature [+PRO] and a complement sentence S. We postulate that the sentences (6b1) and (6b2) are derived through the application of one of two extremely general rules defined upon this configuration. The first of these rules is the extraposition transformation, defined in Chapter 1, according to which an S following a pronoun is extraposed to the end of the string, thereby yielding (6b2). A second transformation, the pronoun deletion transformation,[4] defined in Chapter 1, deletes the pronoun when it occurs immediately before S, thus producing sentence (6b1). It is clear that the sentences in (6a) can be similarly derived.[5]

Further support for PS Rule 2 is provided by the fact that both of the transformations just discussed, T_E and T_{PD}, which are required to explain the relatedness of (6b1) and (6b2), are independently motivated in other instances. Consider, for example, the following pair of sentences.

(9) a. I would like for you to be there very much

b. I would like very much for you to be there

On the assumption that the phrase "for you to be there" is an instance of noun phrase complementation described by PS Rule 2, the relation of (9a) to (9b) becomes an automatic consequence of T_E, according to which the phrase is extraposed to the end of the string.

The conclusion that PS Rule 2 is valid is supported by yet another consideration, specifically, the limitations on the occurrence of"pseudo-cleft" sentences. The problem posed by these sentences is that they are not predictable simply from the inspection of non-cleft sentences. Consider, by way of illustration, the differences between the following pairs of sentences.

(10) a. 1) I hate you to do things like that

2) what I hate is for you to do things like that

b. 1) we prefer you to stay right here

2) what we prefer is for you to stay right here

c. 1) I defy you to do things like that

2) *what I defy is for you to do things like that

d. 1) we tempted you to stay right here

2) *what we tempted was for you to stay right here

Eschewing the details of wh attachment and pseudo-cleft sentence derivation, we may nonetheless suppose that the derivation of these sentences depends upon a noun phrase complement structure. If this conjecture is correct, then the grammaticality of (10a2, b2) implies that the sentences (10a1, b1) are instances of noun phrase complementation where the phrases "you to do things like that" and "you to stay right here" are what remains of an underlying structure in which these phrases were generated as S's under the domination of NP. Independent proof of this claim stems from the possible extraposition of these phrases as in (11).

(11) a. I hate very much for you to do things like that

b. I prefer very much for you to stay right here

Since the sentences (10c2, d2) are ungrammatical, our hypothesis leads us to the conclusion that the sentences (10c1, d1) are not instances of noun phrase complementation, a prediction which is borne out by the fact that extraposition is impossible for these sentences.[6]

(12) a. *I defy very much for you to do things like that

b. *we tempted very much for you to stay right here

If the hypothesis that the pseudo-cleft sentences discussed above depend upon the application of PS Rule 2, producing noun phrase complements, is true, the grammar thus predicts that the derivation of the pseudo-cleft sentence will be possible for the constructions mentioned earlier where the noun phrase complement analysis was proposed. The fact that the following derivatives of the sentences in (6) are grammatical confirms this prediction.

(13) a. what Columbus demonstrated was that the world is not flat

b. what was demonstrated by Columbus was that the world is not flat

(14) a. what surprised me was that the doctor came at all

b. what I was surprised at was that the doctor came at all

Verb Phrase Complementation

Our acceptance of PS Rule 1, which variously expands VP into S, requires 1) a demonstration that PS Rule 2 is inappropriate for certain constructions and 2) a valid argument that PS Rule 1 is the most general formulation which adequately accounts for the residue of cases not handled by PS Rule 2. Toward these ends, consider the following data.

(15) a. 1) everyone preferred to remain silent

2) to remain silent was preferred by everyone

3) what everyone preferred was to remain silent

b. 1) John tended to play with his little brother often

2) *to play with his little brother often was tended by John

3) *what John tended was to play with his little brother often

The paradigm (15a) exhibits the properties which are generally associated with noun phrase complementation, i.e., the passivization of the entire complement sentence (in this case "to remain silent") and the occurrence of the pseudo-cleft sentence. These properties are not, however, observed in the second paradigm (15b).

The current formulation of transformational theory allows at least two devices which are sufficiently powerful to prevent the generation of the ungrammatical sentences in (15b). The first alternative postulates that (15a) and (15b) have similar underlying structures but differ in the specification of the transformational rules which apply to this structure. In other words, the verb "tend" is marked in such a way that both the passive transformation and these transformations which are instrumental in the derivation of the pseudo-cleft sentence are not applicable. The second alternative is to

claim that (15b) is simply not an instance of noun phrase complementation at all, but rather a paradigm whose underlying form is something like (1) in Chapter 1. In the latter analysis, the verb "tend" is also marked, but not for the application of transformations. Rather, the verb has a strict subcategorization marker[7] which permits its occurrence before the constituent S. In this description, the ungrammaticality of (15b2) and (15b3) follows from the fact that neither the passive transformation nor the pseudo-cleft sentence transformations apply to an S which is not immediately dominated by NP.

Of the two alternatives, considerations of optimal generality suggest that the second, which assumes (15a) and (15b) to have different underlying structures, seems to be preferable. In either analysis, a strict subcategorization marker on the verb is required. In the first analysis, this marker stipulates that the verb "tend" must occur immediately preceding a NP which must itself dominate S. In the second analysis, the strict subcategorization marker simply requires the verb "tend" to occur immediately preceding the constituent S. Thus, the first bit of unnecessary complexity which the first analysis requires is the specification that the NP following the verb must dominate S. This requirement follows from the fact that the verb "tend" is otherwise intransitive.[8] Since the second analysis asserts that the verb may occur only before S, the ungrammaticality of (16) is an automatic consequence and requires no additional feature specification.

(16) a. *I tended the ball

b. *I tended something

Even if it were the case that the two analyses were equally simple with respect to strict subcategorization markers, we should prefer the second analysis over the first on yet other grounds. In the first analysis, where it is assumed that the verb "tend" occurs immediately preceding a NP, it becomes necessary to specify a set of transformations which such a construction cannot undergo. In particular, such a verb must be marked for the non-application of the passive transformation and the pseudo-cleft sentence transformations. The relative simplicity with which these restrictions can be marked on verbs is not at issue here. The crucial point is that in the second analysis, which assumes "tend" to be followed by S in the underlying structure, such a feature specification is totally unnecessary in the first place since the transformations under discussion do not apply to an S which is not dominated immediately by the constituent NP. Thus the first analysis, treating (15b) as an instance of noun phrase complementation, fails on two counts. First, this analysis requires an unnecessarily complex strict subcategorization statement. Second, it requires a fairly elaborate set of restrictions on allowable transformations which is totally unnecessary if it is hypothesized that (15b) is not an instance of noun phrase complementation.

It is thus a necessary conclusion that there are a number of complement constructions which cannot be instances of noun phrase complementation. That these constructions are most fruitfully analyzed as instances of verb phrase complementation follows from various considerations on the operation of the identity erasure transformation, T_{EI}, as given in Chapter 1. In the noun phrase complement system, the deletion of the subject of the complement sentence is often obligatory when it is identical to the subject of the main or including sentence. Consider the following cases.

(17) a. I love Bill to play the piano

b. I love to play the piano

c. *I love me to play the piano

On the basis of this evidence alone, the simplest formulation of the identity erasure transformation would stipulate that the subject of the complement sentence is obligatorily deleted just in case it is identical to the first noun phrase to the left of the complement sentence in the main sentence. This statement is consistent not only for many instances of noun phrase complementation, but also for all instances of the type of complementation exemplified by (15b1). Furthermore, this formulation holds for transitive verbs[9] which take the type of complement found in the same example, as is illustrated in the following instances.

(18) a. they tempted John to leave early

b. we forced John to ignore his work

The above formulation collapses in the face of certain adverbial constructions representing a degenerate form of the prepositional locution "in order to."

(19) a. I sold the boat (in order) to save money

b. she took the car (in order) to buy bread

In these cases the implicit subject of the adverbial sentence is not the first noun phrase to the left in each case, but rather the second noun phrase to the left. The problem gets even more complex when we observe instances where identity to the right is apparently required. Consider, for instance, the following sentences.

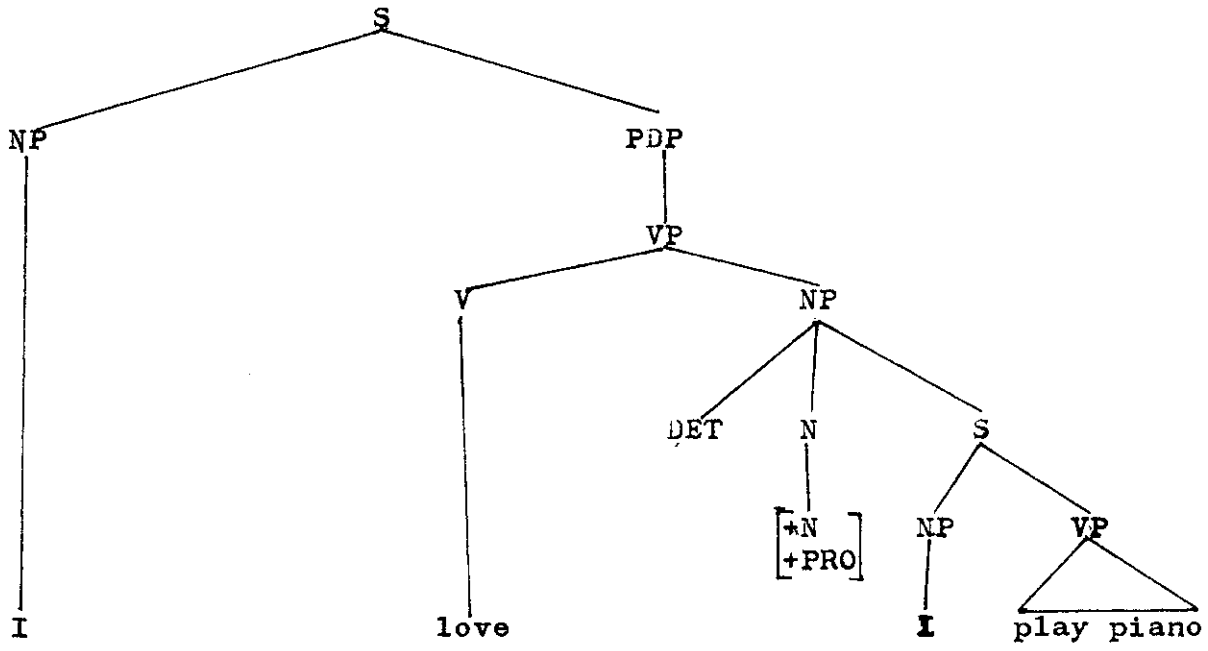
(20) a. can you expect it of him to do what is right always

b. I absolutely require it of you to be here on time

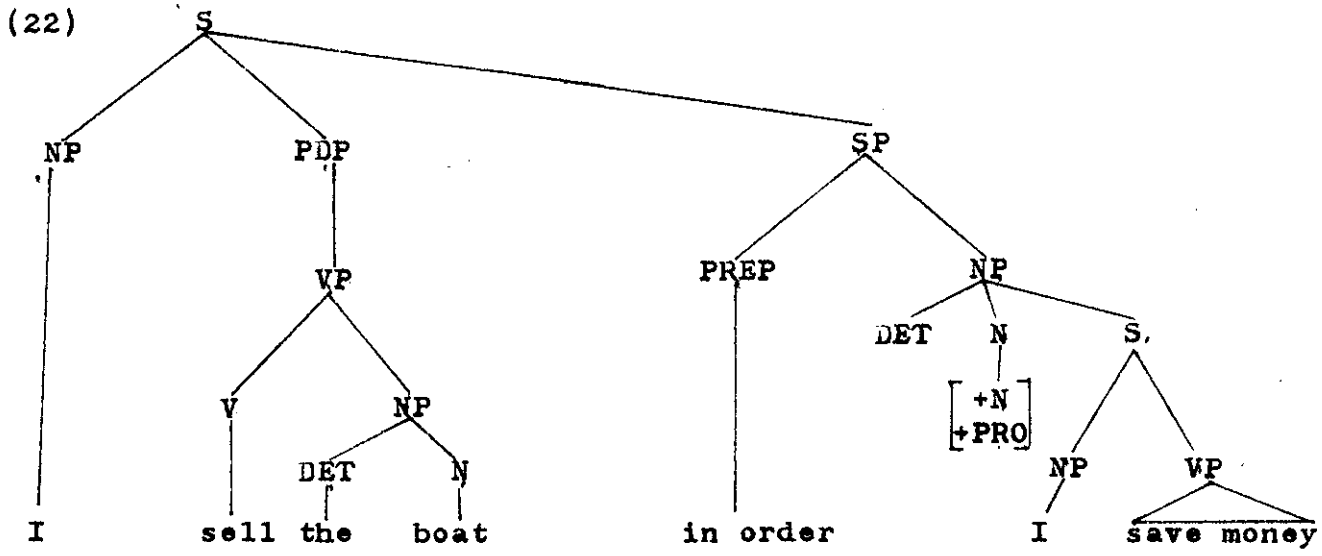
One will readily appreciate that the phrases "it to do what is right" and "it to be here on time" are noun phrase complements and that the sentences in (20) assume their form by virtue of the application of the extraposition transformation. The noun phrase to which the subject of the complement sentence must be identical lies to the right of the complement sentence, thus irreparably damaging the left identity hypothesis.

All of these difficulties may be resolved by the adoption of an extremely general principle governing the application of the transformation which deletes the subject of complement constructions. This principle becomes immediately apparent upon examination of the phrase structures underlying (17), (19), and (20).

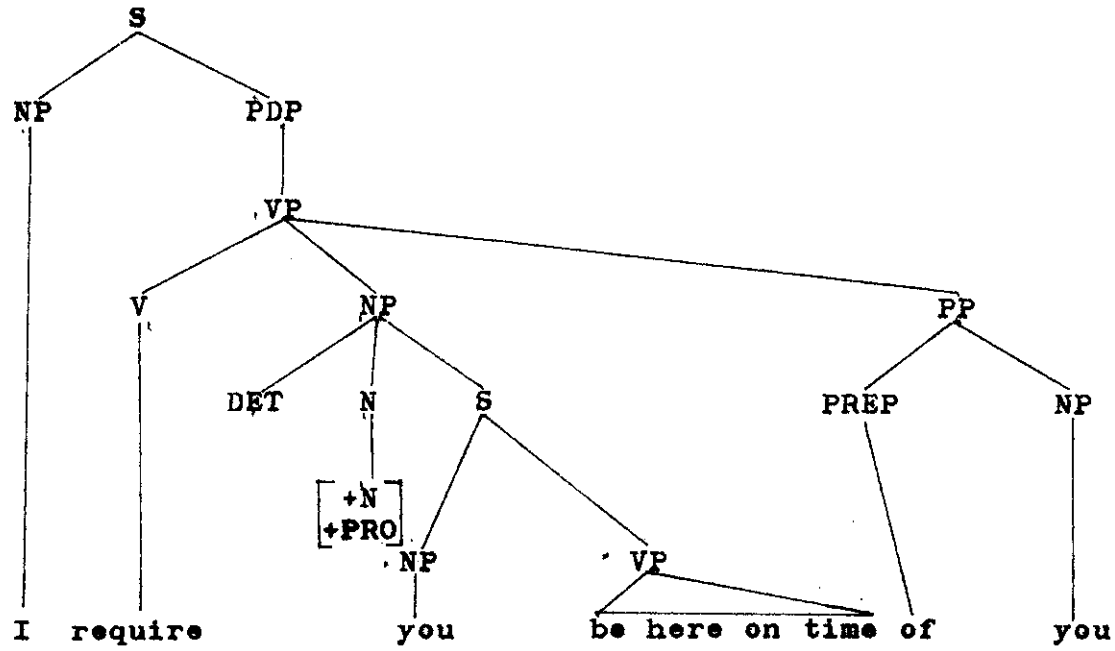
(21)



(22)


S
NP
PDP
SP
VP
PREP
NP
V
NP
DET
N
S
[+N
+PRO]
DET
N
NP
VP
I
sell
the
boat
in order
I
save money

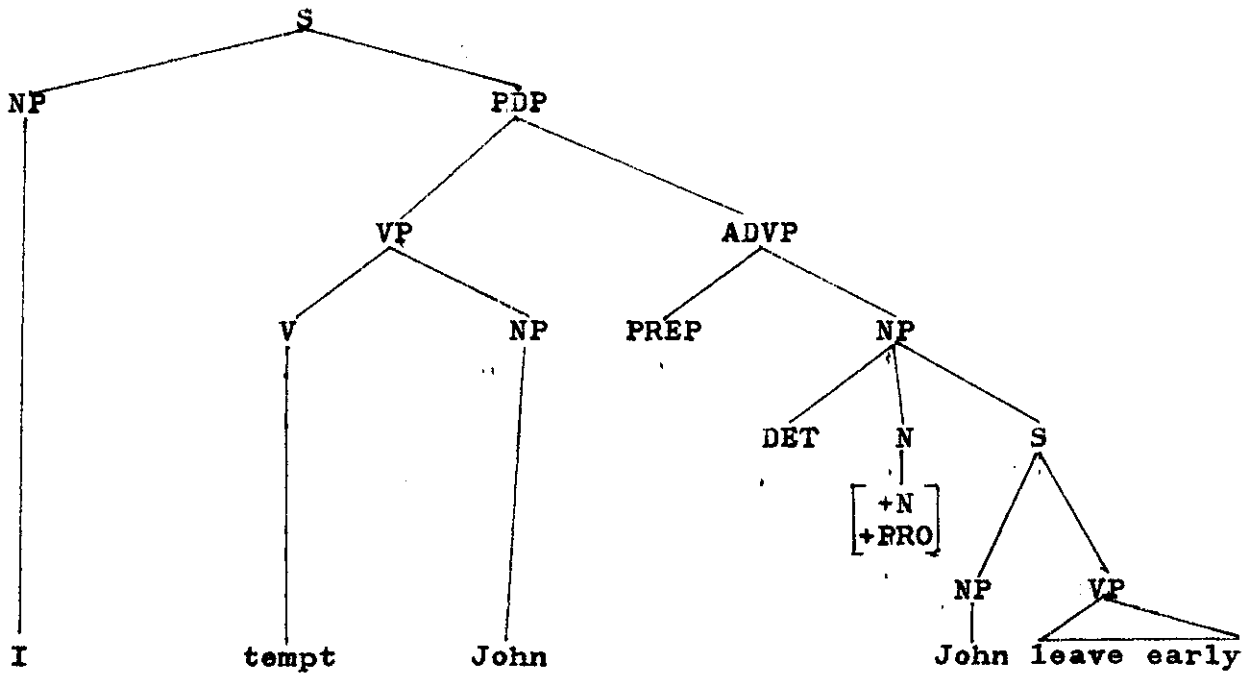
(23)


S
NP
PDP
VP
V
NP
PP
DET
N
S
PREP
NP
[+N
+PRO]
NP
VP
I
require
you
be here on time of
you

The above phrase structures suggest that an NP_j can be erased by the identity erasure transformation just in case there is some sentence S_α (a complement sentence) such that 1) NP_j is dominated by S_α, 2) NP_i neither dominates nor is dominated by S_α, and 3) for any NP_k which neither dominates nor is dominated by S_α the distance between NP_j and NP_k is greater than the distance between NP_j and NP_i where the distance between two nodes is defined in terms of the number of branches in the path connecting them. In (21) and (22), the "erasing" NP's are the subject NP's of the main sentence. In (23), the erasing NP is the NP, "you," in the prepositional phrase of the main sentence. In all three phrase structures, the "erased" NP happens to be the underlying subject of the complement sentence. The identity erasure transformation asserts only that the erased NP must be the one which follows the complementizing morphemes "for" and "POSS," thus correctly allowing the identity erasure transformation and the erasure principle which governs its application to range over derived subjects, as in cases where the passive transformation has applied to the complement sentence. As shall be seen in the discussion to follow, the erasure principle accounts for most cases of identity erasure in English and has only one exception. The fact that the connection principle applies with such remarkable precision to so many cases suggests that the latter may indeed be a false counter-example, a possibility which is attested by considerations to be raised later.

Returning to the question of whether the complement constructions in (18) and (15b) are instances of verb phrase complementation, we find that the erasure principle provides a ready answer. On the supposition that the complement sentences in (18) lie outside the verb phrase, but under the domination of predicate phrase, PDP,[10] the erasure principle breaks down. This follows from the fact that, if the complement is not dominated by the verb phrase, then the subject NP of the complement sentence is ambiguously connected with respect to the main sentence. This is readily seen in terms of the hypothetical phrase structure (24), where the subject NP of the complement sentence is equidistant from the subject and object of the main sentence.

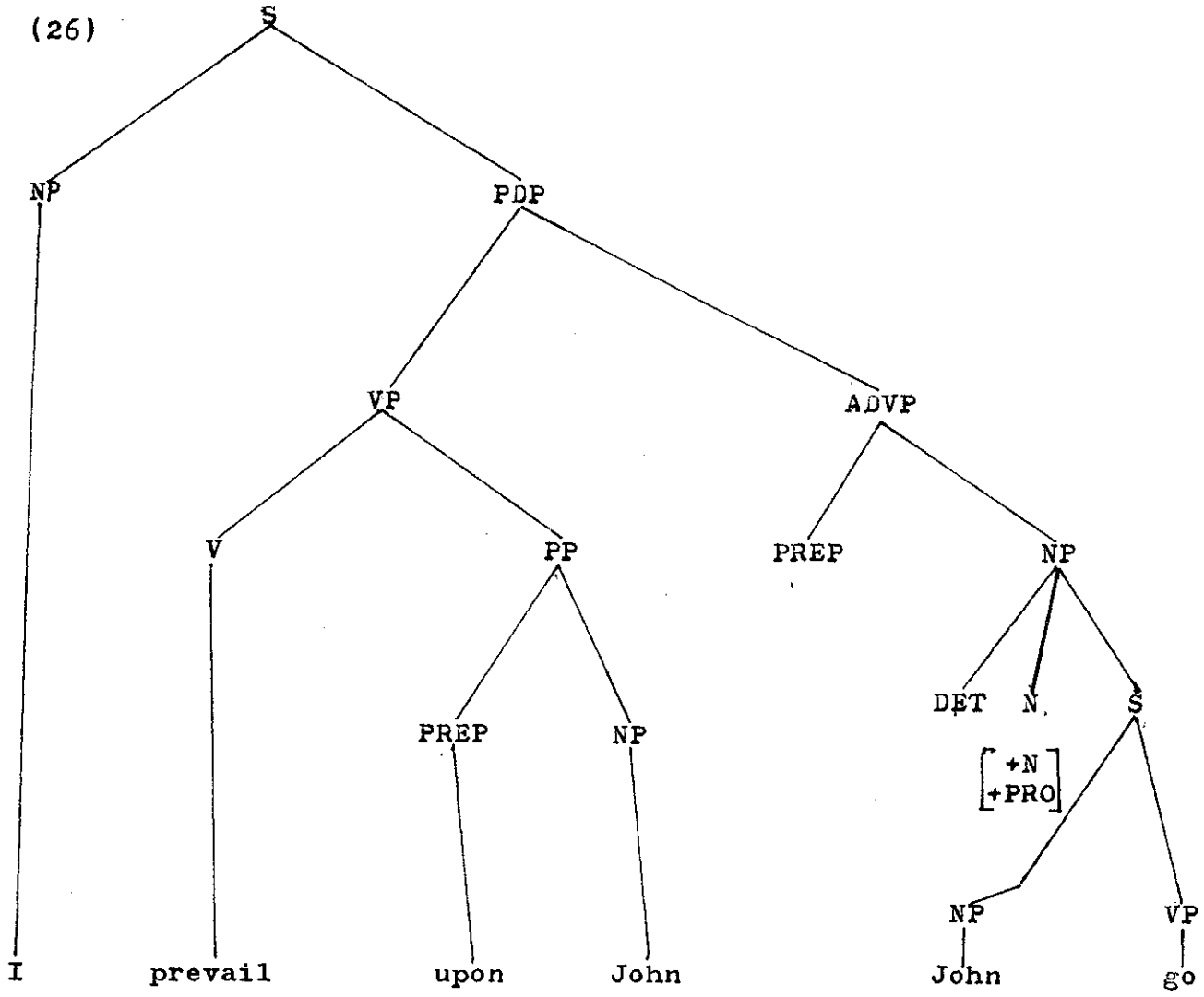
(24)



The situation becomes worse for sentences like (25) which have the underlying structure (26).

(25) I prevail upon John to go

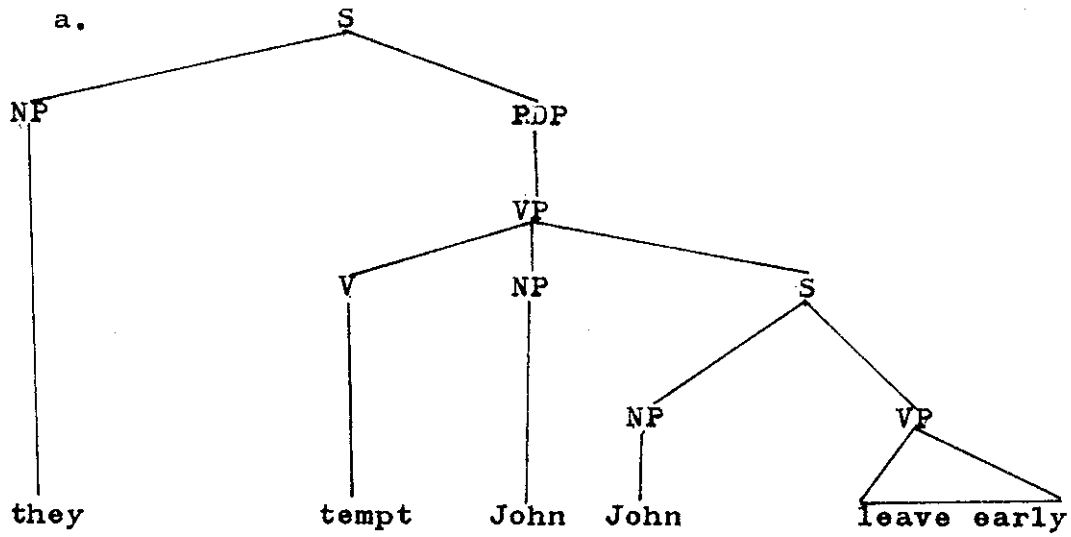
(26)



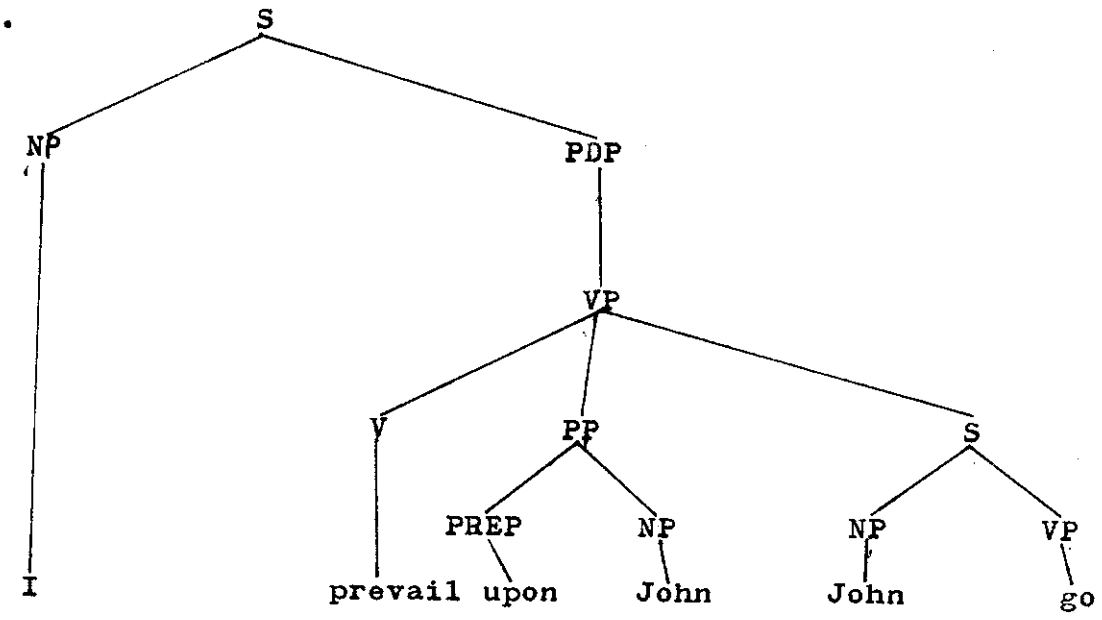
If the erasure principle holds in the case of (26), the grammar will always make the false prediction that the implicit subject of "to go" could be "I" rather than "John" if the subject of the

complement sentence had been "I." If, on the other hand, we postulate that the complement sentence is a verb phrase complement, derived through the application of PS Rule 1, then the erasure principle operates correctly. This result is observed in the following phrase structure diagrams where the structures underlying (18a) and (25) are assumed to exemplify verb phrase complementation.

(27) a.



(27) b.



In (27a), the erasing NP is correctly the object NP of the main sentence. In (27b) the erasing NP is the NP "John" in the prepositional phrase. Thus, the grammar predicts the implicit subject of the complement sentences in (27a, b) to be "John" rather than "they" and "I" respectively.

The cost of not positing the complement sentences "to leave early" and "to go" to be instances of verb phrase complementation in (27) is the cost of being unable to generalize the identity erasure transformation. Without assuming verb phrase complementation, the principle governing identity erasure would, in any case, become so complex as to be unserviceable. Since the analysis of verb phrase complementation is a consequence of the most general formulation of erasure principle, the necessity of adopting such a construct as the verb phrase complement seems unavoidable.

The two types of complementation under discussion in this chapter by no means exhaust the complementation systems of English. Other kinds of sentential embedding are quite common. Among these are relativization, as exemplified by (31), and subordination of various types (32).

(31) the man who arrived yesterday left today

(32) a. she laughed because the joke was funny

b. the glass broke when I threw it against the wall

c. being late to dinner, I got nothing to eat.

While it is not at all certain that the complementation represented by (31) and (32) share no common properties with noun phrase and verb phrase complementation as defined by phrase structure Rules 1 and 2, it is nonetheless clear that noun phrase and verb phrase complementation presuppose a fairly intricate set of rules which seem at present to play but a small role in other complement systems. The remainder of the present work will be devoted to the study of the kinds of rules which are required to handle noun phrase and verb phrase complementation (henceforth collectively referred to as predicate complementation) and the way in which these rules are implemented in the grammar.

NOTES

1. Cf. Noam Chomsky, Syntactic Structures, The Hague, 1957, especially Chapter 7; for further discussion of the passive transformation, see R. B. Lees, The Grammar of English Nominalizations, Bloomington, 1960; J. J. Katz and P. M. Postal, An Integrated Theory of Linguistic Descriptions, Cambridge, 1964; Chomsky, Aspects of the theory of Syntax. Cambridge, 1965; and J. B. Fraser, "The Passive Construction in English" (forthcoming).

2. The derivation of the sentence (3b) includes essentially two steps. The application of the passive transformation to the structure underlying (3b) will yield the string "I be+en surprise by that the doctor came at all." The agentive preposition "by" is subsequently deleted by the application of a general preposition deletion transformation discussed in Chapter 4.

3. The constituent PDP is expanded into VP and an optional Adverbial which usually takes the form of a prepositional phrase, as in time and place adverbials, e.g., "at dawn" or "in the woods." Since the present study does not deal with these adverbials, the constituent PDP will, for the most part, dominate VP directly.

4. The present study assumes that the pronoun "it" in sentences like (6a3) and (6b2) is introduced into the underlying structure by the same rules which introduce lexical items into the underlying structure. The grammar thus requires a transformational rule deleting this pronoun in the appropriate environments. Since no transformational rules are formulated in terms of the phonological matrix of this pronoun, it is entirely conceivable that the phonological matrix for the pronoun is introduced by ordered "spelling" rules perhaps of following form which apply after the transformational rules.

a. $\begin{bmatrix} +N \\ +PRO \end{bmatrix} \text{----> it} / \left[\left[\underline{\quad} \right]_{N} \right]_{NP}$

b. it----> $\emptyset$ / ____ ADV (optional)

5. The derivation of sentence (6a1) does not presuppose the application of the passive transformation whereas this transformation is requisite to the derivation of sentences (6a2,3).

6. It is reasonable to argue that the sentences in (12) are blocked by virtue of the fact that the adverbial "very much" is inappropriate for verbs like "defy" and "tempt" in certain dialects of English. In such dialects, sentences like the following are ungrammatical.

*I defy you to do things like that very much
*we tempted you to stay right here very much

But this counter-argument collapses when suitable adverbials are employed, as is seen in the following pairs.

I defied him to buy a house consistently
*I defied consistently for him to buy a house

we tempted him to stay home cleverly
*we tempted cleverly for him to stay home

7. Cf. Chomsky, Aspects of the Theory of Syntax, for discussion of subcategorization.

8. The intransitive verb "tend" must, of course, be distinguished from the transitive homonymous verb "tend," as in "the shepherd tended the flock." It is the former which is ungrammatical in the sentences in (16).

9. The assumption that the verbs in (18) are transitive follows from two considerations, one of which has not yet been discussed. First, the phrases "John to leave early" and "John to ignore his work" are not instances of noun phrase complementation. If they were, we should expect sentences like *"what they tempted was for John to leave early" and *"what we forced was for John to ignore his work" to be grammatical. Second, identity erasure is obligatory for all instances of verb phrase complementation. Thus the grammaticality of the sentences in (18) implies that "John" in both of these sentences originates as an object noun phrase.

10. The assumption that complement sentences like "to leave early" in (24) are under the domination of the PDP is, of course, more conservative than the assumption that this sentence is under the domination of SP, the subordinate adverbial phrase, which is immediately dominated by S. Since the erasure principle fails, however, even for the most conservative assumption, there is little reason to investigate other possible analyses for the sentences in (18).

11. Sentence (28) is actually ambiguous in three ways if one views the phrase "to answer all questions" as an instance of subordination as in "they relied upon his intellectual propensity in order to answer all questions."

CHAPTER 3

Complementing Morphemes and Their Introduction Into the Underlying Structure

One of the properties of predicate complements which distinguishes them from other types of complements is a unique set of markers taking the form of single and paired morphemes. Such markers, including the morphemes that, for, to, POSS, ing, and others,[1] shall be referred to as complementizing morphemes or simply complementizers. Instances of the complementizers which this study will deal with are given below.

(1) I think that Fords are too expensive

(2) I dislike arguing about silly matters

(3) I am concerned about John's being so lazy

(4) the king ordered the proclamation to be read

(5) I should like very much for you to reconsider your refusal

Certain mutual inclusions and exclusions in the set of complementizers exemplified in (1)-(5) are immediately apparent. The complementizer "for" co-occurs only with the complementizer "to." The complementizer "POSS" co-occurs only with "ing." The complementizer "that" occurs alone, never with either "ing" or "to." Sentences like the following are impossible in English.

(6) *I anticipated John's to argue with me

(7) *I can't stand for John being late to supper

(8) a. *I think that John to be late

b. *I think that John being late

It may thus prove convenient to speak of the "that" complementizer, the "for-to" complementizer, and the "POSS-ing" complementizer.

There are two in some sense distinct questions which one might raise with respect to the complementizers. First, what are the considerations which are involved in determining the way in which the complementizers are introduced into various predicate complement constructions? Second, assuming that the descriptive constructs devised with respect to the first question achieve a reasonable level of adequacy, what factors must be taken into consideration in describing the behavior of the complementizers after they have been introduced into the underlying structure of a predicate complement construction? The present study deals primarily with the latter question, although, as shall be seen in the following pages, certain as yet unproven aspects of complementizer introduction are presupposed.

Implicit in the term "complementizer" is the idea that these morphemes are a function of predicate complementation and not the property of any particular sentence or set of sentences. Thus there is no structure underlying any declarative sentence in English which cannot, in some other derivation,

be the structure underlying a predicate complement sentence. This would seem to imply that the rule or set of rules employed in the introduction of a complementizer into a predicate complement construction must be either a context-sensitive re-writing rule or a rule with transformational power since it is necessary to account for the observation that main sentences, which are not themselves predicate complement sentences, as well as other types of complement sentences do not contain complementizers of the type under discussion. For instance, strings like those in (6) are not sentences in English.

(6) a. *that John came early

b. *for John to have done it

c. *John's having done it

The fact that there is some evidence supporting the view that context-sensitive re-writing rules are unnecessary baggage in the syntactic component of the grammar does not, however, imply that complementizer introduction is to be a transformational process entirely. Viewing a transformational rule as a "filter,"[2] it is entirely possible that the complementizers are derived in the underlying structure through the operation of context-free re-writing rules. The application of such rules would thus provide an object which a transformation can interpret and mark as either well-formed or not well-formed. The present formulation of the theory, therefore, allows either

for the phrase structure introduction of the complementizers or for a completely transformational introduction. In the absence of compelling evidence for accepting one formulation over the other, and since it is probably true that the selection of either alternative will not effect the discussion of the operations defined over complementizers one way or the other, the clarity of the following exposition will profit by arbitrarily adopting the transformational alternative simply because this option is probably the most familiar. But it should be kept in mind that, although this option offers a description of complementizer introduction, there is as yet little evidence to suggest that this description is the right one.

There are at least three considerations which play a role in the introduction of complementizers into the underlying structure. The first concerns the classification of the complementizers and the notation in which this classification is framed. A cursory glance at the list of transformational rules in Chapter 1 reveals that several transformations are sensitive either to a "for-to" complementizer or to a "POSS-ing" complementizer. In most cases, the "that" complementizer exemplifies properties markedly different from the remaining two complementizers. This generalization can be captured if, in the grammar, it is more expensive, i.e., less simple, to refer to just the "for-to" complementizer or to just the "POSS-ing" complementizer than it is to refer to both together. Toward

this end, we might propose a binary feature hierarchy for classifying the complementizers where this hierarchy contains the following redundancy rules.

(7) $[+C] \text{----->} [\pm D]$

$[+D] \text{----->} [\pm E]$

$\begin{bmatrix} +C \\ -D \end{bmatrix}$ is realized morphemically as "that"

$\begin{bmatrix} +C \\ +D \\ -E \end{bmatrix}$ is realized morphemically as "for-to"

$\begin{bmatrix} +C \\ +D \\ +E \end{bmatrix}$ is realized morphemically as "POSS-ing"

This notation provides precisely the correct generalization. Should a rule in the grammar have to refer either to "for-to" or "POSS-ing" separately, the structural description will have to list at least three features, namely, (8) or (9), for the "for-to" and "POSS-ing" complementizers respectively.

(8) $\begin{bmatrix} +C \\ +D \\ -E \end{bmatrix}$

(9) $\begin{bmatrix} +C \\ +D \\ +E \end{bmatrix}$

On the other hand, should it be necessary to refer to both complementizers together, the structural description needs to contain only two features, (10), since it does not matter whether the feature "E" is marked "+" or "-".

(10) $\begin{bmatrix} +C \\ +D \end{bmatrix}$

Furthermore, reference to all three complementizers requires only one feature, namely, [+C], since it does not matter here whether the feature "D" is "+" or "-".

On the additional assumption that the complementizing features comprise a feature system distinct from other features which might be postulated for lexical items, an assumption which will effect this presentation trivially even if it is false, it becomes possible to simplify the representation of the complementizers still further.

(11)

1.	that, for-to, POSS-ing	[+C]
2.	that	[-D]
3.	for-to, POSS-ing	[+D]

Keeping this discussion in mind, we turn to the second issue which plays a role in the formulation of the transformational apparatus introducing complementizers into the underlying structure. This issue concerns the statement of the restrictions holding between the main sentence and the complementizer of the predicate complement sentence. Inspection of the following verb phrase complement data readily indicates that the choice of the complementizer in the verb phrase complement is dependent upon the verb in the main sentence.

(12) a. they prevailed upon me to help out

b. *they prevailed upon me that I help out

c. *they prevailed upon me helping out

(13) a. the noise forced me to stop working

b. *the noise forced me that I stop working

c. *the noise forced me stopping working

There are few, if any, apparent counter-examples to the empirical claim that the "that" complementizer never functions as the complementizer of a verb phrase complement.[3] The issue is not so clear cut with respect to the "POSS-ing" complementizer. One observes, for instance, the following sentences.

(14) a. we heard him running down the street

b. I imagined myself eating at the Ritz

It may be argued, perhaps, that what appears to be an instance of the "POSS-ing" complementizer in the above complement constructions is simply a degenerate form of the "for-to" complementizer where the "to" is deleted before the progressive morphemes "be-ing." On this view, the constructions in (15) are earlier stages in the derivation of (14).

(15) a. *we heard him to be running down the street

b. I imagined myself to be eating at the Ritz

Although such an analysis appeals to the semantic intuition that the activities defined in the complement sentence are, in some sense, on-going, the fact that the progressive morphemes do not occur freely in the complement sentence provides reasonable evidence for the view that verb phrase complements may have "POSS-ing" as well as "for-to" complementizers. Consider, as an illustration, the following sentences.

(16) a. I imagined myself owning a mansion

b. *I am owning a mansion

Since the verb "own" cannot take the progressive form in general, it is difficult to see how the phrase "owning a house," in (16a), could be an instance of the progressive. The verb "own" is not, of course, restricted with respect to the "POSS-ing" complementizer, as we observe in the following noun phrase complement construction.

(17) I dislike their owning such a big car

On the other hand, constructions such as (18) seem to require a description in which "ing" is, in Fillmore's sense, a <u>telescoped progressive</u>.[4]

(18) a. I felt the rope slip

b. I felt the rope slipping

Since the complementizers seem, in general, not to effect the semantic interpretation of the complement sentence, it becomes difficult to explain the difference in meaning between (18a) and (18b) on the assumption that the "ing" in (18b) is the complementizer "ing." But this meaning difference would be accounted for on the assumption that "ing" in (18b) is the progressive "ing."[5]

The question of whether or not there are instances of the "POSS-ing" complementizer in verb phrase complement constructions is, in a certain sense, irrelevant to a successful demonstration that there are restrictions between the verb in the main sentence and the complementizer in the verb complement sentence since there is little question but that the "that" complementizer is so restricted.[6] Should it turn out that the "POSS-ing" complementizer never occurs in verb complement constructions, this will mean simply that whatever mechanism prevents the generation of the complementizer "that" in such constructions will also prohibit the generation of "POSS-ing" In the present discussion, it will be assumed that the "POSS-ing" complementizer does, in fact, appear in verb phrase complement constructions since this complementizer seems to be necessary for intransitive verb phrase complement constructions.

To say that the selection of either the "for-to" or the "POSS-ing" complementizer in a verb phrase complement construction is dependent upon the verb in the main sentence is to imply a descriptive apparatus which posits that verbs are marked with

particular complementizer features in the lexicon that may appear in verb phrase complements of the verb in question. We propose, in other words, that verbs contain features indicating which complementizer is possible in a coordinate verb phrase complement. In terms of the notation suggested earlier, this means that a verb may be marked with the features [+D][+E] if the verb may have a "POSS-ing" complementizer, with the features [+D][-E] if the verb may have a "for-to" complementizer, and with the feature [+D] in the event that the verb may take either the "POSS-ing" or the "for-to" complementizer. Furthermore, should a verb be found which takes all three complementizers, an apparently unlikely event in a verb phrase complement construction, this will be marked simply [+C].

The complementizer placement transformation, case C, precludes the possibility of the complementizer "that" being generated in a verb phrase complement by stipulating that all verb which take verb phrase complement constructions are marked at least [+D]. The variable "α," ranging over the feature coefficients, is introduced into the transformation in order to insure that the coefficient of the feature "E" in the verb is identical to the coefficient of the introduced complementizers. Case "C" of this transformation states, for instance, that if the verb in the main sentence is marked with the features [+D][-E], then the features [+D][-E] are introduced into the verb phrase complement sentence first

immediately preceding an initial noun phrase under the domination of S. Case D of this transformation asserts that whatever features are introduced preceding the initial noun phrase of the complement sentence by cases B and C are duplicated immediately preceding V, have, or be under the domination of VP. Subsequently, these feature clusters are realized morphophonemically as "to" before V, have or be and as "for" elsewhere, or as "ing" before V, have or be and as "POSS" elsewhere.

Turning to noun phrase complementation, observation reveals that complementizer selection is somewhat broader, in the sense that the complementizer "that" is a possibility, but that there are restrictions nonetheless. Consider, for example, the following sentences.

(19) a. I think that John will be late

b. *I think John's being late

(20) a. I want you to hurry home

b. *I want that you hurry home

(21) a. I relish owning catamarans

b. *I relish that I own catamarans

On the surface there seems little doubt that the restrictions upon complementizer selection in noun phrase complement constructions can be handled in a fashion similar to verb phrase complementizer restrictions. But a question arises as to whether it is the noun in the noun phrase containing the noun phrase complement (henceforth the head of the noun phrase

complement construction) which specifies the restrictions or, once again, the verb in the main sentence. The latter alternative has a certain appeal which stems from the fact that if the former alternative is taken, it will still be necessary to mark the verb with the same information for purposes of strict subclassification. In other words, even if a particular complementizer is determined by the head of the noun phrase complement construction, verbs must be marked according to their capacity to appear either before or after such a complement construction. Thus the maximum generality would appear to be preserved if the restrictions are marked on the verb.

Despite its superficial desirability, the specification of noun phrase complementizer restrictions in the verb of the main sentence proves to be inadequate on the basis of considerations which will be examined in some detail later. Briefly, the objection is as follows: It is necessary to postulate complementizer features on pronoun heads of noun phrase complement constructions since the simplest possible formulation of the preposition deletion transformation is defined over a pronoun marked either with the feature [-D] or with the feature [-E]. If this hypothesis is valid, then the supposition that the verb determines the restrictions on noun phrase complementizers becomes improbable since it allows for the generation of ungrammatical strings. Imagine the following situation: A "that" complementizer is selected for the noun phrase complement in

some prepositional phrase within the verb phrase on the basis of the feature [-D] in the verb of the main sentence. At the same time, a pronoun in the noun phrase complement construction is generated with the features [+D] [+E]. The grammar will subsequently produce a sentence containing a noun phrase complement with a "that" complementizer before which the introduced preposition will not have been deleted, as in (22).

(22) *I decided on that John will represent us.

The resulting ungrammatical sentence is a function of the fact that there is no dependency established between the complementizing features on the verb and those on the pronoun. The most readily apparent solution is to make use of the strict categorization mechanism to insure that verbs and the relevant constituents are marked for the same set of features. But once this is accomplished, the original feature specification, designed for the verbal determination of complementizer restrictions in noun phrase complements, becomes redundant since the features on the pronominal head of the noun phrase complement construction may be employed in the same capacity. Thus the greatest generality is achieved if we postulate that the head of the noun phrase complement is the constituent which specifies the features upon which complementizer selection for noun phrase complements is determined. For these reasons the complementizer placement transformation in Chapter 1 has two cases, a noun case and a

verb case. In the final analysis, there is probably an adjective case as well, but this topic will be the focus of much later discussion in Chapter 6.

A final issue which must be taken into account by any complementizer introduction device is the fact that, under certain conditions, complementizers preclude the occurrence of tense and modals. More specifically, modals do not have a privilege of occurrence in predicate complement constructions containing either the "for-to" complementizer or the "POSS-ing" complementizer. For instance, sentences like the following are ungrammatical.

(23) a. *I asked John to will hit the ball
b. John will hit the ball

(24) a. *I dislike John's can playing the piano
b. John can play the piano

On the other hand, there appears to be no comparable modal restriction on predicate complement sentences containing the "that" complementizer, a claim supported by the following data.

(25) a. I think that John will hit the ball
b. I suppose that John can play the piano

The modal restriction can be incorporated into the complementizer placement transformation fairly easily, but the

solution provided by the complementizer placement transformation in Chapter 1 has its limitations and must be considered as a rough correspondence to the facts at best. What is not explained by the formulation of the complementizer placement transformation postulated for the present work is the fact that quite often a particular modal interpretation is implicit in a complement construction containing either the "for-to" or "POSS-ing" complementizer. Consider, for instance, the following sentences.

(26) a. I expect that John will go

b. I expect John to go

(27) a. I anticipate that John will not want to leave

b. I anticipate John's not wanting to leave

(28) is it possible for John to leave early

The modal "will" is, in some sense at least, an implicit aspect of the interpretation of the complement sentences in (26b) and (27b). Similarly, the modal "can" (on one of its readings at least) is an aspect of the interpretation of the complement sentence in (28). On the other hand, in the great majority of the predicate complement constructions there is no obvious modal interpretation whatever. These hazy facts suggest that a certain difficulty may await the apparatus formulated to account for the gross modal exclusion with

the "for-to" and "POSS-ing" complementizers. Since all syntactic and lexical material necessary for the semantic interpretation of a sentence is included in the underlying structure,[5] we are forced to believe that the modal interpretation of (26b, 27b, 28) stems either from the actual existence of the modal in the underlying structure of the predicate complement sentence or, more likely, from some special, idiosyncratic feature of particular verbs for which modal interpretation is necessary. There is, as yet, little evidence on which to base an evaluation of the two alternatives. But, in the event that the first alternative comes to be favored, it will, of course, become necessary to revise the complementizer placement transformation significantly. Perhaps this fact itself is a hint that the second alternative will turn out to be correct.

NOTES

1. A second major class of complementizers with which this study does not deal includes the wh complementizer as in the following cases:

   a) I dislike it when you do that
   b) I often wonder (about) why he does these things
   c) I know where he went
   d) everyone understands how he does it
   e) what he is doing is useless

   Also functioning as complementizing morphemes are if and whether, as in the following sentences:

   a) I doubt if he is going
   b) I wonder whether he is going

2. N. Chomsky, Aspects of the Theory of Syntax (in press).

3. A possible counter-example is the following sentence with the verb "pretend."

   I pretended that I was a pilot

   The fact that the "that" clause neither passivizes nor participates in the pseudo-cleft sentence with the verb "pretend" suggests that this phrase may be a verb phrase complement.

   *that I was a pilot was pretended by me
   *what I pretended was that I was a pilot

   These data are hardly reliable, however, since there are dialects of English which apparently accept the pseudo-cleft sentence.

4. C. J. Fillmore, "The Position of Embedding Transformations in a Grammar," Report No. 3r, Project on Linguistic Analysis, Columbus (1963).

5. This observation was suggested to the author by Edward S. Klima.

6. It should be pointed out in this respect that there is reason to believe that sentence (14b) is not an instance of verb phrase complementation in the first place. These considerations are raised in Chapter 4. It may thus be the case that transitive verb phrase complementation allows only the "for-to" complementizer.

CHAPTER FOUR

NOUN PHRASE COMPLEMENTATION

The discussion in Chapters 2 and 3 indicates (1) that an adequate linguistic description of English syntax must posit noun phrase complement structures having the properties characterized by phrase structure Rule 2 and (2) that such complement constructions are marked by complementizing morphemes whose privileges of occurrence are specified by the complementizer placement transformation, T_{CP}.

The present chapter deals with three distinct instances of noun phrase complementation. We shall be concerned with two instances of this construct which are characterized by phrase structure Rule 1, where either the object of the main verb or the noun phrase in the prepositional phrase following the main verb may dominate a noun phrase complement construction. Furthermore, we shall also study the instance of noun phrase complementation when the dominating noun phrase is the underlying subject of a sentence, a construction produced by the re-writing rule which yields NP, AUX, VP on the basis of the symbol S. Since the transformational rules governing

these cases are, in part, dependent upon complementizer selection, (the properties of the various complementizers being in some ways distinct in noun phrase complement constructions), this investigation ranges actually over nine cases and not over three.

I. Object Complementation

The term "object complementation" is a mnemonic making reference to the instance of noun phrase complementation which arises through the expansion of VP at least into V, NP. The application of phrase structure Rule 2 subsequently yields the string V, DET, N, S. And it is to this particular configuration that attention is directed in the discussion of the properties of object complementation.

A. The "that" complementizer

It was mentioned in an earlier discussion that noun phrase complements may contain one of three complementizers depending upon the particular verb in the main sentence. In this section, we shall study the transformational rules which are required in the event that the complementizer determined by the main verb is the complementizer "that." Toward this end, consider the following paradigm.[1]

(1) a. they doubt it that you will go

b. they doubt that you will go

c. they doubt you will go

d. they doubt it very much that you will go

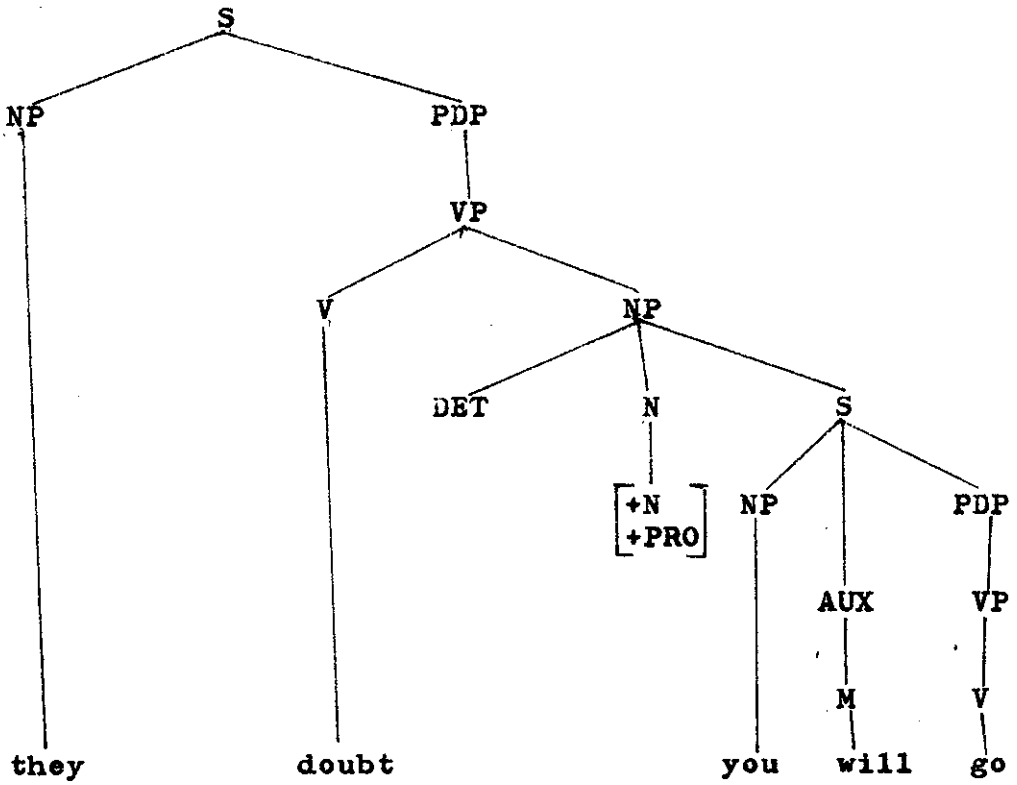
e. they doubt very much that you will go

f. that you will go is doubted by them

g. it is doubted by them that you will go

In terms of phrase structure Rules 1 and 2, the structure which all of the sentences in (1) share is specified as follows:

(2)



The relatedness of (1f) and (1g) is partially reflected, therefore, in the fact that both sentences have a common underlying source, namely (2). But this fact in itself does not tell us very much about the derivation of (1f) and (1g) since there are at least two analyses based upon the common underlying structure which, at least superficially, yield equally simple derivations of the two sentences. To settle this issue, it is necessary to take into consideration other factors besides the common underlying structure. In the first analysis, the two sentences share only the underlying structure. In the second analysis, the two sentences not only share the underlying structure, but also an intermediate stage of the derivation in the sense that both sentences are the result of certain transformations applying to a string which is itself the product of a transformational rule having been applied to the underlying structure. Since so much ultimately depends upon the decision made here, it will be fruitful to study these alternatives in greater detail.

Both analyses presuppose the application of the passive transformation, T_P, as formulated in Chapter 1. But here the similarity ends. In the first analysis, sentence (1f) results from having deleted the pronominal head of the complement construction prior to the application of the passive transformation. The passive transformation thus applies to a string of roughly the following structure.

(3) they doubt [[that you will go]]
S NP

Since the passive transformation applies to any constituent NP such that this constituent conforms to the structural description specified in Chapter 1, it follows that this transformation will apply to (3) producing the string ultimately realized as sentence (1f). In the same analysis, sentence (1g) results from not having deleted the pronominal head prior to the application of the passive transformation. According to this consideration, the passive transformation applies to a string (4a) thus producing the string (4b).[2]

(4) a. they doubt [[it] [that you will go]]
N S NP

b. [[it] [that you will go]] is doubted by them
N S NP

Subsequently, the extraposition transformation, T_E, as defined in Chapter 1, applies to the string (4b) separating the noun phrase complement from the pronominal head and producing the string (5) which coincides with (1g).

(5) [[it]] is doubted by them [that you will go]
N NP S

Thus the first analysis differentiates (1f) from (1g) in terms of the relative ordering of the transformation deleting the pronominal head of the noun phrase complement construction and the passive transformation. The former precedes the latter in the derivation of (1f). The latter precedes the

former in the derivation of (1g). Furthermore, this derivation of (1g) presupposes that the extraposition transformation follows the passive transformation in application. If the contrary were true, then we should have no mechanism capable of producing the string (5) after the passive transformation gives us (4b). The ordering of the passive transformation with respect to extraposition is also a feature of the second alternative analysis which we now explore.

In the second analysis, the derivations of (1f) and (1g) both depend upon the application of the passive transformation to the underlying structure prior to the deletion of the pronominal head of the noun phrase complement sentence. In other words, the string (4b) is an intermediate stage in the derivation of the two sentences. The subsequent derivation of (1f) depends upon the deletion of the pronominal head, generating the string (6).

(6) [[that you will go]] is doubted by them
S NP

The derivation of (1g), in this analysis, is identical to the derivation proposed in the first analysis, namely, through the application of the extraposition transformation. The differentiation of (1f) and (1g) here has nothing to do with ordering, as was the case with the first alternative examined. Rather the differentiation is the function of having applied one of two transformations, the transformation deleting the

pronominal head of the complement construction, (1f), or the extraposition transformation, (1g).

Although both formulations seem to be adequate with respect to the data thus far examined, the consequences of these formulations are not identical with respect to other aspects of the object complement system. More specifically, consider the following sentences (8) in which the object complement is followed by a preposition phrase in the underlying structure (7).

(7) [NP AUX V [DET N S] [PREP NP]]
NP PP S

(8) a. nobody expected it of John that he could be so cruel
b. nobody expected of John that he could be so cruel
c. *nobody expected that he could be so cruel of John

What these sentences indicate is that the pronominal head of the complement construction cannot, in this particular instance, be deleted before the application of the extraposition transformation since such deletion permits the derivation of (8c). But this fact presents grave difficulties for the first formulation when considered with regard to the possible passive versions of the sentences in (8).

(9) a. it wasn't expected of John that he could be so cruel
b. that he could be so cruel wasn't expected of John

The derivation of sentence (9a) is perfectly straightforward. The passive transformation, which we already know must precede the extraposition transformation in order of application, applies to the string (10) to yield the string (11) upon which the extraposition transformation subsequently applies to produce the string (12).

(10) nobody expected [it [that he could be so cruel]]
S NP

[of John]
PP

(11) [it [that he could be so cruel]] was expected [of
S NP

John] by nobody
PP

(12) [it] was expected [of John] by nobody [that he could
NP PP

be so cruel]
S

The major problem arises with respect to the derivation of (9b). If it is the case that extraposition is obligatory for noun phrase complements in the object position of this construction, and if extraposition is dependent upon the existence of the pronominal head of the complement construction, and if the extraposition transformation follows the passive transformation, it appears that the pronominal head cannot be deleted prior to the application of the passive transformation. For if this deletion were to occur prior to the application of the

passive transformation, which we recall is optional, and if the passive was subsequently not applied, the grammar should then have generated the ungrammatical sentence (8c).

What all of this means is that the source of the passive sentence (9b) could not have been simply the phrase "that he could be so cruel." Rather, since the pronominal head cannot be deleted prior to the application of the passive transformation, this passive sentence must have originated from the structure formalized as [it [that John could be so cruel]]. S NP

In other words, the derivation of (9b) must follow the second formulation given earlier in which the first two stages of the derivation are identical to those specified in (10) and (11). But in this case, the extraposition transformation is not applied to the output, thereby yielding (9a); rather the pronominal head of the complement construction is deleted, correctly giving (9b). What this demonstrates is that the first alternative formulation of the rules for characterizing the derivation of (1f) and (1g) does not generalize to other data which the grammar must cover. The second formulation succeeds where the first fails and, for this reason, is to be preferred. Consequently, we can specify the partial derivation of the sentences (1f) and (1g) as follows:[2]

(13) Sentence (1f)

First Cycle -- no operations

they doubt [[it] [you will go]] [by + P] BASE
N S NP MAN

Second Cycle

they doubt [[it] [that you will go]] [by + P] T_{CP}
N S NP MAN

[[it] [that you will go]] be+en doubt [by + them] T_{P}
N S NP MAN

[[it] [that you will go]] be doubt + en [by + them] T_{AUX}
N S NP MAN

[[that you will go]] be doubt + en [by + them] T_{PD}
S NP MAN

Post Cycle

[[that you will go]] is doubted [by + them] M
S NP MAN

(14) Sentence (1g)

First Cycle -- no operations

they doubt [[it] [you will go]] [by + P] BASE
N S NP MAN

Second Cycle

they doubt [[it] [that you will go]] [by + P] T_{CP}
S NP MAN

[[it] [that you will go]] be + en doubt [by + them] T_{P}
N S NP MAN

[[it]] be + en doubt [by + them] [that you will go] T_{E}
N NP MAN S

[[it]] be doubt + en [by + them] [that you will go] T_{AUX}
N NP MAN S

Post Cycle

[[it]] is doubted [by + them] [that you will go] M
N NP MAN S

Directing attention now to the optional deletion of the complementizer "that," we find evidence which suggests that any rule proposed to account for this phenomenon must follow the extraposition transformation. Consider the following data.

(15) a. 1) it is strange that John isn't here
2) it is strange John isn't here
b. 1) it happens that John discovered the same thing yesterday
2) it happens John discovered the same thing yesterday

On the supposition that a "that" deletion transformation precedes the extraposition transformation, we should have to account for the fact that if this rule does apply, the extraposition transformation is always obligatory if the complement construction is in sentence initial position. Consider, for example, the following sentences.

(16) a. 1) that you will find him is doubted by them
2) it is doubted by them that you will find him
3) *you will find him is doubted by them
b. 1) that you were broke was known by everybody
2) it was known by everybody that you were broke
3) *you were broke was known by everybody

To explain the non-occurrence of sentences (16a3, 16b3) requires, first of all, that the extraposition transformation be divided into an optional case and an obligatory case and, second, that the obligatory version be sensitive to more structure than simply the contiguity of the pronominal head of the complement construction with the complement sentence itself. In particular, this statement must list information about the constituency of the complement sentence, namely, that the complementizer "that" is no longer in the structure. There are many difficulties connected with this proposal which require no elaboration here since the greatly increased cost of this formulation over the one in which a "that" deletion transformation follows the extraposition transformation is sufficient to exclude this proposal from further consideration.

Although the ordering of the "that" deletion transformation (henceforth case "b" of the optional complementizer deletion transformation, T_{OCD}), following the extraposition transformation is necessary to the explanation of the non-occurrence of the ungrammatical sentences in (16), the precise formulation of this transformation presents certain difficulties. Consider, for instance, the following sentences.

(17) a. 1) I doubt that John came yesterday quite seriously

2) I doubt John came yesterday quite seriously

3) I doubt quite seriously that John came yesterday

4) *I doubt quite seriously John came yesterday

b. 1) nobody expected (it) of John that he could be so cruel

2) *nobody expected (it) of John he could be so cruel

c. 1) it is important to John that you are here on time

2) *it is important to John you are here on time

d. 1) I convinced Bill that John was not so bad

2) I convinced Bill John was not so bad

These data suggest that the deletion of the complementizer "that" may be restricted just to those instances where this complementizer immediately follows the verb with a NP intervening optionally, or the predicate adjective in the main sentence.[3] According to this restriction, the grammar would correctly predict the deletion of the "that" in the following instances.

(18) a. 1) I think that John is coming

2) I think John is coming

b. 1) it is strange that John came late

2) it is strange John came late

Certain dialectal phenomena suggest that the transformation deleting indefinite pronouns, which has been discussed in the literature[4] but not listed in Chapter 1, must follow

the extraposition transformation but must precede Case "b" of T_{OCD}. In these dialects, the following deletions of the complementizer "that" are encountered.

(19) a. 1) it was thought by someone that you would come
2) *it was thought by someone you would come
3) it was thought that you would come
4) it was thought you would come

b. 1) it is important to someone that you do it
2) *it is important to someone you do it
3) it is important that you do it
4) it is important you do it

The sentences (19a2, b2) are ungrammatical and are prevented by the fact that Case "b" of T_{OCD} is not defined on these strings. Since the appropriate environment is not met in these sentences, the deletion of the complementizer "that" is impossible. However, if the transformation which deletes the indefinite "someone" in (19) is ordered to apply prior to the application of case "b" of T_{OCD}, then the "that" complementizer, now contiguous with the verb or predicate adjective, can be deleted optionally.

In the past few pages we have been exploring the form and order of application of the transformational rules required to generate the sentences in the paradigm (1). Specifically, we have seen that, aside from the complementizer placement

transformation, T_{CP}, five transformations are necessary. These are the passive transformation, the extraposition transformation, the pronoun deletion transformation, Case "b" of the optional complementizer deletion transformation, and the indefinite pronoun deletion transformation. It has been proposed, furthermore, that four of these rules are critically ordered as follows:

1. Passive Transformation -- T_P
2. Extraposition Transformation -- T_E
3. Indefinite Pronoun Deletion Transformation -- unlisted
4. Optional Complementizer Deletion Transformation -- T_{OCD} (Case "b")

The last issue to be discussed before the derivation of the sentences in the paradigm (1) can be fully specified concerns the ordering of the transformation deleting the pronominal head (henceforth to be identified as the pronoun deletion transformation as defined in Chapter 1). The central question has to do with whether the pronoun deletion transformation precedes or follows the extraposition transformation. Two options present themselves. First, pronoun deletion is optional and precedes extraposition which is obligatory. Second, pronoun deletion is obligatory and follows extraposition which is optional. There is evidence which suggests that the second alternative is preferable to the first, but let us consider both alternatives in slightly greater detail.

The first alternative can be illuminated in terms of the following data.

(20) a. 1) that you could do such a thing bothers me

2) it bothers me that you could do such a thing

b. 1) I didn't suspect that you would fail for a moment

2) I didn't suspect for a moment that you would fail

In the first analysis, the non-application of the optional pronoun deletion transformation produces the sentences (20a2, b2), since the extraposition transformation is obligatory. If the former rule does apply, then the sentences (20a1, b1) will be generated since the necessary environment for the application of the extraposition transformation is not satisfied. The central difficulty with this analysis stems from the fact that the extraposition transformation may apply vacuously,[5] for instance, in a base string like (21).

(21) I think [[it] [that John is leaving]]
N S NP

Since the variable Y in the extraposition transformation as stated in Chapter 1 may be null, it follows that the extraposition transformation, which we recall is obligatory in this analysis, will apply with a resulting alteration of the

constituent structure. In particular, the vacuous application of the extraposition transformation will take the complement sentence from under the domination of the NP and attach it to some higher constituent, perhaps S. We observe, however, that the application of the extraposition transformation has no effect on the linear sequence of the constituents in the structural description if the variable Y is null. Since it still remains necessary, therefore, to delete the pronominal head, the first analysis must include an additional pronominal deletion rule just to cover the cases in which the extraposition transformation applies vacuously.

The necessity of positing two pronominal deletion transformations for exactly the same purpose is obviated in the second formulation in which an optional extraposition transformation precedes an obligatory pronoun deletion transformation. In this analysis, the non-application of the extraposition transformation necessitates the application of the pronoun deletion transformation thus generating the sentences (20a1, b1). If the extraposition transformation does apply, then the sentences (20a2, b2) are correctly generated. Finally, in the event that the extraposition transformation applies vacuously, as in (21), the pronoun deletion transformation applies obligatorily to yield (22).

(22) I think that John is leaving

We thus conclude that the pronoun deletion transformation is obligatory and follows the extraposition transformation which is optional.

There is a special case of pronoun deletion which is optional in many instances. Consider, for example, the following sentences.

(23) a. 1) I dislike it very much that he is always late
2) I dislike very much that he is always late

b. 1) I didn't suspect it for a moment that you would fail
2) I didn't suspect for a moment that you would fail

c. 1) I believe it to be true that oculists are eye-doctors
2) *I believe to be true that oculists are eye-doctors

Although there are many unanswered questions about the restrictions on pronominal deletions of the sort exemplified by the sentences in (23), it appears that it is necessary to postulate a variation of the pronoun deletion transformation which is occasionally optional and which allows for the deletion of the pronominal head just in case an adverbial intercedes between the pronoun and the complement sentence. This is case "b" of T_{PD} as defined in Chapter 1.

There is little evidence which allows us to decide whether the pronoun deletion transformation, which follows the extraposition transformation, must precede or follow case "b" of T_{OCD}. There seems to be no particular problem with postulating that the deletion of the complementizer "that" precedes the pronoun deletion transformation. In such a formulation, we observe that the deletion of "that" depends upon the vacuous application of the extraposition transformation. We observe that case "b" of T_{OCD} is not defined upon strings like (24).

(24) a. I think [[it]$_{N}$ [that John is coming]$_{S}$]$_{NP}$

b. I imagined [[it]$_{N}$ [that my boat sank in the hurri-

cane]$_{S}$]$_{NP}$

This follows from the fact that the pronominal head is not a NP, but a N. The application of the extraposition transformation to these strings results, however, in an environment upon which case "b" of T_{OCD} is defined.

(25) a. I think [[it]$_{N}$]$_{NP}$ [that John is coming]$_{S}$

b. I imagined [[it]$_{N}$]$_{NP}$ [that my boat sank in the

hurricane]$_{S}$

The basic virtue of this analysis is that, as we shall see in the following discussion, it becomes possible to

collapse, albeit only partially, the "that" deletion rule with with the rules which optionally delete "for" and "POSS." But this is anything but conclusive justification for the above analysis.

The order required for the application of the transformations discussed thus far is as follows:

1. Passive Transformation -- T_P
2. Extraposition Transformation -- T_E
3. Indefinite Pronoun Deletion Transformation -- unlisted
4. Optional Complementizer Deletion Transformation -- T_{OCDb}
5. Pronoun Deletion Transformation -- T_{PD}

On the basis of these transformations, plus the auxiliary transformation, the derivation of the sentences (1a)-(1e) in the paradigm may be specified in the following manner.

(26) Sentence (1a)

First Cycle -- no operations

they doubt [[it] [you will go]] BASE
N S NP

Second Cycle

they doubt [[it] [that you will go]] T_{CP}
N S NP

(27) Sentence (1b)

First Cycle -- no operations

they doubt [[it] [you will go]] BASE
N S NP

Second Cycle

they doubt [[it] [that you will go]] T_{CP}
N S NP

they doubt [[that you will go]] T_{PD}
S NP

(28) Sentence (1c)

First Cycle -- no operations

they doubt [[it] [you will go]] BASE
N S NP

Second Cycle

they doubt [[it]] [that you will go]] T_{CP}
N S NP

they doubt [[it]] [that you will go] T_{E}
N NP S

they doubt [[it]] [you will go] T_{OCDb}
N NP S

they doubt [you will go] T_{PD}
S

(29) Sentence (1d)

First Cycle -- no operations

they doubt [[it] [you will go]] [very much] BASE
N S NP ADV

Second Cycle

they doubt [[it] [that you will go]] [very much] T_{CP}
N S NP ADV

they doubt [[it]] [very much] [that you will go] T_{E}
N NP ADV S

(The derivation of sentence (1e) requires the application of case "b" of T_{PD} to generate the following string.)

they doubt [very much]$_{ADV}$ [that you will go]$_{S}$ T_{PDb}

B. The "POSS-ing" complementizer

Object complement constructions containing the "POSS-ing" complementizer are similar in certain respects to those constructions containing the "that" complementizer, but are sufficiently different nonetheless to warrant consideration. Compared with paradigm (1), the paradigm for the "POSS-ing" object complement constructions is quite impoverished.

(30) a. *everybody prefers it your driving slowly
b. everybody prefers your driving slowly
c. everybody prefers you driving slowly
d. *everybody prefers it very much your driving slowly
e. *everybody prefers very much your driving slowly
f. your driving slowly is preferred by everybody
g. *it is preferred by everybody your driving slowly

One of the more striking aspects of the restrictions on the sentences in this paradigm is the fact that the pronominal head of the object complement cannot occur. This should not be taken as evidence that these sentences are not instances of noun phrase complementation. We are advised of the spuriousness of this conclusion by the existence of the pseudo-cleft sentences in (31).

(31) a. what everybody prefers is your driving slowly

b. what is preferred by everybody is your driving slowly

It would seem more correct to say that the pronominal head of the complement construction is obligatorily deleted just in case the complementizer in the complement sentences happens to be "POSS-ing."

In addition to the fact that the deletion of the pronominal head is obligatory in such constructions, it is also observed that extraposition is, in general, impossible, a fact exemplified by (30d,e,g). This suggests that if the extraposition transformation is so restricted that it cannot apply in the event that the complementizer of the complement sentence following the pronominal head is "POSS-ing," then the obligatory deletion of the pronominal head becomes an automatic consequence of the pronoun deletion transformation. In other words, by preventing the application of the extraposition transformation, we bring about the obligatory deletion of the pronoun. Thus, the string (30a) must become the string (30b).

In addition to the non-extraposition and obligatory pronoun deletion which we observe in (29), we observe that the "POSS" segment of the "POSS-ing" complementizer can be optionally deleted, as in (29c). Superficially, this deletion would appear describable as a special instance of

case "b" of the optional complementizer deletion transformation, T_{OCD}, which asserts that the "that" complementizer can be optionally deleted when it follows the verb or predicate adjective immediately. Certain other considerations suggest that this simplification is specious. Consider what the following examples demonstrate.

(32) a. 1) I convinced Mary that he was honest

2) I convinced Mary he was honest

b. 1) I convinced Mary of his being honest

2) *I convinced Mary of him being honest

We recall that case "b" of T_{OCD} is defined over a verb or adjective followed by an optional noun phrase followed by "that." If the data in (32) is representative, it is observed that the deletion of the complementizer "POSS" is impossible in the event that a NP intervenes between the complementizer and the verb. This suggests the necessity of establishing a second case of the optional complementizer deletion transformation in order to handle the "POSS" complementizer. In other words, we should establish a two-case transformation like the following.

(33) $X \quad \left\{ \begin{matrix} V \\ ADJ \end{matrix} \right\} \left\{ \begin{matrix} a. & \emptyset \\ b. & (NP) \end{matrix} \right\} \left\{ \begin{matrix} a. & [+C, +D, +E] \\ b. & [+C, -D] \end{matrix} \right\} \quad Y$

1 2 3 4 5====>1,2,3,$\emptyset$,5

Looking ahead to the "for-to" object complement constructions, we discover that case "a" in (32) can be significantly simplified. Consider the following sentences.

(34) a. 1) I would hate for John to lose it
2) I would hate John to lose it

b. 1) I would hate very much for John to lose it
2) *I would hate very much John to lose it

c. 1) for you to stay here would be impossible
2) *you to stay here would be impossible

d. 1) it was important for you to do that
2) *it was important you to do that that

e. 1) I was embarrassed for you to see the mess
2) *I was embarrassed you to see the mess

f. 1) preferring for John to leave is not nice
2) preferring John to leave is not nice

The simplest description of the restrictions on the optional deletion of the complementizer "for" seems to be the following: The complementizer "for" may be optionally deleted just in case this complementizer follows the pronominal head of the complement construction which itself follows the verb in the main sentence. In other words, we propose a transformation something like the following.

(35) X $\begin{Bmatrix} V \\ ADJ \end{Bmatrix}$ $\begin{matrix} N \\ [+PRO] \end{matrix}$ $\begin{bmatrix} +C \\ +D \\ -E \end{bmatrix}$ Y

1 2 3 4 5====>1,2,3,Ø,5

The essential difference between case "a" in (33) and (35) resides in the fact that the latter apparently requires an intervening pronoun between the complementizer and the verb or adjective where this intervening pronoun is not essential for case "a" of (33).[5] Since no unfortunate consequences arise from allowing a pronoun to intervene in case "b" of (33), it becomes possible to generalize the special cases of the optional complementizer deletion rule which handle "POSS" deletion and "for" deletion in terms of a single rule, namely, case "a" of the optional complementizer deletion rule as defined in Chapter 1. Since only two complementizing features, [+C][+D], are sufficient to characterize both the "for-to" complementizer and the "POSS-ing" complementizer, the generalization of the rules which delete these items represents a significant improvement on any formulation of these rules in which three distinct cases are postulated.[6]

This brings us to the last transformation required to derive the sentences in the paradigm (30), the auxiliary transformation which inverts the "POSS" complementizer with the initial NP of the complement sentence and the "ing" complementizer with V, <u>have</u>, or <u>be</u>. The ordering of the auxiliary

transformation is crucial. If we claim that the auxiliary transformation precedes the optional complementizer deletion transformation in order of application, it then becomes necessary to postulate a much more complex optional complementizer deletion rule. The reason for this is that if the auxiliary transformation applies, then the environments of the "POSS" and "for" are no longer the same. More specifically, the "for" still precedes the subject noun phrase of the complement sentence, but the "POSS" complementizer now follows the subject noun phrase as a consequence of the application of the auxiliary transformation. Thus we should have to propose a transformation of roughly the following form.[7]

(36) $$X \quad V \quad \begin{matrix} N \\ [+PRO] \end{matrix} \left(\begin{bmatrix} +C \\ +D \\ -E \end{bmatrix} \right) \quad NP \quad \left(\begin{bmatrix} +C \\ +D \\ +E \end{bmatrix} \right) \quad Y$$

$$1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \Longrightarrow 1,2,3,\emptyset,5,\emptyset$$

Since the optional complementizer deletion transformation, T_{OCD}, is considerably less complex if the auxiliary transformation follows it in order of application (since both complementizers are in the same environment before the application of the auxiliary transformation), this ordering is to be preferred.

A brief summary will, perhaps, be helpful at this point. We have established the necessity of the following ordered set of transformations.

1. Passive Transformation -- T_P
2. Extraposition Transformation -- T_E
3. Indefinite Pronoun Deletion Transformation -- unlisted
4. Optional Complementizer Deletion Transformation -- T_{OCD}
5. Auxiliary Transformation -- T_{AUX}
6. Pronoun Deletion Transformation -- T_{PD}

On the basis of the foregoing discussion, the derivations of the sentences in the paradigm, (30), may be specified in the following fashion.

(37) Sentence (30b)

First Cycle -- no operations

everybody prefers [[it][[you] [drive slowly]]] BASE
N NP VP S NP

Second Cycle

everybody prefers [[it] [POSS[you] [ing drive slowly]]]
N NP VP S NP

T_{CP}

everybody prefers [[it] [[you + POSS] [drive + ing
N NP

slowly]]] T_{AUX}
VP S NP

everybody prefers [[[you+POSS] [drive+ing slowly]
NP VP

]] T_{PDa}
S NP

Post Cycle

everybody prefers [[[your] [driving slowly]]] M
NP VP S NP

(38) Sentence (30c)

First Cycle -- no operations

everybody prefers [[it] [[you] [drive slowly]]] BASE
N NP VP S NP

Second Cycle

everybody prefers [[it] [POSS [you] [ing drive slowly]
N NP VP

]] T_{CP}
S NP

everybody prefers [[it] [[you] [ing drive
N NP

slowly]]] T_{OCD}
VP S NP

everybody prefers [[it][[you] [drive+ing slowly]
N NP VP

]] T_{AUX}
S NP

everybody prefers [[[you] [drive+ing slowly]]] $T_{PD\ a}$
NP VP S NP

Post Cycle

everybody prefers [[[you] [driving slowly]]] M
NP VP S NP

(39) Sentence (30)

First Cycle -- no operations

everybody prefers [[it] [[you] [drive slowly]]] BASE
N NP VP S NP

Second Cycle

everybody prefers [[it] [POSS [you] [ing drive slowly]
N NP VP
]] [by+P] T_{CP}
S NP MAN

[[it] [POSS [you] [ing drive slowly]]] be+en
N NP VP S NP

prefer [by+everybody] T_{P}
MAN

[[it] [[you+POSS] [drive+ing slowly]]] be prefer+
N VP VP S NP

en [by+everybody] T_{AUX}
MAN

[[[you+POSS] [drive+ing slowly]]] be prefer+en
NP VP S NP

[by+everybody] T_{PD}
MAN

Post Cycle

[[[your] [driving slowly]]] is preferred [by+
NP VP S NP

everybody] M
MAN

Let us now consider the sentences in the paradigm (40), where the identity erasure transformation has applied to delete the subject noun phrase of the complement sentence.

(40) a. everybody prefers driving slowly

b. driving slowly is preferred by everybody

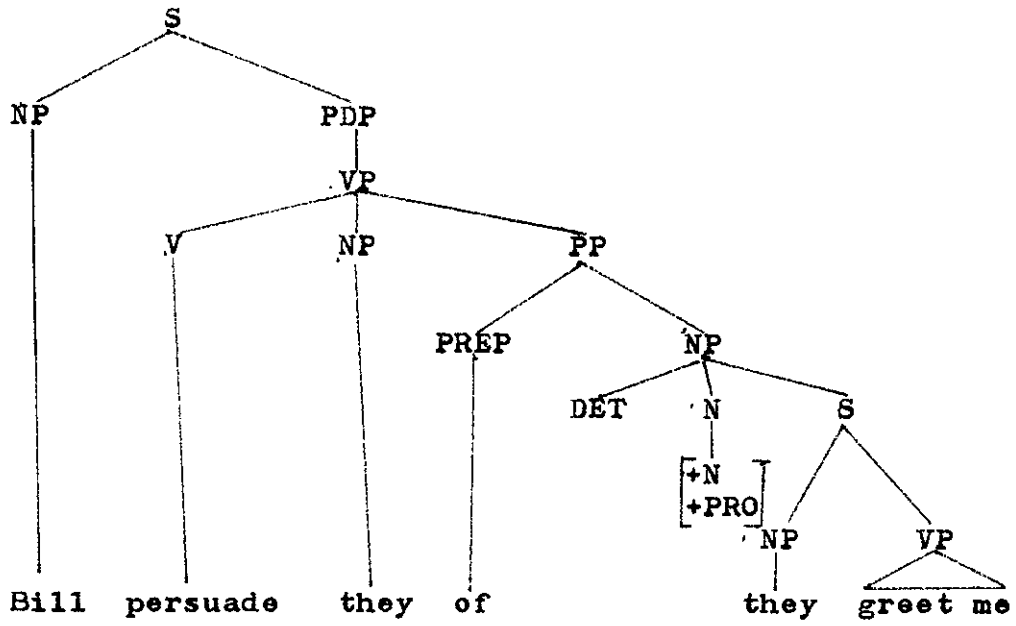
Certain considerations strongly suggest that the identity erasure transformation must precede the passive transformation in order of application. As evidence supporting this contention, consider the following sentences.

(41) a. Bill reminded them to greet me

b. they were reminded by Bill to greet me

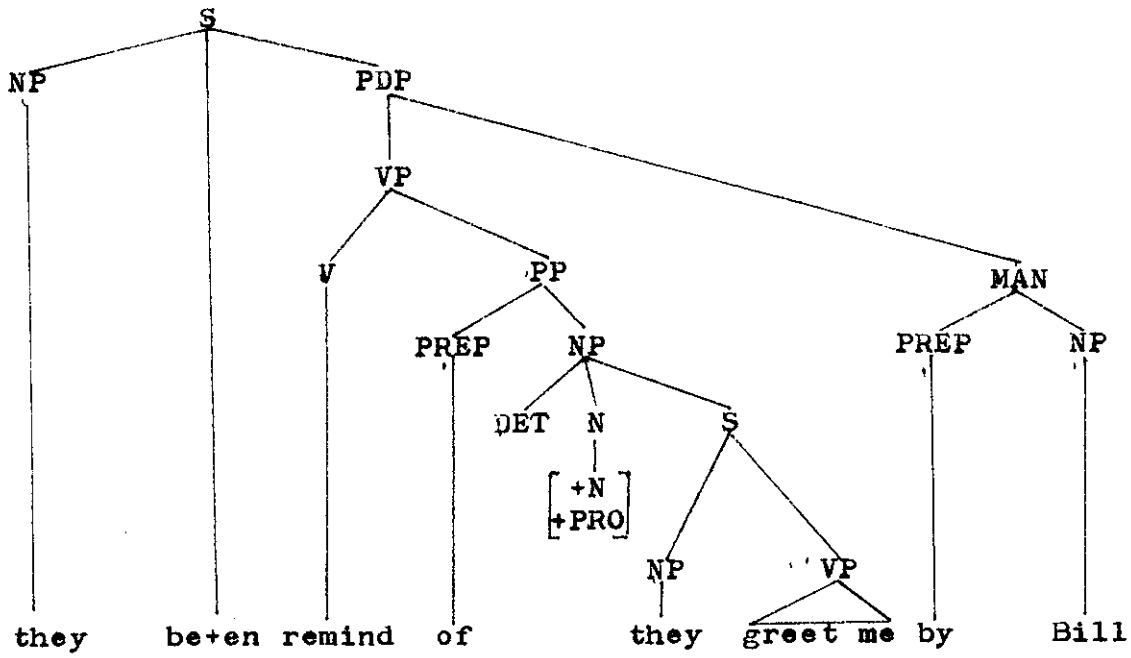
As we shall see later, these sentences are instances of noun phrase complementation having the underlying structure given in (42)

(42)



It is observed that if the identity erasure transformation applies prior to the application of the passive transformation, that is, directly to the structure given in (42), then the noun phrase "they" in the complement sentence is correctly erased by the object noun phrase "they" in the main sentence. Let us suppose, however, that the identity erasure transformation does not apply until after the passive transformation, that is, on a derived structure which has roughly the following form.

(43)



We observe that the erasure principle operates incorrectly with respect to the derived structure (43). In particular, the initial NP in the complement sentence, "they," is closer to the NP in the agentive phrase "by+Bill" than it is to the subject of the derived main sentence, "they." It thus becomes extremely difficult to explain the identity of the deleted NP in the complement sentence with the derived subject of the main sentence. At best, it would become necessary to propose considerable modification of the connection principle. At worst, the convictions governing deletion could not be stated at all. This difficulty is completely resolved by requiring the identity erasure transformation to apply before the passive transformation since, as we see in (42), erasure is correctly defined at this stage of a derivation.

Finally, we consider the ordering of the complementizer placement transformation with respect to the identity erasure transformation. Although the evidence is not overwhelming, there is some reason to suppose that the complementizer placement transformation precedes the identity erasure transformation. We recall that identity erasure is possible just in case the complementizer is either "for-to" or "POSS-ing." If the complementizer is "that," then identity erasure does not apply. If we assume that the identity erasure transformation applies before the complementizer placement transformation, it then becomes necessary to insure that the former will not apply in the event that the complementizer introduced subsequently by the complementizer placement transformation, is "that." This can be accomplished, perhaps, by specifying that the variable X which intervenes between the NP to the left of the complement sentence in the structural description does not include any segment which is marked [-D]. In other words, we might revise the formulation of the identity erasure transformation as follows.

(44) U (NP) X [NP Y] W (NP) Z
not [α,[-D],β] S

1 2 3 4 5 6 7 8====>

(i) 2 is erased by 4

(ii) 7 is erased by 4

This formulation is probably adequate for all instances where the complementizer allowed by the verb or adjective in the main sentence is exclusively "that." But this formulation will not work where all three complementizer options are possible, as in (45).

(45) a. I dislike it that he is so cruel

b. I dislike it for him to be so cruel

c. I dislike his being so cruel

In cases like (45), the pronominal head will be marked simply [+C] since all complementizer options are possible. Thus the restriction imposed on the variable X in (44) will not be sufficient to block the application of the identity erasure transformation in (45), and an ungrammatical sentence will result. There well may be some way in which the identity erasure transformation can be formulated to prevent the erasure of a NP in the complement sentence when the complementizer placement transformation follows the identity erasure transformation. For present purposes, it seems a good deal simpler to propose that the complementizer placement transformation precedes the identity erasure transformation. Since the former marks complement sentences, it becomes possible to define identity erasure in terms of the complementizer structure assigned by the complementizer placement transformation. In other words, for the application of the identity

erasure transformation it is sufficient to know only that the introduced complementizer is either "for" or "POSS," [+C][+D]. In this formulation it is clearly unnecessary to impose any restrictions on the variable X in the structural description for the identity erasure transformation.

The following ordered set of transformations is thus proposed.

1. Complementizer Placement Transformation -- T_{CP}
2. Identity Erasure Transformation -- T_{IE}
3. Passive Transformation -- T_{P}
4. Extraposition Transformation -- T_{E}
5. Indefinite Pronoun Deletion Transformation -- unlisted
6. Optional Complementizer Deletion Transformation -- T_{OCD}
7. Auxiliary Transformation -- T_{AUX}
8. Pronoun Deletion Transformation -- T_{PD}

On the basis of this set of transformational rules, plus the obligatory complementizer deletion transformation the motivation and ordering of which will be discussed shortly, we can specify the derivation of the sentences in (39) in the following fashion.

(46) Sentence (40)

First Cycle -- no operations

everybody prefers $[[\text{it}]_{N}$ $[[\text{everybody}]_{NP}$ $[\text{drive slowly}]_{VP}$ $]_{S}$ $]_{NP}$ BASE

Second Cycle

everybody prefers [[it] [POSS [everybody] [ing drive
NP NP

slowly] [ ] T_{CP}
VP S NP

everybody prefers [[it] [POSS [ing drive slowly]]] T_{IE}
N VP S NP

everybody prefers [[it] [POSS [drive+ing slowly]]] T_{AUX}
N VP S NP

everybody prefers [[POSS [drive+ing slowly]]] T_{PD}
VP S NP

everybody prefers [[[drive+ing slowly]]] T_{CD}
VP S NP

Post Cycle

everybody prefers [[[driving slowly]]] M
VP S NP

(47) Sentence (40b)

First Cycle -- no operations

everybody prefers [[it] [[everybody] [drive slowly]
N NP VP

]] [by+P] BASE
S NP MAN

Second Cycle

everybody prefers [[it] [POSS [everybody] [ing drive
N NP

slowly]]] [by+P] T_{CP}
VP S NP MAN

everybody prefers [[it] [POSS [ing drive slowly]]
N VP S

] [by+P] T_{IE}
NP MAN

[[it] [POSS[ing drive slowly]]] be+en prefer
N VP S NP

[by+everybody] T_P
MAN

[[it] [POSS[drive+ing slowly]]] be prefer+en [by +
N VP S NP

everybody] T_{AUX}
MAN

[[POSS[drive+ing slowly]]] be prefer+en [by+
VP S NP

everybody] T_{PD}
MAN

[[[drive+ing slowly]]] be prefer+en [by+everybody] T_{CD}
VP S NP MAN

Post Cycle

[[[driving slowly]]] is preferred [by+everybody] M
VP S NP MAN

C. The "for-to" complementizer

The paradigms listing the basic object complement constructions with "for-to" are far more complete than the paradigms for the "POSS-ing" complementizer. This difference stems from the fact that the extraposition transformation is not restricted with respect to the "for-to" complementizer. This difference notwithstanding, the set of transformations proposed earlier for similar constructions with the "POSS-ing" and the "that" complementizers is fully capable of handling the derivations of all sentences in the "for-to" paradigm.[8]

(48) a. everyone would prefer it for you to come early

b. everyone would prefer for you to come early

c. everyone would prefer you to come early

d. everyone would prefer it very much for you to come early

e. everyone would prefer very much for you to come early

f. it would be preferred by everyone for you to come early

g. for you to come early would be preferred by everyone

(49) a. everyone would prefer it to come early

b. everyone would prefer to come early

c. everyone would prefer very much to come early

d. to come early would be preferred by everyone

e. it would be preferred by everyone to come early

In terms of the set of transformations proposed earlier, the derivations of the sentences in the paradigms may be specified in the following manner.

(50) Sentence (48a)

First Cycle -- no operations

everyone would prefer [[it] [[you] [come early]]] BASE
N NP VP S NP

Second Cycle

everyone would prefer [[it] [for[you] [to come
N NP

early]]] T_{CP}
VP S NP

(51) Sentence (48)

First Cycle -- no operations

everyone would prefer [[it] [[you] [come early]]] BASE
N NP VP S NP

Second Cycle

everyone would prefer [[it] [for[you] [to+come
N NP

early]]] T_{CP}
VP S NP

everyone would prefer [[for[you] [to come early]]] T_{PD}
NP VP S NP

(52) Sentence (48c)

First Cycle -- no operations

everyone would prefer [[it] [[you] [come early]]] BASE
N NP VP S NP

Second Cycle

everyone would prefer [[it] [for [you] [to come early]
N NP VP

]] T_{CP}
S NP

everyone would prefer [[it] [[you] [to come early]]] T_{OCD}
N NP VP S NP

everyone would prefer [[[you] [to come early]]] T_{PD}
NP VP S NP

(53) Sentence (48d)

First Cycle -- no operations

everyone would prefer [[it] [[you] [come early]]]
N NP VP S NP

very much] BASE
ADV

Second Cycle

everyone would prefer [[it] [for [you] [to come early]
N NP VP

]] [very much] T_{CP}
S NP ADV

everyone would prefer [[it]] [very much] [for [you]
N NP ADV NP

[to come early]] T_{E}
VP S

(in the derivation of (48e) case "b" of T_{PD} applies to the above string)

everyone would prefer [very much] [for [you] [to come
ADV NP

early]] T_{PDb}
VP S

(54) Sentence (48f)

First Cycle -- no operations

everyone would prefer [[it] [[you] [come early]]]
N NP VP S NP

[by+P] BASE
MAN

Second Cycle

everyone would prefer [[it] [for [you] [to come early]
N NP VP

]] [by+P] T_{CP}
S NP MAN

[[it] [for [you] [to come early]]] would be+en
N NP VP S NP

[by+everybody] T_{P}
MAN

[[it]] would be+en prefer [by+everybody] [for [you]
N NP MAN NP

[to come early]] T_E
VP S

[[it]] would be prefer+en [by+everybody] [for [you]
N NP MAN NP

[to come early]] T_{AUX}
VP S

Post Cycle

[[it]] would be preferred [by+everybody] [for [you]
N NP MAN NP

[to come early]] M
VP S

(55) Sentence (48g)

First Cycle -- no operations

everyone would prefer [[it] [[you] [come early]]]
N NP VP S NP

[by+P] BASE
MAN

Second Cycle

everyone would prefer [it] [for [you] [to come early]
N NP VP

]] [by+P] T_{CP}
S NP MAN

[[it] [for [you] [to come early]]] would be+en prefer
N NP VP S NP

[by+everybody] T_P
MAN

[[it] [for [you] [to come early]]] would be prefer
N NP VP S NP

+en [by+everybody] T_{AUX}
MAN

[[for [you] [to come early]]] would be prefer+en
NP VP S NP

[by+everybody] T_{PSDa}
MAN

Post Cycle

[[for [you] [to come early]]] would be preferred
NP VP S NP

[by+everybody] M
MAN

(56) Sentence (49a)

First Cycle -- no operations

everyone would prefer [[it] [[everyone] [come early]]] BASE
N NP VP S NP

Second Cycle

everyone would prefer [[it] [for [everyone] [to come
N NP

early]]] T_{CP}
VP S NP

everyone would prefer [[it] [for [to come early]]] T_{IE}
N VP S NP

everyone would prefer [[it] [[to come early]]] T_{CD}
N VP S NP

(If T_{PD} had applied in the above derivation, the grammar would have generated sentence (49b)).

everyone would prefer [[[to come early]]] T_{PD}
VP S NP

(57) Sentence (49c)

First Cycle -- no operations

everyone would prefer [[it] [[everyone] [come early]]]
N NP VP S NP

[very much] BASE
ADV

Second Cycle

everyone would prefer [[it] [for [everyone] [to come
N NP

early]]] [very much] T_{CP}
VP S NP ADV

everyone would prefer [[it] [for [to come early]]]
N VP S NP

[very much] T_{IE}
ADV

everyone would prefer [[it]] [very much] [for [to come
N NP ADV

early]] T_{E}
VP S

everyone would prefer [[it]] [very much] [[to come
N NP ADV

early]] T_{CD}
VP S

(In the derivation of (49d) case "b" of T_{PD} applies to

the above string.)

everyone would prefer [very much] [[to come early]] T_{PDb}
ADV VP S

(58) Sentence (49e)

First Cycle -- no operations

everyone would prefer [[it] [[everyone] [come early]
N NP VP

]] [by+P] BASE
S NP MAN

Second Cycle

everyone would prefer [[it] [for [everyone] [to come
N NP

early]]] [by+P] T_{CP}
VP S NP MAN

everyone would prefer [[it] [for [to come early]]]
N VP S NP

[by+P] T_{IE}
MAN

[[it] [for [to come early]]] would be+en prefer
N VP S NP

[by+everybody] T_{P}
MAN

[[it]] would be+en prefer [by+everybody] [for [to come
N NP MAN

early]] T_{E}
VP S

[[it]] would be prefer+en [by+everybody] [for [to
N NP MAN

come early]] T_{AUX}
VP S

[[it]] would be prefer+en [by+everybody] [[to come
N NP MAN

early]] T_{CD}
VP S

Post Cycle

[[it]] would be preferred [by+everybody] [[to come
N NP MAN

early]] M
VP S

(59) Sentence (49f)

First Cycle -- no operations

everyone would prefer [[it] [[everyone] [some early]
N NP VP

]] [by+P] BASE
S NP MAN

Second Cycle

everyone would prefer [[it] [for [everyone] [to come
N NP

early]]] [by+P] T_{CP}
VP S NP MAN

everyone would prefer [[it] [for [to come early]]]
N VP S NP

[by+P] T_{IE}
MAN

[[it] [for [to come early]]] would be+en prefer
N VP S NP

[by+everybody] T_{P}
MAN

[[it] [for [to come early]]] would be prefer+en
N VP S NP

[by+everyone] T_{AUX}
MAN

[[for [to come early]]] would be prefer+en [by+
VP S NP

everyone] T_{PD}
MAN

[[[to come early]]] would be prefer+en [by+everyone] T_{CD}
VP S NP MAN

Post Cycle

[[[to come early]]] would be preferred [by+everyone] M
VP S NP MAN

D. General Discussion

It will be useful at this point to turn to the analysis of a different paradigm, one involving an instance of object complementation which raises several important questions.

The paradigm illustrates a class of verbs, including "believe," "suspect," "think," and a great many others, which participates in complement constructions of apparently considerable diversity. We observe, first, that a noun phrase complement analysis must be allowed for the verbs in this class. Consider, by way of illustration, the following paradigm.

(60) a. I believe that John has convinced Bill

b. I believe it with no difficulty that John has convinced Bill

c. what I believe is that John has convinced Bill

d. that John has convinced Bill is believed by me

e. it is believed by me that John has convinced Bill

f. what is believed by me is that John has convinced Bill

If we assume that the phrase "that John has convinced Bill" is an instance of noun phrase complementation, then the derivation of the sentences in the paradigm follows as an automatic consequence of the application of the transformational rules discussed earlier. The reader will readily convince himself on this point.

Paradigm (60) does not, however, exhaust the number of

constructions in which verbs of the "believe" class may appear. Consider, for example, the following sentences which do not at all appear to be instances of noun phrase complementation.

(61) a. I believe John to have convinced Bill

b. John is believed by me to have convinced Bill

There would appear to be some virtue in the conclusion that the sentences in (61) do not represent cases of noun phrase complementation. In the first place, we observe that a pseudo-cleft sentence version of (61) is completely ungrammatical.

(62) *what I believe is for John to have convinced Bill

Secondly, the identity erasure rule does not apply whereas the reflexive rule does.

(63) a. *I believed to have convinced Bill

b. I believe myself to have convinced Bill

These data suggest that the sentences in (61) are not instances of noun phrase complementation, but rather verb phrase complementation, and that it is necessary to posit two distinct underlying structures for all verbs in the class under discussion. But the verb phrase complement analysis for the verb class under discussion is not without serious difficulties also, difficulties which become apparent upon careful consideration of other verb phrase complement constructions. As a paradigm case of

transitive verb phrase complementation, consider the following sentence.

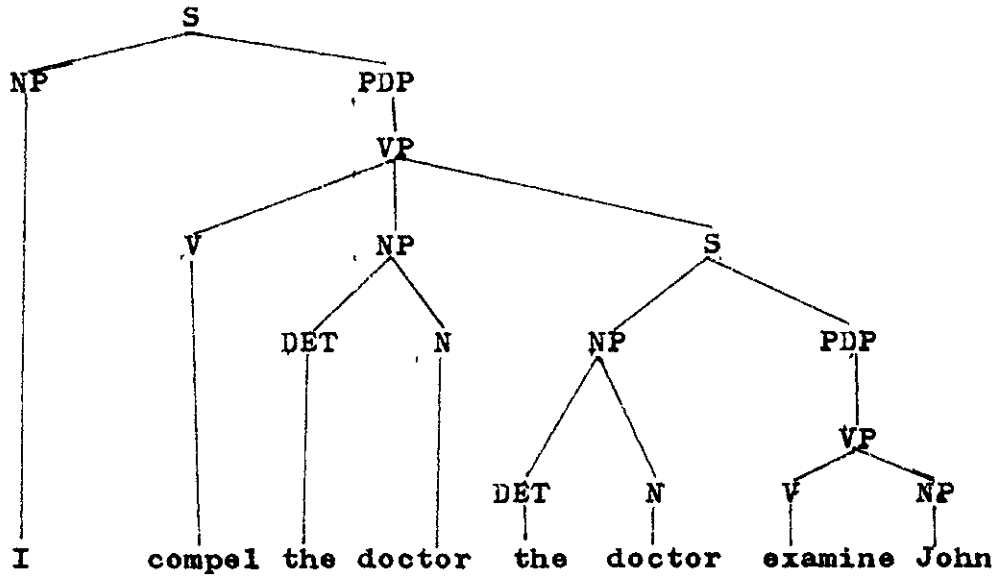
(64) I compelled the doctor to examine John

Predictably, if (64) is an instance of verb phrase complementation, the pseudo-cleft sentence (65) is ungrammatical.

(65) *what I compelled was for the doctor to examine John

As an instance of verb phrase complementation, sentence (64) has roughly the following underlying form.

(66)



Let us suppose now that the grammar had generated "John" rather than "the doctor" in the object position of the main sentence. If the passive transformation is subsequently applied on the first cycle to the complement sentence in (66), this allows for the derivation of the sentence (67).[9]

(67) I compelled John to be examined by the doctor

We notice immediately that sentences (64) and (67) have an entirely different meaning. I can compel a doctor to examine John without compelling John to be examined by a doctor. The difference in meaning is explained by the grammar by virtue of the fact that the two sentences have different underlying structures. In (64), the noun phrase "the doctor" is interpreted as the object of the verb in the underlying structure of the main sentence. In (67), on the other hand, the noun phrase "John" is the object of the verb in the underlying structure. It follows from this discussion that a sentence S_1, with the complement an active sentence derived from a structure like (66), will be synonymous with a sentence S_2 with the complement a passive sentence providing that, all other constituents being identical, the object of the verb in the main sentence of the underlying structure is identical to both the subject and object of the complement sentence in the same underlying structure.

Thus, if the sentences in (68) are instances of verb phrase complementation, it should be the case that passive application to the complement sentence implies a derivation different in meaning from the derivation in which the passive has not applied to the complement sentence. But our prediction is not correct. We observe that the application of the passive transformation does not in the least affect the

truth value synonymy of the two sentences.

(68) a. I believe John to have convinced Bill

b. I believe Bill to have been convinced by John

According to the verb phrase complement analysis, the underlying structures in (68) differ in that the underlying object of "believe" in (68a) is "John" while the underlying object in (68b) is "Bill." The sentences should, therefore, be different in meaning; but they are not. This fact may be taken to mean either that our formulation of transitive verb phrase complementation is incorrect, an event made a priori quite improbable by the precision with which this formulation holds in such a wide range of cases, or that the sentences in (68) are simply not instances of verb phrase complementation.

We are thus led full circle back to the consideration of the sentences in (68) as instances of noun phrase complementation. If we are willing to accept the cost of making the extraposition transformation obligatory for all verbs in the "believe" class just in case the complementizer is "for-to," it becomes immediately clear that we not only have the transformational machinery sufficient to generate the sentence in (68), but also a ready explanation of the ungrammaticality of (62) and (63a). Let us consider this derivation in some detail.

(69) Sentence (68a)

First Cycle

I believe [[it] [[John] [have+en convince Bill]]] BASE[10]
N NP VP S NP

I believe [[it] [[John] [have convince+en Bill]]] T_{AUX}
N NP VP S NP

Second Cycle

I believe [[it] [for [John] [to have convince+en
N NP

Bill]]] T_{CP}
VP S NP

At this point, we require the obligatory application of the extraposition transformation. This transformation, applying vacuously with respect to the string in this instance, takes the complement sentence from under the domination of the NP which dominates it in the underlying structure.

I believe [[it]] [for [John] [to have convince+en Bill]] T_E
N NP NP VP S

The pronoun replacement transformation (which has independent motivation in the subject complement system) is now defined and the following string can be generated.

I believe [John] [for [to have convince+en Bill]] T_{PR}
NP VP S

Finally, the obligatory complementizer deletion transformation applies.

I believe [John] [[to have convince+en Bill]] T_{CD}
NP VP S

Post Cycle

I believe [John] [[to have convinced Bill]] M
NP VP S

The derivation of (68b), which is generated from exactly the same underlying structure as (68a), differs from the derivation of (68a) only in that the passive transformation applies on the first cycle of the former.

(70) Sentence (68b)

First Cycle

I believe [[it] [[John] [have+en convince [Bill]
N NP NP

[by+P]]]] BASE
MAN VP S NP

I believe [[it] [[Bill] [have+en be+en convince [by+
N NP

John]]]] T_P
MAN VP S NP

I believe [[it] [[Bill] [have be+en convince+en [by+
N NP

John]]]] T_{AUX}
MAN VP S NP

Second Cycle

I believe [[it] [for [Bill] [to have be+en convince+en
N NP

[by+John]]]] T_{CP}
MAN VP S NP

I believe [[it]] [for [Bill] [to have be+en convince+
N NP NP

en [by+John]]] T_E
MAN VP S

I believe [Bill] [for [to have be+en convince+en
NP

[by+John]]] T_{PR}
MAN VP S

I believe [Bill] [[to have be+en convince+en [by+
NP

John]]] T_{CD}
MAN VP S

Post Cycle

I believe [Bill] [[to have been convinced [by+John]
NP MAN

]] M
VP S

We observed in an earlier discussion that the passive transformation must apply before the extraposition transformation. Preserving this constraint with respect to sentence (61b), we note the following derivation.

(71) Sentence (61b)

First Cycle

I believe [[it] [[John] [have+en convince Bill]]
N NP VP S

] [by+P] BASE
NP MAN

I believe [[it] [[John] [have convince+en Bill]]]
N NP VP S NP

[by+P] T_{AUX}
MAN

Second Cycle

I believe [[it] [for [John] [to have convince+en Bill]]] [by+P] T_{CP}
N NP VP S NP MAN

[[it] [for [John] [to have convince+en Bill]]]
N NP VP S NP

be+en believe [by+I] T_{P}
MAN

[[it]] be+en believe [by+I] [for [John] [to have convince+en Bill]] T_{E}
N NP MAN NP VP S

[[it]] be believe+en [by+I] [for [John] [to have convince+en Bill]] T_{AUX}
N NP MAN NP VP S

[John] be believe+en [by+I] [for [to have convince+en Bill]] T_{PR}
NP MAN VP S

[John] be believe+en [by+I] [[to have convince+en Bill]] T_{CD}
NP MAN VP S

Post Cycle

[John] is believed [by+me] [[to have convinced Bill]] M
NP MAN VP S

In addition to allowing us to explain the derivation of the sentences in (60) and (61) from a common underlying source through the application of an independently motivated transformation, namely, the pronoun replacement transformation,

this analysis has another virtue. Consider the problem of the introductory "there" in true noun phrase complement constructions.

(72) a. everybody prefers (for) three chairs to be in the room

b. it was preferred by everybody for three chairs to be in the room

c. for three chairs to be in the room was preferred by everybody

d. everybody prefers (for) there to be three chairs in the room

e. it was preferred by everybody for there to be three chairs in the room

f. for there to be three chairs in the room was preferred by everybody

Assuming the existence of a transformation which, in some appropriate fashion, converts a string of the form "three chairs are in the room" into "there are three chairs in the room," every sentence in (72) can be explained on the basis of the transformations proposed thus far in the present study. The introductory "there" takes subject position and is treated as the subject by all of the transformations which apply in general to noun phrase complement constructions. Consider, however, the following sentences.

(73) a. everybody believes three chairs to be in the room

b. three chairs are believed by everybody to be in the room

c. everybody believes there to be three chairs in the room

d. there is believed by everybody to be three chairs in the room

If we take the position that the sentences in (72) are instances of verb phrase complementation, we are forced to propose either a system in which the underlying object of the main verb can be a dummy or otherwise unspecified noun or that "there" is everywhere a possible expansion of NP. Making a long story short, we see immediately that the existence of the introductory "there" in sentences like (73) can be explained as an automatic consequence of the pronoun replacement transformation which, under the appropriate conditions, takes the subject of the complement sentence, no matter what that subject is, and substitutes it for the pronominal head.

It is of interest to observe the operation of the pronoun replacement rule when the depth of embeddings is increased. Consider the following sentence for example.

(74) I believe John's eating to be messy

(75) Sentence (74)

First Cycle -- no operations

I believe [[it] [[[it] [[John] [eat]]] [be
N N NP VP S NP

messy]]] BASE
VP S NP

Second Cycle

I believe [[it] [[[it] [POSS [John] [ing eat]]]
N N NP VP S NP

[be messy]]] T_{CP}
VP S NP

(Observe that extraposition cannot apply on this cycle since extraposition is impossible for the "POSS-ing" complementizer.)

I believe [[it] [[[it] [[John+POSS] [eat+ing]]]
N N NP VP S NP

[be messy]]] T_{AUX}
VP S NP

I believe [[it] [[[[John+POSS] [eat+ing]]] [be
NP VP S NP

messy]]] T_{PD}
VP S NP

Third Cycle

I believe [[it] [for [[[John+POSS] [eat+ing]]] [to
N NP VP S NP

be messy]]] T_{CP}
VP S NP

I believe [[it]] [for [[[John+POSS] [eat+ing]]]
N NP NP VP S NP

[to be messy]] T_{E}
VP S

(Notice that extraposition must have applied above since extraposition is obligatorily defined on complements with "for-to"

complementizers for verbs of the "believe" class.)

I believe [[[John+POSS] [eat+ing]]] [for [to be
NP VP S NP

messy]] T_{PR}
VP S

I believe [[[John+POSS] [eat+ing]]] [[to be messy]] T_{CD}
NP VP S NP VP S

Post Cycle

I believe [[[John's] [eating]]] [[to be messy]] M
NP VP S NP VP S

A curious situation arises when the complementizer for the most deeply embedded sentence is "that." By reconstructing the above derivation we observe that if extraposition had applied on the second cycle we would have correctly generated a sentence like (76).

(76) I believe it to be true that John is honest

If, on the other hand, the extraposition transformation had not applied on the second cycle, the grammar would have generated the quasi-grammatical sentence (77).

(77) I believe that John is honest to be true

The status of (77) is not entirely clear and one wonders if its strangeness might not be due to whatever produces the strangeness of multiple embeddings of various sorts. A similar strangeness is observed in sentences containing only the "that" complementizer.

(78) a. I believe that it is true that John is honest

b. I believe that that John is honest is true

In any event, the peculiarity of these sentences is not explained by the analysis being proposed here since both the sentences in (78) and those in (76) and (77) are generated as the consequence of the application of the same set of rules.

It is another interesting fact about this analysis that it makes it almost possible to eliminate the optional complementizer deletion transformation. Consider again the following pairs of sentences.

(79) a. I hate for you to do these things

b. I hate you to do these things

We see that the above analysis affords an excellent explanation of the deletion of "for" in (79b). Let us suppose that the extraposition transformation applies vacuously to the moun phrase "it for you to do these things." The pronoun replacement transformation is now defined producing the string "you for to do these things." By the obligatory complementizer transformation this becomes "you to do these things." It thus seems possible to do away with the optional complementizer deletion transformation.

This proposal has two rather serious drawbacks. In the first place, it will be necessary to allow extraposition of complement sentences containing the "POSS-ing" complementizer

since, otherwise, we shall still need an optional complementizer deletion transformation to handle the deletion of "POSS." But relaxing the restriction on extraposition, which may eventually be necessary to some extent, results in many of the ungrammatical sentences presented in the paradigm (30). A second drawback is equally as serious. Let us consider several examples of a verb for which complementizer deletion is obligatory, e.g., "want."

(80) a. I want very much for John to go

b. I want John to go very much

c. *I want for John to go very much

d. *I want very much John to go

Our proposal neatly explains the grammaticality of (80a) and the ungrammaticality of (80d). Since the pronoun replacement transformation is blocked by the adverbial intervening between the pronominal head and the complement sentence, the subject of the complement sentence will not replace the pronominal head; consequently the "for" will not be contiguous with the VP and will not be deleted. But we observe that we can only explain the non-occurrence of (80c) on the assumption that extraposition is obligatory for the verb "want." This, however, leaves us with no explanation of the grammaticality of (80b) since there is no indication whatever that extraposition has applied here. Thus we cannot rely on our

proposal to explain all of the facts relating to complementizer deletion. It seems that the optional complementizer is still necessary.

But there is an interesting claim here nonetheless. The grammar tells us that sentences like (80b) may have two distinct derived constituent structures but one underlying structure. This follows from the fact that (80b) may have been derived either through the application of the complementizer deletion transformation or through the vacuous application of the extraposition transformation, and the subsequent application of the pronoun replacement and the obligatory complementizer deletion transformations. There is some recent psychological evidence which supports the plausibility of this circumstance.[11]

In closing the discussion of object complementation it would not be beside the point to mention the several types of restrictions which seem to limit the application the transformations involved in the complement system. These restrictions, which are idiosyncratic to particular verbs, will require description in the grammar and the purpose of the following discussion is to identify some instances of this phenomenon. One of the more common restrictions has to do with the application of the optional complementizer transformation, as we have just seen. Consider the following pairs of sentences.

(81) a. 1) I would love for you to have it

2) I would love you to have it

b. 1) I can't bear for them to see me this way

a) I can't bear them to see me this way

c. 1) *I don't want for anybody to see me this way

2) I don't want anybody to see me this way

The foregoing considerations lead us to believe that this restriction can be explained by requiring the obligatory application of the optional complementizer deletion transformation for verbs like "want."

A second restriction has to do with the identity erasure transformation. We find instances where certain verbs taking object complement constructions require erasing and erased noun phrases to be identical. This restriction, which is also the property of all verb phrase complements, was not a property of the object complement constructions discussed earlier. Thus both of the sentences in (82) are grammatical.

(82) a. I prefer for you to do it

b. I prefer to do it

But certain other verbs, e.g., "promise," do not have this freedom, a claim supported by the following data.

(83) a. *I promise for you to bring money

b. I promise to bring money

Still other verbs, e.g., "require," "say," demand obligatory non-identity of the erasing and erased noun phrases.

(84) a. 1) I said for you to go

2) *I said (for me) to go[12]

b. 1) I require for you to have your hair cut

2) *I require (for me) to have my hair cut

At the present it is not clear how these restrictions are going to be stated in the grammar, although there seems little doubt that the system in which these restrictions are stated is not likely to be adequate if it does not handle identity restrictions in the same way for both verb phrase and noun phrase complementation.

The verb "promise" is unusual in still another respect. Sentences like (85) constitute the major exception to the erasure principle.[13]

(85) I promised John to bring the money

The erasure principle predicts that the implicit subject of the complement sentence will be "John" rather than "I." It is quite doubtful that a principle which holds remarkably well for such a considerable number of cases will fail as the result of this one counter-example. The verb "promise" is peculiar in many respects and there is every reason to interpret this result as advice to look more deeply into the analysis of

this particular verb for we are likely to find that the problem lies not with the erasure principle but with our analysis of the constructions in which this particular verb appears.

A final restriction concerns the application of the passive transformation to object complement constructions containing the "for-to" complementizer. Consider, by way of illustration the following data.

(86) a. 1) a) everybody loves John
b) John is loved by everybody
2) a) everybody loves for you to sing
b) *for you to sing is loved by everybody
b. 1) a) everybody dislikes John
b) John is disliked by everybody
2) a) everybody dislikes for you to sing
b) *for you to sing is disliked by everybody
c. 1) a) everybody prefers John (over Bill)
b) John is preferred over Bill by everybody
2) a) everybody prefers for you to sing
b) for you to sing is preferred by everybody

What these data demonstrate is that while passivization is possible in (86a, b) only if the object noun phrase does not dominate a complement sentence, passivization is possible for the verb "prefer" (86c) in either case. This fact suggests

that, although the passive transformation itself may not have been sensitive to the internal constituency of a NP, the restrictions on the application of this transformation which are idiosyncratic to particular verbs must be sensitive to the internal structure of NP's. At the present time there are several mechanisms which one might propose to state these idiosyncratic restrictions in the grammar, but there is no motivation for any other than beyond the fact that they may work. Until much more work can be done in this area, it is pointless to take up any more time in the discussion of what might be a correct formulation. There is simply too little evidence to establish any motivated system for handling these restrictions and, for purposes of the present study, this question is appropriately left open.

In still other cases, passivization is obligatory. Consider sentence (87).

(87) John is said to be honest

In other cases passivization is usually preferable

(88) a. John was rumored to be honest

b. John was alleged to be guilty

These sentences, analyzed as instances of noun phrase complementation similar to the analysis for the "believe" class of verbs discussed earlier, present no derivational difficulty.

But it seems reasonably clear that the verbs in question will require some system of markers which advise of the obligatoriness of the passive transformation.

It is somehow ironic that the class of verbs which historically was the first to be investigated for the purpose of developing the analysis being presented here should turn out to be the most recalcitrant. The problem is that the criteria employed for differentiating verbs in terms of underlying structure seem to be inadequate at this point. The class of verbs includes "expect," "desire," and a few others. Consider the following paradigms.

(89) a. everybody expects (for) me to do what is right

b. it is expected by everybody for me to do what is right

c. what everybody expects is for me to do what is right

d. what is expected by everybody is for me to do what is right

(90) a. everybody desired (for) me to be an honest man

b. it was desired by everybody for me to be an honest man

c. what everybody desired was for me to be an honest man

d. what was desired by everybody was for me to be an honest man

It seems beyond question that a noun phrase complement analysis must be assigned to the sentences in the above paradigm. Insofar as the sentences in (91) and (92) have the same interpretation as those in (89) and (90), we are led to believe that they follow the analysis for the verbs of the "believe" class, namely, that extraposition has applied to be followed by the pronoun replacement transformation and the obligatory complementizer deletion transformation.

(91) a. I expect myself to do what is right

b. I am expected to do what is right

(92) a. I desired myself to be an honest man

b. I was desired to be an honest man

But one wonders what to make of sentences like those in (93) and (94) which, in addition to requiring an object complement analysis, also have a prepositional phrase.

(93) a. I expect (it) of myself that I will do what is right

b. I desire (it) of myself that I be an honest man

(94) a. I expect it of myself to do what is right

b. I desire it of myself to be an honest man

These sentences present no derivation problem whatever. The problem is that there is a sense in which the sentences in (93) and (94) have the same semantic interpretation as those in (91) and (92). The open question is whether the burden of explanation

is to be placed on the semantic component at this point or whether we should propose an analysis in which the sentences in (91) and (92) should be derived from the structures underlying those in (93) and (94). The considerations raised in the present study offer no way of resolving this question. In terms of these considerations, the sentences in (89), (90), (91), and (92) share a common underlying structure which differs from the structure underlying the sentences in (93) and (94). Progress in this area will no doubt depend upon distinctions which are far subtler than those which the criteria for differentiating underlying structures proposed in this study lead us to identify.

II. Subject Complementation for Intransitive Verbs

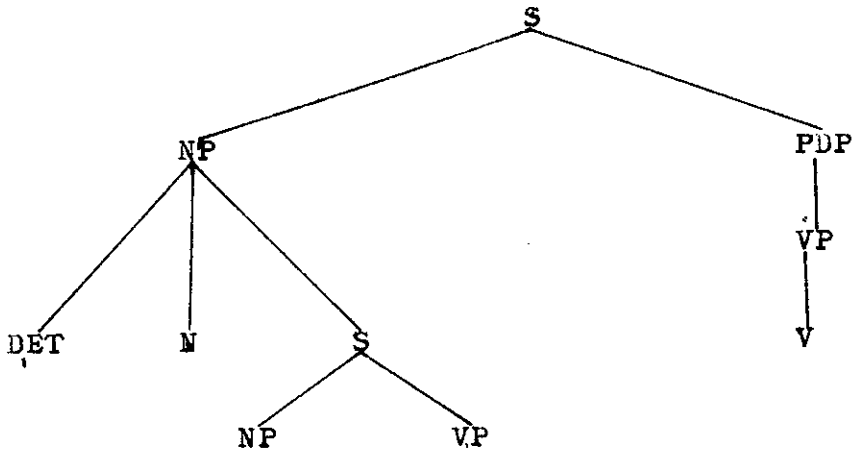
The term "subject complementation" is a mnemonic referring to the instance of noun phrase complementation which arises through the expansion of S into NP, VP. The application of phrase structure Rule 2 subsequently yields the string DET, N, S, VP, and it is to this configuration that the discussion in the next few pages is devoted.

A. The "that" complementizer

The number of intransitive verbs in English taking subject complements is comparatively small, but structures of this general type, the underlying structures of which are exemplified by the phrase structure diagram in (95), raise questions

of such importance that it will prove instructive to examine them in some detail.

(95)



Representative sentences employing the complementizer "that" are the following.

(96) a. it turns out that John is right

b. it happened that John came early

The derivation of the sentences in (96) presents no difficulty which the transformational apparatus outlined and discussed earlier cannot solve. In particular, these sentences are generated simply as a function of the application of the extraposition transformation to the underlying structure given in (95), as we see in the following derivation.

(97) Sentence (96b)

First Cycle -- no operations

[[it] [[John] [came early]]] happened BASE
N NP VP S NP

Second Cycle

[[it] [that [John] [came early]]] happened T_{CP}
N NP VP S NP

[[it]] happened [that [John] [came early]] T_{E}
N NP NP VP S

The one novel feature of the constructions in question is that the extraposition transformation appears to be obligatory since, as we see below (98), the cognate sentences in which the extraposition transformation has not applied are ungrammatical.[14]

(98) a. *that John is right turns out

b. *that John came early happened

Since it is not, in general, true that extraposition is always obligatory for a noun phrase complement in sentence initial position, and we have noted many such instances in the earlier discussion, it becomes necessary apparently to postulate some instruction, probably incorporated into the lexical entry for the appropriate verbs, which stipulates that the extraposition transformation must apply if the structural conditions for its application are met. And in the case of constructions like (95), these conditions are always satisfied.

Although this verbal marker or instruction may be necessary there are certain considerations which suggest that

it is not sufficient. In particular, when verbs of the type under discussion are followed by a complement sentence, the occurrence of a complement sentence containing a "that" complementizer in subject position is completely appropriate and extraposition is not obligatory, as we see in (99).

(99) a. 1) that John is right turns out to be the case
2) it turns out to be the case that John is right
b. 1) that John came early happened to annoy Bill
2) it happened to annoy Bill that John came early

The data in (99) suggests that the verbal marker regulating the application of the extraposition transformation must be considerably more complex than that originally envisioned. It must now consist of the assertion that the extraposition transformation is obligatory just in case the verb is followed by the sentence boundary "#." This additional complexity should, perhaps, be taken as an indication that something is wrong with this course of action. And, indeed, there are certain facts which this explanation does not account for.

The explanation of the optionality of the extraposition transformation which is based upon the marker system crumbles in the face of more careful consideration of the status of the complement sentence following the verb "happen," for instance, in (99b). At first blush, we should consider the phrase "to annoy Bill" as an instance of verb phrase complementation since it does not participate in the variant

constructions, such as the pseudo-cleft sentence which we have come to associate with noun phrase complement constructions. Thus, for example, neither of the following sentences constructed on the assumption that the phrase "to annoy Bill" is a noun phrase complement are grammatical.

(100) a. *what that John came early happened was to annoy Bill

b. *what it happened was to annoy Bill that John came early

In the face of this evidence, we are inclined to believe that the phrase "to annoy Bill" must, in actuality, be an instance of a verb phrase complement. But this alternate conclusion is not without serious difficulties also, difficulties which become apparent upon careful consideration of other instances of verb phrase complementation.

As a paradigm of intransitive verb phrase complementation, consider the following sentence.

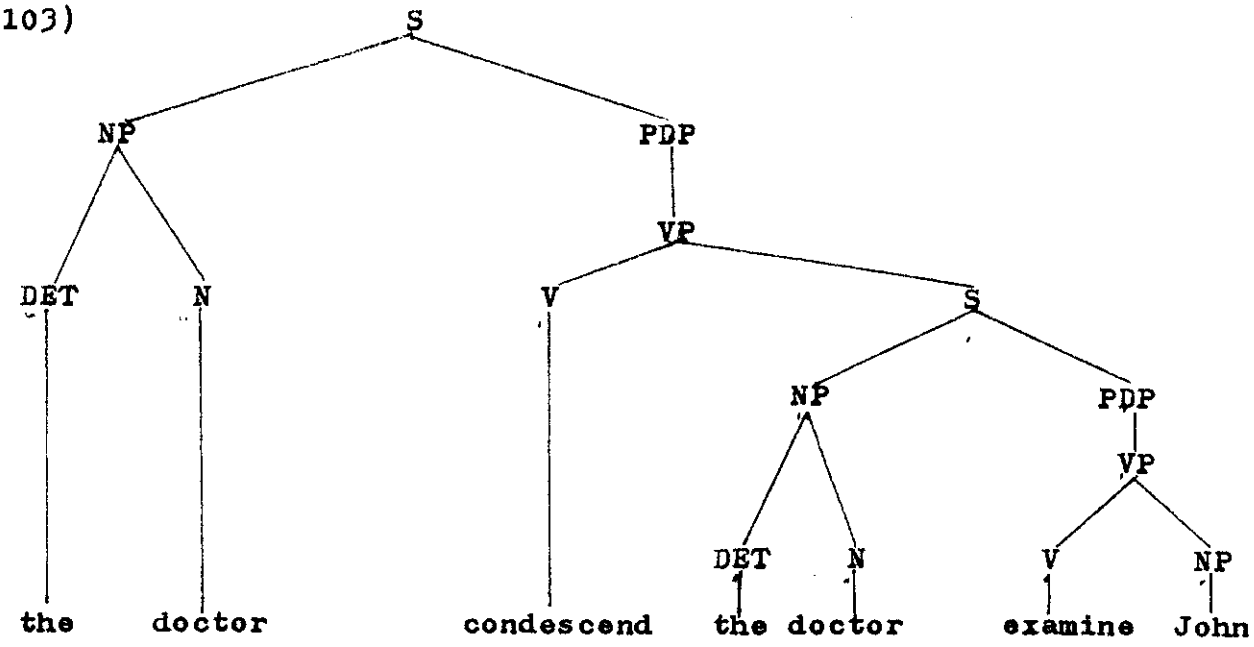
(101) the doctor condescended to examine John

As we would expect, if (101) is a correct paradigm, the pseudo-cleft sentence of (101) is impossible.

(102) *what the doctor condescended was to examine John

As an instance of verb phrase complementation, the sentence (101) has roughly the following underlying structure.

(103)



Let us suppose, now, that the grammar had generated "John" in the subject position of the main sentence instead of "the doctor." If the passive transformation is subsequently applied to the complement sentence in (103). This will allow for the derivation of the sentence (104).

(104) John condescended to be examined by the doctor

The sentences (101) and (104) have an entirely different meaning. This difference is explained by the grammar by virtue of the fact that the two sentences have different underlying structures. In the former, the noun phrase "the doctor" is interpreted by the semantic component as the underlying subject of the main sentence. In the latter, the noun phrase "John" is so interpreted. The fact that in (101) the complement sentence is active while in (103) it is passive is

of no consequence since both have the common underlying structure given in (103). It follows from this discussion that a sentence S_1, derived from a structure like (103), will be synonymous with a sentence S_2 providing that, all other constituents being identical, the subject noun phrase of the main sentence is identical to the subject noun phrase and the object noun phrase of the complement sentence, as is the case in the following sentences.

(105) a. the doctor condescended to examine himself

b. the doctor condescended to be examined by himself

The semantic readings of all sentences based upon the structure in (103) will be different unless these conditions are met. The difference in meaning between sentences (101) and (104) exemplifies this conclusion.

Returning to the original question, namely, is the phrase "to annoy Bill" in (99b) an instance of verb phrase complementation similar to (101), we note a serious difficulty if we answer the question in the affirmative. If the phrase "to annoy Bill" is an instance of intransitive verb phrase complementation, then how can we explain the fact that sentence (99-b1) and (106) have the same meaning. (Sentence (99b1) is repeated here for convenience.)

(99b1) that John came early happened to annoy Bill

(106) Bill happened to be annoyed that John came early

Since, in the verb phrase complementation analysis, the phrase "that John came early" is the underlying subject of the main sentence in (99b1) and since the noun phrase "Bill" is the underlying subject of the main sentence in (106), the two sentences should be different in meaning. But they are not. This fact may be taken to mean either that our formulation of intransitive verb phrase complementation is incorrect or, more probably, that the phrase "to annoy Bill" in (99b) is simply not an instance of verb phrase complementation.

If the phrase "to annoy Bill" is neither an instance of noun phrase complementation nor an instance of verb phrase complementation, only one possibility remains. This alternative asserts that the phrase "to annoy Bill" does, in fact, originate as a noun phrase complement, but that the pronominal head of this construction no longer exists in a form to which the pseudo-cleft sentence transformations can apply. Let us explore this possibility further.

Let us suppose that the underlying subject of the verb "happen" in (99b) is a noun phrase complement construction in which the subject of the complement sentence is itself a noun phrase complement construction. In other words, the underlying subject of the phrase "to annoy Bill" is "it that John came early" and that the entire complement sentence "it that John came early annoy Bill" is the subject of the verb "happen," the underlying structure being represented as follows.

(107) [[it][[[it] [John came early]] [annoy Bill]]] happen
N N S NP VP S NP

Eschewing complementizer insertion for the time being, let us assume that on the second cycle, which applies to "it that John came early," the only transformation which applies is the pronoun deletion transformation thus yielding a string like (108).

(108) [[it] [[[John came early]] [annoy Bill]]] happened
N S NP VP S NP

On the third cycle, the extraposition transformation must apply, (this rule being obligatory for verbs like "happen" as we have seen earlier), yielding the string (109).

(109) [[it]] happened [[[John came early]] [annoy Bill]]
N NP S NP VP S

At this point, the pronoun replacement transformation, motivated in the discussion of object complementation, substitutes the noun phrase subject of the complement sentence for the pronominal head in the noun phrase which is the subject of "happen." The application of this transformation produces (108), that is, the string coinciding with (99b). The complementizers are added here for the sake of clarity.

(110) [[that John came early]] happened [[to annoy Bill]]
S NP VP S

As we see in the formal derivation (115), if the extraposition transformation has been applied on the second cycle and if all subsequent transformations remain constant, we should have generated (111), the string coinciding with (99b2).

(111) [[it]] happened [[to annoy Bill] [that John came early]]
N NP VP S S

This formulation has several advantages. In the first place, it allows for an explanation of the occurrence of the sentences in (96) and (99) and the non-occurrence of the sentences in (98). The extraposition transformation is always obligatory. But complement constructions may end up in sentence initial position as the result of the pronoun replacement transformation. Second, this formulation explains the non-occurrence of pseudo-cleft sentences in (100) as a function of this same transformation. Similarly, it explains another pseudo-cleft sentence phenomenon which we have not yet considered. Implicit in this analysis is the claim that the pronoun "it" in sentences (99a2, b2) is not the pronominal head of the entire underlying subject, that is, the first "it" in "it it that John came late annoy Bill." Rather, this analysis stipulates that the pronoun in the sentences is actually the pronominal head of the subject of the complement sentence "it that John came late annoy Bill." This prediction is confirmed by the fact that the pseudo-cleft sentence based upon the contrary assumption is ungrammatical (112).

(112) *what happened was to annoy Bill that John came early

Only one pseudo-cleft sentence is possible, namely, the one based upon the pronominal head of the complement "that John came late."

(113) what happened to annoy Bill was that John came early

A third virtue of this analysis is that it offers an explanation of why subject complements containing the "POSS-ing" complementizer are impossible in (114a), but possible in (114b).

(114) a. *John's coming early happened

b. John's coming early happened to annoy Bill

We can say that verbs like "happen" simply carry the restriction that complement subject may not contain the "POSS-ing" complementizer. This restriction effectively blocks (114a) in our analysis but not (114b) since the complement containing the "POSS-ing" complementizer in this sentence is analyzed to be the subject of the verb "annoy," a verb which accepts "POSS-ing" complementizers in subject complements. The complement sentence "John's coming early" only seems to be the subject of "happened" in the underlying structure. As we have seen, this complement sentence attains the subject position only by virtue of the application of the pronoun replacement transformation.

For all of these reasons, the pronoun replacement transformation possesses great credibility and we may specify the derivations of the sentences under consideration in terms of this transformational rule (plus the obligatory complementizer deletion transformation which is a necessary consequence of this formulation) and others which have been discussed previously. Clearly, the pronoun replacement transformation must follow the extraposition transformation in order of application since it is the latter which establishes the appropriate environment for the application of the former.

(115) Sentence (99b1)

First Cycle -- no operations

[[it] [[[it] [John came late]] [annoy Bill]]]
N N S NP VP S NP

happen BASE

Second Cycle

[[it] [[[it] [that John came late]] [annoy Bill]
N N S NP VP

]] happen T_{CP}
S NP

[[it] [[[that John came late]] [annoy Bill]]]
N S NP VP S NP

happen T_{PD}

Third Cycle

[[it] [for [[that John came late]] [to annoy Bill]
N S NP VP

]] happen T_{CP}
S NP

[[it]] happen [for [[that John came late]] [to
N NP S NP

annoy Bill]] T_{E}
VP S

[[that John came late]] happen [for [to annoy Bill]] T_{PR}
S NP VP S

[[that John came late]] happen [[to annoy Bill]] T_{CD}
S NP VP S

(116) Sentence (99b2)

First Cycle -- no operations

[[it] [[[it] [John came late]] [annoy Bill]]]
N N V NP VP S NP

happen BASE

Second Cycle

[[it] [[[it] [that John came late]] [annoy Bill]
N N S NP VP

]] happen T_{CP}
S NP

[[it] [[[it]] [annoy Bill] [that John came late]
N N NP VP S

]] happen T_{E}
S NP

Third Cycle

[[it] [for [[it]] [to annoy Bill] [that John came
N N NP VP

late]]] happen T_{CP}
S S NP

[[it]] happen [for [[it]] [to annoy Bill] [that
N NP N NP VP

John came late]] T_E
S S

[[it]] happen [for [to annoy Bill] [that John came
N NP VP

late]] T_{PR}
S S

[[it]] happen [[to annoy Bill] [that John came
N NP VP

late]] T_{CD}
S S

B. The "for-to" complementizer

Subject complement constructions containing the "for-to" complementizer present much the same type of problem with intransitive verbs as do the subject complement constructions containing the "that" complementizer. Consider, by way of example, the following sentences.

(117) a. 1) *for John to find gold happened

2) *it happened for John to find gold

3) John happened to find gold

b. 1) *for John to be unhappy appeared

2) *it appeared for John to be unhappy

3) John appeared to be unhappy

That the 3) sentences are, in fact, the result of the application of the pronoun replacement transformation and not instances of verb phrase complementation is a conclusion which

follows from considerations identical to those raised in connection with the "that" complementizer earlier. We note, for example, that the "a" and "b" sentences of (118) are identical in meaning, a result which is the converse of that predicted by the hypothesis that these sentences are instances of verb phrase complementation.

(118) a. John happened to mention Bill

b. Bill happened to be mentioned by John

If we assume that the underlying structure of the sentences in (118) consiste of the subject complement construction "it for John to mention Bill," then the synonymy of the sentences in (118) is an automatic consequence since these sentences differ only in their transformational derivation. More specifically, the passive transformation has been applied in the case of (118b) before the application of the identity erasure transformation, but the passive has not been applied in the case of (118a).

We observe, furthermore, that the fact that the pronoun replacement is obligatory explains the non-occurrence of pseudo-cleft sentence, for instance, in (119).

(119) a. *what happened was for John to find gold

b. what happened was that John found gold

Since the pronoun replacement destroys the environment upon which the transformation deriving the pseudo-cleft sentence are defined, the derivation of (119a) is impossible.

In terms of this analysis, then, the derivation of sentences (119a3, b3)(92a3, b3) proceeds as follows:

(120) Sentence (117a3)

First Cycle -- no operations

[[it] [[John] [find gold]]] happened — BASE
N NP VP S NP

Second Cycle

[[it] [for [John] [to find gold]]] happened — T_{CP}
N NP VP S NP

[[it]] happened [for [John] [to find gold]] — T_{E}
N NP NP VP S

[John] happened [for [to find gold]] — T_{PR}
NP VP S

[John] happened [[to find gold]] — T_{CD}
NP VP S

III. Subject Complementation for Transitive Verbs

Except for the non-application of the pronoun replacement transformation, subject complementation for transitive verbs does not differ from subject complementation for intransitive verbs. For this reason the paradigm includes instances of subject complementation with all three complementizers. The derivation of these sentences is entirely a function of rules motivated in other parts of the complement system.

(121) a. 1) that you came early surprised me

2) it surprised me that you came early

b. 1) for you to find me this way embarrasses me

2) it embarrasses me for you to find me this way

c. 1) John's playing the bugle annoys me

2) *it annoys me John's playing the bugle

(122) Sentence (121a1)

First Cycle -- no operations

[[it] [you came early]] surprised me BASE
N S NP

Second Cycle

[[it] [that you came early]] surprised me T_{CP}
N S NP

[[that you came early]] surprised me T_{CD}
S NP

(We observe that the extraposition transformation is not obligatory for subject complements if the main verb is transitive.)

(123) Sentence (121a2)

First Cycle -- no operations

[[it] [you came early]] surprised me BASE
N S NP

Second Cycle

[[it] [that you came early]] surprised me T_{CP}
N S NP

[[it]] surprised me [that you came early] T_{E}
N NP S

(124) Sentence (121b1)

First Cycle -- no operations

[[it] [[you] [find me this way]]] embarrasses me BASE
N NP VP S NP

Second Cycle

[[it] [for [you] [to find me this way]]] em-
N NP VP S NP

barrasses me T_{CP}

[[for [you] [to find me this way]]] embarrasses me T_{PD}
NP VP S NP

(125) Sentence (121b2)

First Cycle -- no operations

[[it] [[you] [find me this way]]] embarrasses me BASE
N NP VP S NP

Second Cycle

[[it] [for [you] [to find me this way]]] embarrasses
N NP VP S NP

me T_{CP}

[[it]] embarrasses me [for [you] [to find me this
N NP NP

way]] T_{E}
VP S

(126) Sentence (121c1)

First Cycle -- no operations

[[it] [[John] [play the bugle]]] annoys me BASE
N NP VP S NP

Second Cycle

[[it] [POSS [John] [ing play the bugle]]] annoys me T_{CP}
N NP VP S NP

[[it] [[John+POSS] [play+ing the bugle]]] annoys me T_{AUX}
N NP VP S NP

[[[John+POSS] [play+ing the bugle]]] annoys me T_{PD}
NP VP S NP

Post Cycle

[[[John's] [playing the bugle]]] annoys me M
NP VP S NP

(We observe that sentence (121c2) is impossible since the extraposition transformation is not defined on complements containing the "POSS-ing" complementizer. Thus, the pre-sentence pronoun deletion transformation must always apply yielding sentences like (121c1)).

IV. Oblique Noun Phrase Complementation

A. Intransitive Oblique Noun Phrase Complementation

There are several instances of noun phrase complementation in English where the selectional restrictions on the complementizer of an object complement are in complementary distribution with the restrictions on oblique noun phrase complements. Consider, by way of illustration, the following paradigm.

(127) a. I decided that John shall represent us
b. *I decided on that John shall represent us
c. I decided for John to represent us
d. *I decided on for John to represent us
e. *I decided John's representing us
f. I decided on John's representing us

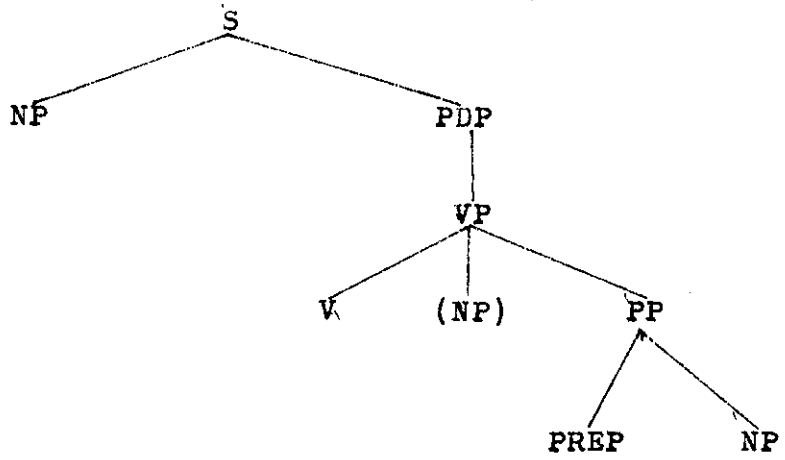
On the assumption that the verb "decide" has two analyses, one in which this verb takes a prepositional phrase and one in which it takes a direct object, one is forced to the unfortunate conclusion that the lexical entry for "decide" contains not only two strict sub-classificational features, but furthermore that the restrictions on the pronominal head of the complement construction as object of the verb are entirely distinct from the restrictions on the pronominal head in the prepositional phrase. In other words, the restrictions imposed upon the pronominal head as object must include the features [+C][-D] and [+C][+D] [-E] where the first cluster represents the complementizer

"that" while the second represents the complementizer "for-to." The restrictions on the pronominal head when it appears in a prepositional phrase must include the features [+C][+D][+E], the cluster representing the "POSS-ing" complementizer.

In the following pages an attempt will be made to show that the lexical representation of such verbs as "decide" can be greatly simplified if it is assumed that the underlying structures for the grammatical sentences in (127) are identical. If it can be shown that the prepositional phrase analysis underlies all three cases, then the necessity for positing the complex array of restrictions proposed above completely disappears.

The problems posed by the introduction of the preposition in the structure underlying the sentence (127f) are very similar to those discussed earlier in Chapter 3 in relation to the introduction of the complementizing morphemes. More specifically, we are confronted with two apparently distinct options -- the introduction of the preposition through the application of phrase structure rules and the introduction of the preposition transformationally by a rule which is sensitive to the structure given in (128) and to the features on the verb which determine which particular preposition or set of prepositions are appropriate to particular verbs.

(128)



The issues which bear on the decision of which mechanism for introducing prepositions will not be discussed here since the way in which the prepositions is most adequate are introduced into the phrase structure has little if any effect on the general form of the rules employed in the description of the predicate complement system.

Having introduced the constituent PREP into the structure underlying sentence (127f), we observe that the transformations proposed earlier are fully adequate to the task of generating the correct derived structure.

(129) Sentence (127f)

First Cycle -- no operations

I decided [PREP [[it] [[John] [represent us]]]] BASE
N NP VP S NP PP

Second Cycle

I decided [PREP [[it] [POSS [John] [ing+represent
N NP

us]]]] T_{CP}
VP S NP PP

I decided [PREP [[it] [[John+POSS] [represent+ing
N NP

us]]]] T_{AUX}
VP S NP PP

I decided [PREP [[[John+POSS] [represent+ing us]]
NP VP S

]] T_{PD}
NP PP

Post Cycle

I decided [ON [[[John's] [representing us]]]] M
NP VP S NP PP

The conclusion that the complement constructions in the remaining grammatical sentences in the paradigm (127) originate as noun phrase complements in prepositional phrases stems from the considerations of simplicity alluded to earlier. If the claim is made that all of the grammatical sentences in (127) have an underlying prepositional phrase analysis, then 1) it is necessary to state for the verb "decide" only that it occurs before prepositional phrases (rather than before both prepositional phrases and noun phrase) and 2) it is totally unnecessary to specify any features of the pronominal head in the prepositional phrase except for the feature [+C] since all complementizer combinations are possible. Empirical justification arises when we examine the passive constructions and pseudo-cleft sentences which are related to the sentences in (127).

(130) a. 1) that John shall represent us was decided (on) by me

2) what I decided (on) was that John shall represent us

b. 1) for John to represent us was decided (on) by me

2) what I decided (on) was for John to represent us

Required by this analysis is a preposition deletion rule which deletes the preposition just in case it appears before a pronominal head which is marked either [+C][-D], i.e., the "that" complementizer, or [+C][-E], i.e., the "for-to" complementizer. This transformation is defined in Chapter 1 as the preposition deletion transformation, T_{PPD}. Since the deletion of the preposition depends upon the contiguity of the preposition with the pronominal head, it consequently follows that for the dialects in which the preposition is not deleted under passivization the preposition deletion rule must follow the application of the passive transformation. If the preposition deletion transformation precedes the passive transformation, then the preposition will invariably be deleted. The following data suggests, however, that such preposition deletion is rather uncommon.

(131) a. 1) they marveled that the plane flew at all

2) that the plane flew at all was marveled at by them

3) *that the plane flew at all was marveled by them

b. 1) everyone rejoiced that you were happy

2) that you were happy was rejoiced at by everybody

3) *that you were happy was rejoiced by everybody

c. 1) John insisted that you be here on time

2) that you be here on time was insisted on by John

3) *that you be here on time was insisted by John

Thus, preposition deletion must follow the passive transformation and must precede pronoun deletion. Furthermore, it is likely that the preposition deletion transformation must precede the pronoun replacement transformation and must follow the optional complementizer deletion transformation. In terms of these transformations, we can specify the derivation of sentence (127a) in the following fashion.

(132) Sentence (127a)

First Cycle -- no operations

I decided [PREP [[it] [John shall represent us]]] BASE
N S NP PP

Second Cycle

I decided [PREP [[it] [that John shall represent us]
N S

]] T_{CP}
NP PP

I decided [[[it] [that John shall represent us]]] T_{PPD}
N S NP PP

I decided [[[that John shall represent us]]] T_{PD}
S NP PP

With the application of the passive transformation, we are able to derive sentences like (131c2)

(133) Sentence (131c2)

First Cycle -- no operations

John insist [PREP [[it] [you be here on time]]]
N S NP PP

[by+P] BASE
MAN

Second Cycle

John insist [PREP [[it] [that you be here on time]
N S

]] [by+P] T_{CP}
NP PP MAN

[[it] [that you be here on time]] be+en insist
N S NP

[PREP] [by+JOHN] T_{P}
PP MAN

[[it] [that you be here on time]] be insist+en
N S NP

[PREP] [by+John] T_{AUX}
PP MAN

[[that you be here on time]] be insist+en [PREP]
S NP PP

[by+John] T_{PD}
MAN

Post Cycle

[[that you be here on time]] was insisted [on]
S NP PP

[by+John] M
MAN

An important consequence of the fact that the preposition deletion transformation follows the application of the passive transformation is that the same preposition deletion transformation accounts for the obligatory deletion of the agentive preposition "by." Consider the following examples.

(134) a. 1) for you to see this mess embarrasses me

2) *I am embarrassed by for you to see this mess

3) I am embarrassed for you to see this mess

b. 1) to have you visit my home honors me

2) *I am honored by to have you visit my home

3) I am honored to have you visit my home

As is seen in the following derivation, sentences (134a2, b2) are effectively blocked by the obligatory application of the preposition deletion transformation.

(135) Sentence (134a)

First Cycle -- no operations

[[it] [[you] [see this mess]]] embarrasses me
N NP VP S NP

[by+P] BASE
MAN

Second Cycle

[[it] [for [you] [to see this mess]]] embarrasses
N NP VP S NP

me [by+P] T_{CP}
MAN

I be+en embarrass [by+[[it] [for [you] [to see this
N NP

mess]]]] T_{P}
VP S NP MAN

I be embarrass+en [by+[[it] [for [you] [to see this
N NP

mess]]]] T_{AUX}
VP S NP MAN

I be embarrass+en [[[it] [for [you] [to see this
N NP

mess]]]] T_{PPD}
VP S NP MAN

I be embarrass+en [[[for [you] [to see this mess]]
NP VP S

]] T_{PD}
NP MAN

Post Cycle

I am embarrassed [[[for [you] [to see this mess]]
NP VP S

]] M
NP MAN

This analysis provides a method for deciding on the derivational status of the morpheme "for" in places where there is no a priori reason to identify this morpheme as either the preposition "for" or the complementizer "for." Consider, for instance, the following sentences.

(136) a. I hope for you to come on time

b. I hope that you will come on time

Superficially, these sentences appear to be instances of object complementation. Consideration of the pseudo-cleft sentences in (137) indicates, however, that a prepositional phrase analysis is, perhaps, more appropriate.

(137) a. what I hope for is for you to come on time

b. what I hope for is that you will come on time

Since we know from earlier considerations that the preposition deletion transformation is obligatory when the preposition precedes a pronominal head which is marked either [+C][-D] or [+C][-E], the conclusion that the "for" in the sentence (136a) is the complementizer "for" follows as a consequence. This morpheme could be a preposition only at the expense of making the preposition deletion rule less general, that is, by making it optional for verbs like "hope" when the complementizer is "for-to." Consider now the derivation of the sentence (136a) in terms of the analysis in which the preposition deletion transformation is obligatory.

(138) Sentence (136a)

First Cycle -- no operations

I hope [PREP [[it] [[you] [come on time]]]] BASE
N NP VP S NP PP

Second Cycle

I hope [PREP [[it] [for [you] [to come on time]]
N NP VP S

]]
NP PP T_{CP}

I hope [[[it] [for [you] [to come on time]]]] T_{PPD}
N NP VP S NP PP

I hope [[[for [you] [to come on time]]]] T_{PD}
NP VP S NP PP

Despite the fact that the optional complementizer deletion transformation is impossible for verbs like "hope," it is not, in general, impossible for prepositional phrase complement constructions, as we see in the following examples.

(139) a. 1) I thought about the world's coming to an end

2) I thought about the world coming to an end

b. 1) I worried about the world's coming to an end

2) I worried about the world coming to an end

Thus, the prepositional phrase noun phrase complements present optional complementizer deletion options in the same way as do object complement constructions.

There are many other prepositions which participate in constructions of the type under discussion. All of them seem

to share the same properties as "on" and "for." Thus we shall not take the time to illustrate any of the derivations, but it is nonetheless clear that the rules proposed earlier are fully adequate for the generation of the sentences in the following paradigms as well as many others.

(140) a. John persisted in reading
b. John persisted to read

(141) a. I marveled at your being so late
b. I marveled that you were so late

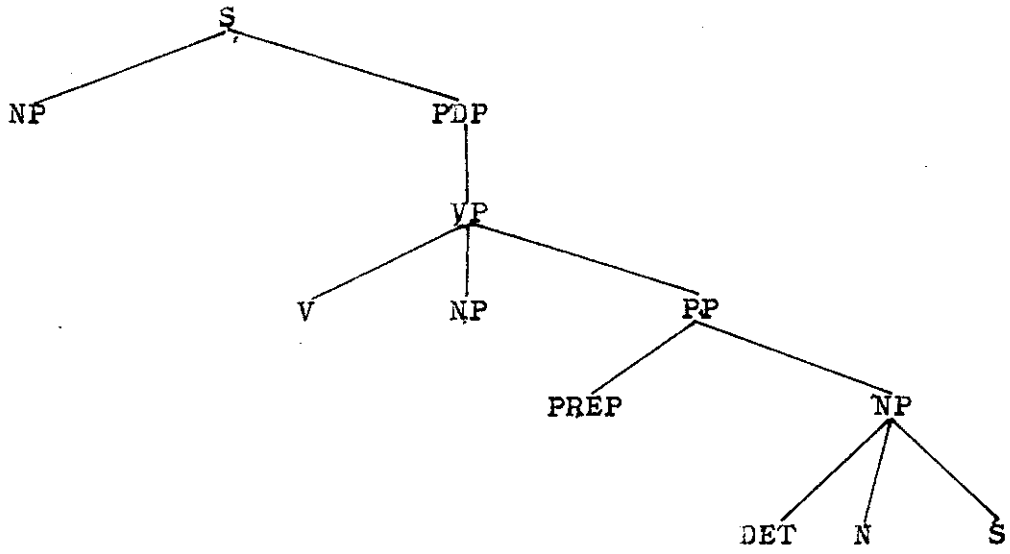
(142) a. I admit to being lazy
b. I admit that I am lazy

(143) a. I boasted of being strong
b. I boasted that I was strong

B. Transitive Oblique Noun Phrase Complementation

The necessity of positing transitive oblique noun phrase complement constructions, i.e., where the phrase structure rules of Chapter 1 produce the configuration given in (144), stems, once again, from consideration of the pseudo-cleft sentences. Let us compare, for example, the two sentences in (145) with respect to this construction.

(144)



(145) a. I reminded John to visit his ailing mother

b. I defied John to visit his ailing mother

(146) a. what I reminded John of was to visit his ailing mother

b. *what I defied John (of) was to visit his ailing mother

The fact that the pseudo-cleft sentence is possible for (145a) and not (145b) suggests that underlying the former is a noun phrase complement construction. Furthermore, the occurrence of the preposition "of" in (146a) suggests that this noun phrase complement originates as the noun phrase of a prepositional phrase.

This analysis gains additional support from the occurrence of the "that" complementizer in sentences containing the verb

"remind" but not in sentences containing the verb "defy."

(147) a. I reminded John that he should visit his ailing mother

b. *I defied John that he should visit his ailing mother

We might reason that "defy" is a verb which simply does not allow the "that" complementizer, but this judgment would not help to explain the fact that the pseudo-cleft sentence is as possible for (147a) as it is for (145a), as we see in (148).

(148) what I reminded John of was that he should visit his ailing mother

Furthermore, if we adopt the position suggested by the facts, namely that (145a) and (147a) are instances of preposition phrase complementation where the verb is transitive, it becomes possible to simplify the strict subcategorization information required by the verb. More specifically, sentences like (149) indicate that verbs like "remind," "convince," "persuade," and others may occur before a noun phrase object which itself occurs before a prepositional phrase.

(149) a. I reminded John of the fact that he is late

b. *I defied John of the fact that he is late

Assuming that sentences like (145a) and (147a) have a prepositional phrase in the underlying structure, we require no additional strict subcategorization information to be included in the lexical entry for the verb. In short, there is every advantage to be gained by making this assumption.

We observe in the following derivations that the transformational apparatus employed thus far is fully capable of generating sentences (145a) and (147a).

(150) Sentence (145a)

First Cycle -- no operations

I reminded [John] [PREP [[it] [[John] [visit his
NP N NP

mother]]]] BASE
VP S NP PP

Second Cycle

I reminded [John] [PREP [[it] [for [John][to visit
NP N NP

his mother]]]] T_{CP}
VP S NP PP

I reminded [John] [PREP [[it][for [to visit his mother]
NP N VP

]]] T_{IE}
S NP PP

I reminded [John] [[[it] [for [to visit his mother]
NP N VP

]]] T_{PPD}
S NP PP

I reminded [John] [[[for |to visit his mother]]]] T_{PD}
NP VP S NP PP

I reminded [John][[[[to visit his mother]]]] T_{CD}
NP VP S NP PP

(151) Sentence (147a)

First Cycle -- no operations

I reminded [John] [PREP [[it][he should visit his
NP N

mother]]] BASE
S NP PP

Second Cycle

I reminded [John] [PREP [[it][that he should visit
NP N

his mother]]] T_{CP}
S NP PP

I reminded [John] [[[it][that he should visit his
NP N

mother]]] T_{PPD}
S NP PP

I reminded [John][[[that he should visit his mother]
NP S

]] T_{PD}
NP PP

There are several constructions in English which resemble those discussed above in certain respects, but which also present a couple of curious problems. Consider, by way of illustration, the following sentences.

(151) a. I prevented the doctor from examining John

b. I prevented John from being examined by the doctor

It will be observed immediately that sentences (151a) and (151b) have the same truth value synonymy, a fact which could not be explained on the assumption that the sentences in (151) are instances of transitive oblique noun phrase complementation as are the sentences (145a) and (149a). On this assumption, the underlying structures, and hence the semantic interpretation, of the sentences in (151) are different. In (151a), the underlying object of "prevent" is "the doctor," while in (151b), the underlying object is "John."

The second problem which arises with respect to (151) is that a transitive oblique noun phrase complement analysis predicts incorrectly the grammaticality of the pseudo-cleft sentences in (152).

(152) a. *what I prevented the doctor from was examining John

b. *what I prevented John from was being examined by the doctor

Both of these problems can be resolved if it is assumed that the morpheme "from" in (151) is not an instance of PREP, but a complementizer of the basic form "from-ing." Consider the following derivation in terms of this assumption.

(153) Sentence (151a)

First Cycle -- no operations

I prevented [[it] [[John] [go]]] BASE
N NP VPS NP

Second Cycle

I prevented [[it][from [John] [ing go]]] T_{CP}
N NP VP S NP

Since extraposition is blocked in the event the complementizer is "POSS-ing" but not if the complementizer is "from-ing," extraposition can apply to the above string. It would appear, in fact, that extraposition is obligatory as it is for the "for-to" complementizers for the "believe" class of verbs.

I prevented [[it]] [from [John] [ing go]] T_{E}
N NP NP VP S

I prevented [[it]] [from [John] [go+ing]] T_{AUX}
N NP NP VP S

I prevented [John] [from [go+ing]] T_{PR}
NP VP S

If we prevent the obligatory complementizer deletion transformation from applying to the "from" complementizer, the grammar correctly generates the following string.

Post Cycle

I prevented [John] [from [going]] M
NP VP S

This analysis has several virtues which offset, perhaps, the cost of the required restriction on the obligatory complementizer deletion transformation. First, the synonymy of the sentences in (151) is explained by virtue of the fact that the two sentences do not differ in their underlying structures except for the constituent marking the obligatory passive transformation which does not affect the semantic interpretation. Second, the non-occurrence of the pseudo-

cleft sentences in (152) is explained in precisely the same way as the non-occurrence of such sentences in constructions containing main verbs of the "believe" class, that is, the application of pronoun replacement transformation destroys the environment on which the pseudo-cleft sentence transformations must be defined. Similarly, this analysis explains the introductory "there" phenomenon in sentences like (154).

(154) a. Wyatt Earp prevented there from being trouble on the range

b. shelters will not prevent there from being great destruction

Finally, this analysis allows us to explain the synonymy of the sentences in (155) with those in (151).

(155) a. I prevented the doctor's examining John

b. I prevented John's being examined by the doctor

In the sentences in (155) the complementizer is "POSS-ing" rather than "from-ing" but the underlying structures of the two pairs of sentences are identical in every respect. Their semantic interpretations, therefore, must be the same.

The introduction of a new complementizer, "from-ing," seems to be necessary as there is no other immediately apparent analysis which can account for as wide a range of facts with similar economy. But this conclusion raises a host of

new questions concerning the status of other putative prepositions and concerning the adequacy of the descriptive apparatus proposed in this study in the light of whatever new complementizers might be discovered in following up this tentative analysis. These questions go far beyond the range of the present study. There is no independent justification at the present time for the complementizer "from-ing" other than that such a postulation accounts for the facts thus far investigated.

NOTES

1. It is unlikely that all of the paradigm sentences will be judged grammatical in a given dialect. These sentences simply illustrate the range of possible sentences based upon this complement construction which the author has observed in several dialects of English.

2. For the sake of convenience, the pronominal head of a noun phrase complement construction, $[_{\substack{N \\ +PRO}}]$ will be represented as [it2 in all subsequent derivations. Similarly, complementizers will be spelled out in the derivations rather than specified in terms of features. In the derivations beginning with (13), the abbreviation, M, stands for morphophonemic rules which will not be elaborated in this study.

3. There are certain exceptions to this formulation. Consider sentences like the following:

   a. I ask that John be allowed to come
   b. *I ask John be allowed to come

   It is perhaps not beside the point to note that verbs like "ask" belong to that small class of verbs which are exceptions to the erasure principle, as we see below.

   a. I asked John to go
   b. I asked of John to be allowed to go

   That matter is discussed briefly later in Chapter 4.

4. Cf. N. Chomsky, "Current Issues in Linguistic Theory," in The Structure of Language, eds. J. A. Fodor and J. J. Katz, Englewood Cliffs, 1964.

5. This follows from the fact the extraposition transformation is blocked in the event that the complementizer is "POSS-ing."

6. The reader can readily test this assertion by comparing the number of complementizer features required by any three case formulations with the number required in the statement of the optional complementizer deletion transformation given in Chapter 1.

7. This transformation would never apply in the event that structural indices 4 and 6 are not present. Furthermore, it could never be the case that both 4 and 6 would be present in the structural description.

8. The remarks in note 1 of this chapter hold with respect to the "for-to" paradigm.

9. In this instance the derived subject is the erased NP.

10. The origin and interpretation of the "have" in this derivation will not be discussed, but it appears to be a reflection of the past tense required by this class of verbs with the "for-to" complementizer.

11. Cf. T. Bever and P. Rosenbaum, "The Psychological Verification of Linguistic Rules," (forthcoming).

12. Observe that the subject of this complement sentence can be deleted only when it is a pronoun like "someone."

13. In addition, consider sentences like the following:

    a. I demand of you to be allowed to come
    b. I ask of you to be allowed to come
    c. I request of you to be allowed to come

CHAPTER 5

Verb Phrase Complementation

The reasons for postulating the existence of verb phrase complement constructions in English are the converse of those requiring the postulation of noun phrase complementation. Verb phrase complement constructions, generated by phrase structure Rule 1 in Chapter 1, require a derivational apparatus which makes use of the same set of transformations that we have seen to be necessary to the system of noun phrase complementation. In a sense, therefore, the next few pages constitute a review of the transformational machinery discussed thus far as these rules apply to a different underlying structure. It is a measure of the adequacy of these rules that they generalize, as we shall see, to the more common verb phrase complement constructions of English.

I. Intransitive Verb Phrase Complementation

In proposing noun phrase complementation, we had reason to refer to pairs of sentences like the following.

(1) a. 1) Bill prefers to stay here

2) what Bill prefers is to stay here

3) to stay here is preferred by Bill

4) what is preferred by Bill is to stay here

b. 1) Bill condescended to stay here

2) *what Bill condescended was to stay here

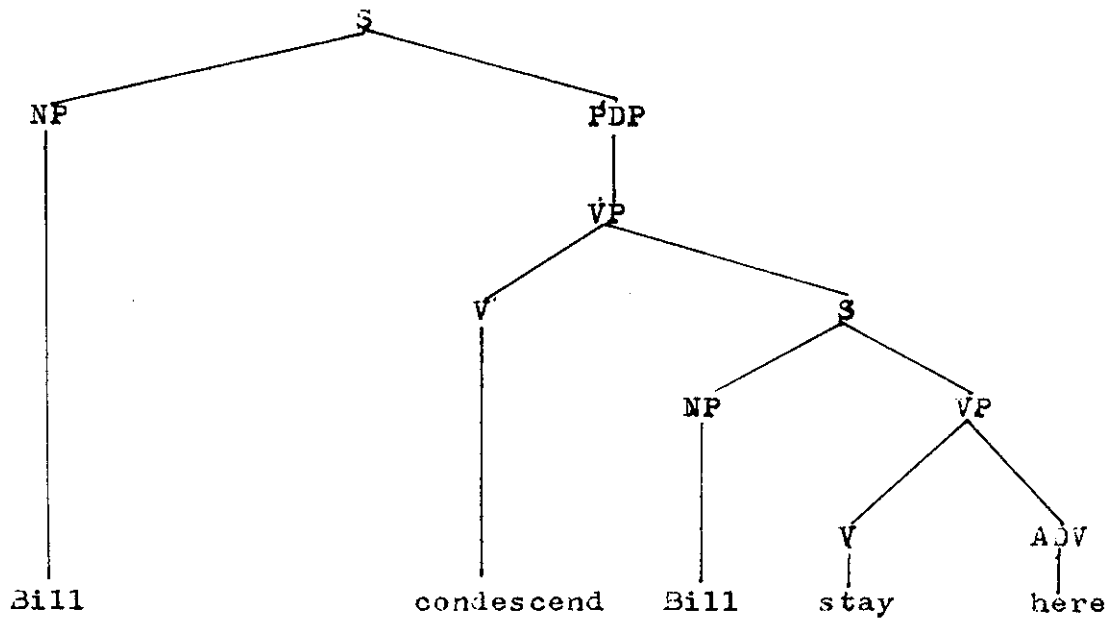
3) *to stay here was condescended by Bill

4) *what was condescended by Bill was to stay here

We were able to explain the fact that all four of the sentences in (1a) are grammatical by assuming that the phrase "to stay here" was a noun phrase complement. On this assumption passivization is perfectly appropriate since this phrase is dominated by a NP in the underlying structure. Furthermore, we can understand the grammaticality of the pseudo-cleft sentences of both the passive and active versions of this sentence on the assumption that the pseudo-cleft sentence transformations apply to instances of NP. In explaining the non-occurrence of sentences (1b2,3,4), we can say either that the passive transformation and the pseudo-cleft sentence transformations do not apply for verbs such as "condescend" (assuming a noun phrase complement analysis for (1b)) or we can adopt the far more economical position that (1b) is simply not an instance of noun phrase complementation in the first place in which case the non-application of the passive transformation and the pseudo-cleft sentence transformations follow as a necessary consequence. Taking the latter alternative, we were also able to demonstrate that the phrase "to stay here" must be an instance of verb phrase complementation for to assume the contrary would make it

difficult if not impossible to arrive at a reasonably simple formulation of the identity erasure transformation. In other words, we were able to show that the underlying structure for the sentence (1b) was roughly the following configuration.

(2)



It is immediately apparent that the derivation of (1b1) from the underlying structure (2) requires no rules in addition to those already motivated. The derivation can be specified in the following fashion.

(3) Sentence (1b)

First Cycle -- no operations

Bill condescended[[Bill] [stay here]] BASE
NP VP S

Second Cycle

Bill condescend [for [Bill] [to stay here]] T_{CP}
NP VP S

Bill condescended [for [to stay here]] T_{IE}
VP S

Bill condescended [[to stay here]] T_{CD}
VP S

There is little more to say about the analysis of intransitive verb phrase complementation except to point out that the derivation of all verb phrase complement constructions depends upon the obligatory identity of the erasing and erased noun phrases, in this case the subject of the complement sentence and the subject of the main sentence. Thus, for example, sentences like (4) are impossible.

(4) *I condescended Bill to go

We recall, however, that the identity of erasing and erased noun phrases is not always a necessary condition for the derivation of noun phrase complements, a fact attested by the sentences in (5).

(5) a. I hate for John to to

b. I hate to go

Indeed, in the system of noun phrase complements we even find cases where non-identity seems to be a necessary condition for derivation.

(6) a. I said for John to go

b. I said (for someone) to go

c. *I said for me to go

The necessary identity of erasing and erased noun phrases also holds for certain fairly major classes of noun phrase complementation. For instance, there is no instance of a prepositional noun phrase complement for a transitive verb where identity of erasing and erased noun phrases is not a necessary condition for derivation. As an example, consider the following sentence.

(7) a. 1) *I persuaded John for Bill to come

2) I persuaded John to come

b. 1) *I reminded John for Bill to visit his ailing mother

2) I reminded John to visit his ailing mother

There may well be an explanation for the necessary identity of erasing and erased noun phrases in the structures just presented, but this issue will not be taken up in the present study.

II. Transitive Verb Phrase Complementation

Given the rules already presented, the derivation of transitive verb phrase complement constructions is quite straightforward. We can establish the existence of such constructions by comparing the following sets of sentences.

(8) a. 1) somebody prefers for John to do the work

2) what somebody prefers is for John to do the work

3) for John to do the work is preferred

4) what is preferred is for John to do the work

b. 1) somebody trusts John to do the work

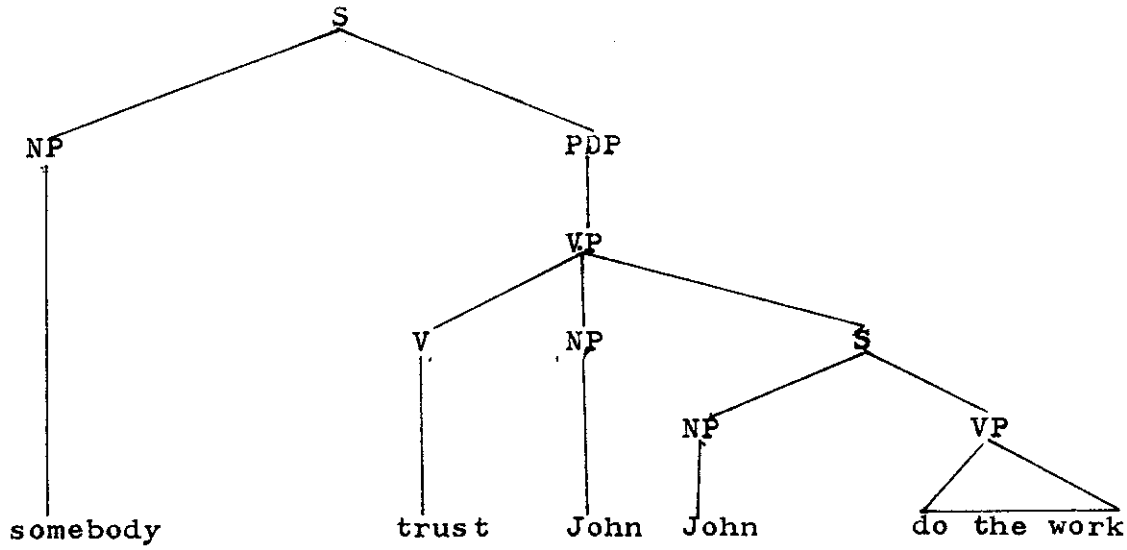
2) *what somebody trusts is for John to do the work

3) *for John to do the work is trusted

4) *what is trusted is for John to do the work

Applying the same reasoning to the paradigm (8) as was just applied to the paradigm (1), we arrive at the conclusion that the sentence (8b1) is an instance of transitive verb phrase complementation having the underlying structure given in (9). The non-occurrence of sentences (8b2,3,4) is thus predicted.

(9)



On the basis of the underlying structure (9), we can specify the derivation of (8b1) in the following fashion.

(10) Sentence (8b1)

First Cycle -- no operations

somebody trusts [John] [[John] [do the work]] BASE
NP NP VP S

Second Cycle

somebody trusts [John] [for [John] [to do the work]] T_{CP}
NP NP VP S

somebody trusts [John] [for [to do the work]] T_{IE}
NP VP S

somebody trusts [John] [[to do the work]] T_{CD}
NP VP S

This derivational procedure is common to all verb phrase complement constructions. There is certain additional apparatus required to handle those cases in which the complementizer "to" is either obligatorily or optionally deleted, as in (11), but the details of this operation are sufficiently transparent so that it is probably unnecessary to go into further detail on this phenomenon.

(11) a. 1) I helped John to build the house

2) I helped John build the house

b. I let John go

c. I made John go

It seems reasonably clear that the "to" deletion transformation

will have to be dependent upon some sort of verbal marker since the deletion of the "to" is an idiosyncratic property of an extremely small number of verbs.

III. Prepositional Verb Phrase Complementation

The necessity of positing underlying structures of this type follows from a consideration of the paradigm below.

(12) a. 1) they prevailed upon John to represent us[1]

2) what they prevailed upon John for was to represent us

b. 1) they hit upon John to represent us

2) *what they hit upon **John for was** to represent us

These data suggest a derivation for sentence (12b1) which follows the pattern set by the derivations of the verb phrase complement constructions in the preceding two sections.

(13) Sentence (12b1)

First Cycle

they hit [PREP John] [[John] [represent us]] BASE
PP NP VP S

Second Cycle

they hit [PREP John] [for [John] [to represent us]] T_{CP}
PP VP S

they hit [PREP John] [for [to represent us]] T_{IE}
PP VP S

they hit [PREP John] [[to represent us]] T
PP VP S CD

Post Cycle

they hit [upon John] [[to represent us]] M
PP VP S

IV. Special Problems

The class of verbs which includes such items as "taste," "smell," "feel," and others seems to require certain additional apparatus.[2] Consider, for instance, the following sentences.

(13) a. the meat tastes salty to me

b. the milk smells good to me

c. the batter feels lumpy to me

We observe, however, that such sentences as those in (14) have an entirely different status from those in (13).

(14) a. *the meat tastes salty to the tree

b. *the milk smells good to the pencil

c. *the batter feels lumpy to the spoon

The restrictions which are imposed upon the noun phrase in the prepositional phrases in (13) and (14) we observe to be identical to those imposed upon the subjects of the following sentences.

(15) a. 1) I taste the meat

2) I smell the milk

3) I feel the batter

b. 1) *the tree tastes the meat

2) *the pencil smells the milk

3) *the spoon feels the batter

The statement of the restrictions noted in the above cases can be generalized, that is, stated only once in the grammar, if we assume that the sentences in (13) are derived from sentences in which the noun phrase observed in the prepositional phrases of (13) originate as the underlying subjects of these sentences. In other words, we propose that the sentences in (13) are actually instances of verb phrase complementation and that, in the course of the derivation, the subject and object of the main sentence are inverted. We may specify this derivation in the following fashion.

(16) Sentence (13a)

First Cycle -- no operations

I taste [the meat] [[the meat] [be salty]] BASE
NP NP VP S

Second Cycle

I taste [the meat] [for [the meat] [to be salty]] T_{CP}
NP VP S

I taste [the meat] [for [to be salty]] T_{IE}
VP S

The identity erasure transformation must precede the subject-object inversion transformation. Otherwise, the erasure principle will fail.

[the meat] taste [for [to be salty]] to+me T_{SOI}
NP VP S

The passive transformation must follow the subject-object inversion transformation since if it does not, the grammar generates sentences like "the meat was tasted by me to be salty." Note furthermore that since the subject-object inversion transformation places the subject noun phrase to the right of the verb phrase complement sentence, the non-application of the passive transformation follows as a consequence.

[the meat] taste [[to be salty]] to+me T_{CD}
NP VP S

[the meat] taste [[salty]] to+me T_{TB}
NP VP S

The transformation T_{TB} which was not defined in Chapter 1 plays a role in a variety of complement constructions. Thus, for example, one finds sentences like "I consider John to be a fool" and "I consider John a fool."

Post Cycle

[the meat] tastes [[salty]] to+me M
NP VP S

The subject-object inversion transformation is not without its difficulties but it does appear to be a tentative approximation of a rule which is clearly necessary in some form. It

is not inconceivable that a rule of this general type will have an important extension in the analysis which attempts to relate the sentences in the following pairs.

(17) a. 1) I value the book

2) the book is valuable to me

b. 1) I benefit from your kindness

2) your kindness is beneficial to me

But the development of strong motivation for formulating a general subject-object inversion transformation does not lie within the scope of the present work and the employment of this rule to handle cases like those in (13)-(16) is to be taken more as suggestive than as definitive.

NOTES

1. We observe that (12a) is actually an instance of oblique noun phrase complementation since there is no other analysis which could explain the occurrence of the preposition "for" in the pseudo-cleft sentence (12a2).

2. This problem was suggested to the author by Paul Postal.

CHAPTER 6

Complementation in Adjectival Predicate Constructions

The behavior of predicate complement constructions in adjectival structures is, in many ways, remarkably similar to the behavior of these same constructions in the verbal structures discussed in earlier chapters. Certain of these adjectival constructions will be given brief consideration in this chapter. The analyses provided should be taken more as suggestive than as definitive since it will become immediately clear that a fairly wide range of phenomena have not been taken into consideration. For instance, there is little doubt that a more insightful analysis will reveal many instances where adjectival complement constructions are probably to be considered as derivationally related to cognate verbal complement constructions. The purpose of the brief exposition in this chapter is simply to show that many of the transformations discussed earlier are equally applicable in cases where the predicate of the sentence is, in its derived structure at least, an adjective.

I. Prepositional Noun Phrase Complements

A great many adjectives take prepositional phrases which may contain a noun phrase complement construction. Although

very few participate in a complete paradigm, allowing all three complementizer possibilities in the complement sentence, among this class of adjectives one finds the adjective "scared." Consider the following paradism.

(1) a. I am scared of leaving home at this time

b. I am scared that I will not be able to do the work

c. I am scared to find out the truth.

Evidence supporting the position that the "b" and "c" sentences in the paradigm are instances of prepositional noun phrase complementation as well as the "a" sentence consists in the fact that the pseudo-cleft sentences relating to the sentences in the paradigm are grammatical.

(2) a. what I am scared of is leaving home at this time

b. what I am scared of is that I will not be able to do the work

c. what I am scared of is to find out the truth

The fact that the sentences in the paradigm bear an obvious relation to the verbal sentences in (3) does not detract from the necessity of positing structures of this type since, as the pairs in (4) attest, there is no immediately apparent verbal counterpart to the great majority of adjectives in this class.

(3) a. leaving home at this time scares me

b. it scares me that I will not be able to do the work

c. it scares me to find out the truth

(4) a. 1) I was aghast at John's hitting Bill

2) I was aghast that John hit Bill

b. 1) I am aware of John's having left

2) I am aware that John left

The derivation of the sentences in this paradigm is perfectly straightforward and, as we see in the following illustration, includes only the transformational machinery which is requisite to the derivation of predicate complement constructions in verbal sentences.

(5) Sentence (4b1)

First Cycle -- no operations

I am aware [PREP [[it] [[John] [have left]]]] BASE
N NP VP S NP PP

Second Cycle

I am aware [PREP [[it] [POSS [John] [ing have left]
N NP VP

]]] T_{CP}
S NP PP

I am aware [PREP [[it] [[John+POSS] [have+ing left]
N NP VP

]]] T_{AUX}
S NP PP

I am aware [PREP [[[John+POSS] [have+ing left]]]] T_{PD}
NP VP S NP PP

Post Cycle

I am aware [of [[[John's] [having left]]]] M
NP VP S NP PP

(6) Sentence (4ba)

First Cycle -- no operations

I am aware [PREP [[it] [[John] [left]]]] BASE
N NP VP S NP PP

Second Cycle

I am aware [PREP [[it] [that [John] [left]]]] T_{CP}
N NP VP S NP PP

I am aware [[[it] [that [John] [left]]]] T_{PPD}
N NP FP S NP PP

I am aware [[[that [John] [left]]]] T_{PD}
NP VP S NP PP

Paralleling verbs like "hope," which require the preposition "for" in the underlying structure, one finds adjectives like "eager," "anxious," "ready," and several others. Consider, for example, the following sentences.

(7) a. I am eager for John to get going

b. I am anxious for you to see my etchings

c. I am getting ready to take the examination

The necessity of postulating an underlying preposition phrase analysis follows, once again, from the data provided by the pseudo-cleft sentence constructions.

(8) a. what I am eager for is for John to get going

b. what I am anxious for is for you to see my etchings

c. what I am getting ready for is to take the examination

There are a great many other adjectives which take prepositional noun phrase complements with prepositions other than those mentioned but they present sufficiently few additional difficulties that further study is not necessary at this time.

II. Subject Complementation

Subject noun phrase complementation is as productive a process in adjectival constructions as it is in verbal construction. Consider, by way of illustration, the sentences in the following paradigm.

(9) a. 1) that John decided to fight is admirable

2) that he wants to do it is reasonable

3) that nothing works here is peculiar

b. 1) for him to want to go is admirable

2) for you to wish to make money is reasonable

3) for him to say that was peculiar

c. 1) John's being prompt is admirable

2) his wanting to go is reasonable

3) it's being so cold in here is peculiar

There are two bits of evidence which support the view that the above sentences constitute instances of noun phrase complementation. First, we observe that extraposition is possible in the

event that the complementizer is either "that" or "for-to." Extraposition, as we have seen much earlier, depends upon the contiguity of the constituent S with the pronominal head of the complement construction.

(10) a. 1) it is admirable that John decided to fight
2) it is reasonable that he wants to do it
3) it is peculiar that nothing works here

b. 1) it is admirable for him to want to go
2) it is reasonable for you to wish to make money
3) it was peculiar for him to say that

Second, the pseudo-cleft sentence construction is possible for all sentences in the paradigm (9).

(11) a. what is admirable is that John decided to fight
b. what is reasonable is for you to wish to make money
c. what is peculiar is his wanting to go

The derivations of the sentences discussed above parallels the derivations proposed for subject complementation in verbal constructions and there seems little reason to go through these derivations here.

Interestingly enough there are several adjectives like "likely" which parallel verbs like "happen" in requiring, at least in the case of the "for-to" complementizer, obligatory

extraposition and pronoun replacement. Consider, for example, the following series of sentences.[1]

(12) a. we are likely to be ready on time

b. *for us to be ready is likely

c. *it is likely for us to be ready

We could explain the grammaticality of (12a)in terms of a verb phrase complement analysis, but in doing this we would be 1) losing in economy and 2) failing to explain certain semantic facts. Concerning the first point, it is clearly more expensive to assign to distinct analyses to adjectives like "likely," a subject complement analysis for cases like (13) and a verb phrase complement analysis to handle (12a).

(13) a. that we will be ready on time is likely

b. it is likely that we will be ready on time

Secondly, if we assume a verb phrase complement analysis for (12a), we fail to explain the truth value synonymy of the two sentences in (14).

(14) a. the egg is likely to be broken by John

b. John is likely to break the egg

If, on the other hand, we assume a subject complement analysis, this synonymy is explained automatically since the two sentences

differ only in the application of the passive transformation to a common underlying structure in the case of (14a). Thus, the derivation of the sentence (14a) might be given as follows.

(15) Sentence (12a)

First Cycle

[[it] [[John] [break the egg [by+P]]]] be likely BASE
N NP MAN VP S NP

[[it] [[the egg] [be+en break [by+John]]]] be likely T_P
N NP MAN VP S NP

[[it] [[the egg] [be break+en [by+John]]]] be likely T_{AUX}
N NP MAN VP S NP

Second Cycle

[[it] [for [the egg] [to be break+en [by+John]]]]
N NP MAN VP S NP

be likely T_{CP}

[[it]] be likely [for [the egg] [to be break+en [by+
N NP NP

John]]] T_E
MAN VP S

[the egg] be likely [for [to be break+en [by+John]
NP MAN

]] T_{PR}
VP S

[the egg] be likely [[to be break+en [by+John]]] T_{CD}
NP MAN VP S

Post Cycle

[the egg] is likely [[to be broken [by+John]]] M
NP MAN VP S

In terms of certain other subject complement constructions the generality of the pronoun replacement once again becomes an issue. Consider, for instance, the following sentences.

(16) a. for John to go is important

b. it is important for John to go

c. *John is important to go

(17) a. for you to see a doctor would be worthwhile

b. it would be worthwhile for you to see a doctor

c. *you would be worthwhile to see a doctor

We have two ways of explaining the non-occurrence of the "c" sentences in (16) and (17). We might say, simply, that these particular adjectives do not undergo the pronoun replacement transformation and establish an appropriate system of verbal markers accordingly. There is a second possibility which is slightly more appealing because of its greater generality. We observe that it is just the adjectives in question which apparently allow a prepositional phrase following the adjective in the underlying structure.

(18) a. 1) it is important (to somebody) for John to go

2) it is important to John to go

b. 1) it would be worthwhile for the doctor for you to see him

2) it would be worthwhile for you for you to see the doctor

3) to see the doctor would be worthwhile for you

These data suggest the possibility of explaining the non-occurrence of the "c" sentences in terms of the order of the deletion of the prepositional phrase. Although the details of this deletion go beyond the scope of the present study, it is clearly a strong possibility that the pronoun replacement transformation may precede whatever transformation deletes the prepositional phrase in which case the former is automatically blocked. Even though the prepositional phrase deletion rules may subsequently apply, the pronoun replacement transformation no longer can.

III. Verb Phrase Complementation

There are several adjectival complement constructions which, on the basis of the criteria discussed in this study, seem to call for a verb phrase complement analysis. Consider, for example, the following sentences.

(19) a. 1) John was happy to leave early
2) *what John was happy (PREP) was to leave early
b. 1) John was unable to see things clearly
2) *what John was unable was to see things clearly
c. 1) you are welcome to come
2) *what you are welcome is to come

The non-occurrence of the cleft sentences does not prove, however, that these adjectival constructions do not belong to the same class as those discussed with respect to the adjective

"likely." In other words, the pseudo-cleft sentence might be obviated by the application of the pronoun replacement transformation. But this possibility is negated because of the fact that, as we observe in (20), the sentences in each pair do not have the same truth value synonymy, a fact which is explained by assuming distinct underlying structures.

(20) a. 1) the doctor was happy to examine John
2) John was happy to be examined by the doctor
b. 1) the nurse was unable to attend to John today
2) John was unable to be attended to by the nurse today

We thus conclude that the grammatical sentences in (19) are instances of verb phrase complementation and to be derived in exactly the same manner as the intransitive verb phrase complement construction discussed in Chapter 5.

IV. Special Problems

One of the most recalcitrant problems in the predicate complement system concerns the extremely productive class of adjectives including such items as "clever," "wise," "honorable," and at least a couple of hundred others. The specific problem concerns the relatedness of the sentences in (21) with the sentence(22).

(21) a. to leave early was wise of John

b. it was wise of John to leave early

(22) John was wise to leave early

Certain possibilities suggest themselves, but, as we shall see, none of them are without difficulties.

One of the more interesting analyses makes use of the pronoun replacement transformation. What makes the use of this transformation possible is the curious set of identity erasure options which exists for this class of adjectives. More specifically, we observe the following possibilities.

(23) a. it was wise of John for him to leave early

b. it was wise of John to leave early

c. it was wise for John to leave early

In other words, we apparently have the option of deleting either the "erasing" noun phrase in the main sentence or the "erased" subject noun phrase in the complement sentence. This property is common to another class of adjectives, the class containing adjectives like "difficult," as in (24).

(24) a. it was difficult for John for him to pass the exam

b. for John to pass the exam was difficult

c. to pass the exam was difficult for John

Returning to the sentences in (23), we observe that if the

option of deleting the connected noun phrase in the main sentence is taken, the pronoun replacement transformation is defined (on the string "it was wise [for John to leave early]") and we may generate sentence (22) accordingly.

A second possibility, although one which is beset by difficulties more severe than simply a lack of knowledge concerning the rules governing connection erasure options, attempts to relate (22) and perhaps the sentences in (21) to the following sentence..

(25) John was wise in leaving early

To generate (22) on the basis of the structure underlying sentence (25) requires us to posit that (22) is an instance of prepositional complementation. In this view, the only difference between (22) and (25) is that the complement sentence in the former contains the "for-to" complementizer while the latter contains the "POSS-ing" complementizer. Several unfortunate findings ensue from a careful study of this analysis. First, we find that the noun phrase complement construction proposed here is the first in this entire study for which the pseudo-cleft sentence is impossible, as we see in (26). One is naturally reluctant to give up what has proven to be such a powerful generalization.

(26) *what John was wise in was to leave early

If we make a deeper claim and assert that the prepositional phrase structure in (25) underlies (21) and (22) and that an inversion rule similar to that discussed in Chapter 5 establishes a structure from which the sentences in (21) and (22) are subsequently derived by the transformational apparatus already motivated, we can perhaps explain the non-occurrence of (26). But this involves us in other messy problems such as explaining why this inversion rule is obligatory if the complementizer is "for-to" and optional otherwise and how it happens that the preposition "in" is necessarily deleted so as to generate (27a) and not (27b).

(27) a. leaving early was wise of John

b. leaving early was wise of John in

In short, there is no way of relating the sentences in (21) and (25) which follows as a consequence of any of the considerations raised in the present study. Such a proposal seems to raise more problems than it solves. Furthermore, it seems to be the case that the derivation of (22) is more appropriately handled in terms of the structure underlying the sentences in (21) than in terms of the structure underlying (25). It is quite possible that a broader study of these phenomena will yield an insightful analysis in which the constraints governing the classification of complement constructions suggested in this study will prove to be

artificial. And it is no doubt with respect to the adjectives under discussion that future research may be expected to yield more informative results.

The last construction which deserves mention is the class of adjectives including "difficult," "easy," and several others. These adjectives demand the formulation of an entirely new transformation, one which takes the final noun phrase in the verb phrase of the complement sentence and substitutes it for the pronominal head after the application of the extraposition transformation. Consider, for instance, the following sentences.

(28) a. for John to hit Bill is difficult

b. it is difficult for John to hit Bill

c. Bill is difficult for John to hit

The transformation required to generate sentence (28c), which probably depends upon the prior application of whatever rule deletes the erasing NP in the derivation of sentences like (22), has roughly the following form.

(29)

W	[[it]]	AUX	ADJ	[[+C]	NP	AUX	[V	(PREP)	NP]	X]	Y
	N NP								VP	S	
1	2	3	4	5	6	7	8	9	10	11	12

====>1,10,3,4,5,6,7,8,9,∅,11,12

This summary of predicate complementation in adjectival structures is by no means complete. The reason for this brief

discussion is to show that, with respect to predicate complementation, verbal and adjectival constructions share many properties in common. It would not speak well for the rules proposed in this study if they cannot be generalized to predicate complementation in both verbal and adjectives constructions. It may be the case, however, that the general adequacy of the rules for adjectival complementation is more a function of shallow depth of the present study of adjectival complementation than it is a true reflection of the near symmetry of the systems of verbal and adjectival complementation. More substantial study of adjectival complementation is required before the two systems can be rigorously compared. The most conservative assertion, namely, that the rules required to handle predicate complementation in verbal constructions also handle many cases of predicate complementation in adjectival constructions, is probably the strongest claim which can be made at the present time.

NOTES

1. Certain liberties are being taken in the assumption that words such as "likely," "sure," and "certain" are adjectives. There are grounds for arguing that these items are somewhat peculiar adverbs. This fact is not overly consequential should it turn out that lexical items must be marked in some fashion for the application of the pronoun replacement transformation. The present study suggests certain ways of avoiding having to mark lexical items for the application of pronoun replacement, e.g. ordering of prepositional phrase deletion and pronoun replacement. We should not be surprised, however, if subsequent research shows that lexical markers for pronoun replacement are absolutely necessary.

CHAPTER 7

A Historical Perspective

The most provocative work on the predicate complement constructions of English falls into two major categories: the so-called traditional approach, best characterized by the work of Poutsma and Jesperson, and the generative transformational approach including primarily the work of Chomsky, Lees, and Fillmore. The traditional view of complementation is based upon descriptive methodology underlying which is the goal of explicating the structure of sentences in English in terms of the relation obtaining between words and an abstract logical structure implicit in every grammatical English sentence. Perhaps it is true, as Lees suggests,[1] that the traditional approach to language study differs from the transformational approach only to the extent that the scholars involved in traditional linguistics did not have access to the formal apparatus allowing the recursive specification of the well-formed sentences in a natural language. But it is indeed a moot point whether the mere availability of such techniques would have been sufficient to insure that the traditionalists would come to view explanation rather than simply description as the primary goal of linguistic inquiry. Whatever else a

traditional grammar may contain notwithstanding, the deficiencies of the traditional approach can be traced ultimately to the fact that the goal of linguistic inquiry was, for the traditionalists, not a matter of justification but a matter of description.

Our interest in the traditional approach to the problem of complementation stems from the fact that the traditional grammarians considered it important for a linguistic description to take cognizance of a fairly wide range of introspective linguistic data, in particular, judgments about relations obtaining between words in sentences, about the identification of parts of speech and the role played by the parts of speech in sentences, about the constituency of sentences as these constituents fulfill the logical conditions imposed upon sentences, and so forth. The art consisted not in providing a framework in which these human intellectual abilities might be explained, but in simply observing how various arrangements of words contribute to the meaning of sentences. To take a specific example, both Poutsma and Jespersen acknowledge that though an infinitive clause may express an action or state, the person or thing with which the action or state is associated is usually not indicated in any way in the infinitive clause. For both grammarians it was sufficient simply to indicate the deletion. The specification of which word or clause in the "head-sentence," to use Poutsma's term for the main sentence, is the same as the deleted word of the clause in the complement sentence was never taken to be an issue. Thus, it is never taken to be of interest that the

implicit subject of the complement sentence in "John promised to go" is the subject of the head-sentence while the implicit subject of the complement sentence in "we defy you to go" is the object of the head-sentence. In other words, subject deletion in "for-to" and "POSS-ing" complements was, in the traditional view, an important fact but not a fact that required explanation.

The central concern of a traditional approach to complementation is perhaps best understood in terms of the traditionalists' views on the constituency of sentences. Assuming that well-formed sentences in a language consist of two levels of constituents, logical and grammatical, the traditional grammarians sought to "discover" grammatical constituents on the basis of intuitions about logical constituents. Logical constituency refers to a definition of the sentence according to which a sentence is said to consist minimally of a subject and a predicate. A predicate may consist of a verb and its object. Furthermore, subjects, objects, and verbs (where no distinction is drawn between the logical status of a verb and its grammatical status) may be modified by additional constituents variously referred to as adjuncts, modifiers, and occasionally, complements. A grammatical analysis consists first in showing the constituency of these logical categories and second in deriving a classification of the various parts of speech and larger grammatical units which operate as logical constituents.

This methodology leads to some very interesting results. In the first place, Poutsma observes a strong functional similarity between subordinate clauses with "that" and infinitive and gerundive clauses. In particular, he notes that all three clauses may appear as the subject of a verb. Similarly, they may appear as the object of a verb. Since all three constructions have the same logical constituency, he reasonably assumes that these constructions share a common feature in the language. This observation, correct though it may be, left Poutsma with a conceptual problem which his grammatical system did not allow him to solve, namely, there was no way in which he could express the notion "common feature." Insofar as notions like "subject," "object," and so forth are logical structures expressing merely the relation between words in well-formed sentences, it is impossible to offer a unique logical characterization of the three clauses under study. In one instance, the three clauses are subjects, in another they are objects. Indeed, one finds in both Poutsma and Jespersen a considerable proliferation of such mappings. Poutsma, for example, refers to adverbial clauses of place, time, cause, reason, consequence, inference, purposes, concession, disjunctive concession, quality, attendant circumstances, degree, alternative agreement, proportionate agreement, restriction, and exception.[2] In each case of adverbial modification, Poutsma observes the three types of clauses as being an instance of any single logical constituent.

The most that Poutsma could say was that the three constructions are instances of "clause." This alternative presents several difficulties which we shall examine shortly. It is immediately clear, however, that this classification, regardless of any other deficiencies, asserts that there is no grammatical relation whatever between the clause and the noun. These entities are logically related insofar as they can play the same role in the sentence, but where it is possible to say with assurance that two items have the grammatical property of being nouns or clauses, there is no grammatical property which both nouns and clauses share.

In many cases, Poutsma's classificational scheme leads to analyses which, in terms of the earlier presentation, seem to be substantially correct. For instance, "that" clauses in sentences like "I think that John should go" are analyzed as objects of the verb. In effect, this coincides with the earlier analysis in which the NP dominating "it that John should go" is interpreted as the object of the verb "think" in the underlying phrase structure configuration. Similarly, the infinitive and gerundive phrases in sentences like "I swore never to divulge our secret" and "I suggest gaining permission first" are correctly analyzed as verbal objects. The major problem in Poutsma's analysis arises from the fact that his clausal analysis of the three complement constructions is taken overly seriously. Clauses, Poutsma hypothesized

correctly, are actually sentences which are embedded in other sentences and which perform thereby some logical role. But it is the property of all sentences that the subject is in the nominative case while the object is in the accusative case. It followed, therefore, that a phrase like "him to do that" in the sentence "I would like him to do that" could not be an instance of an infinitive clause, the reason being that the clause is a sentence and all sentences have nominative subjects. Thus, in the sentence, "I would like him to do that" it is only the infinitive phrase "to do that" which is the clause. The pronoun "him" is actually the object of the sentence. This reasoning led Poutsma to postulate the so-called "accusative with infinitive" construction where the infinitive could modify the object or the subject. In other words, the complement constructions in "I caused him to go" and "I wanted him to go" are identical. Furthermore, the infinitive clause is, in each case, said to modify the object. It is also interesting that in sentences like "I would hate for him to do that" the "for" is claimed to be a preposition in the prepositional phrase "for him" while "to do that" is of course, an infinitive phrase modifying the object of the prepositional phrase.

We see then that for every infinitive construction where a noun, pronoun, or nominalization intervened between the main verb and an infinitive clause, the same analysis was given,

this analysis consisting of something like the verb phrase complement analysis discussed earlier. This comparison is, perhaps, a bit lenient since the assumption is being made that no special force should be attributed to Poutsma's insistence that the infinitive in accusative with infinitive constructions modifies the object. In any case, difficulties enough confront Poutsma's analysis. For example, can it be that the two sentences "I want John to go" and "I want to go" represent distinct constructions; the former is an accusative with infinitive construction while the latter consists of a verb and an infinitive clause as object. This would appear to be the case. At one point[3] Poutsma suggests that when the accusative is a reflexive pronoun it is sometimes dropped after some verbs. But this assertion is of little help since it ultimately says nothing more than that there is really no such thing as an infinitive as object construction since it could be argued that the reflexive pronoun is dropped in every case.

Jespersen's nexus theory constitutes an attempt to remedy the difficulty Poutsma finds himself in. Unfortunately, this effort is a perfect instance of throwing out the baby with the bath water. Nexus is "a combination implying predication and as a rule containing a subject and either a verb or a predicative or both. Besides these a nexus may contain one or more objects, often a direct and an indirect object."[4]

The application of this view to the complement system effectively summarized by Jespersen in the following fashion.

> If we compare the following sentences,
> (1) they judged me a happy man
> (2) I believe him as honest as myself
> (3) this will make her happy
> (4) they elected Tom their chief
> (5) he slept himself sober
> (6) I want this done at once
> (7) I believe him to be an honest man
> (8) this will make the watch go
> (9) I want this to be done at once
> and if we ask in each case what is the object of the verb, many grammars say that in the first six it is the word placed immediately after the verb, and the rest is called a "complement" of the object, or an "adjective or noun used predicatively of the object" (Sonnenschein); in the sentences (7) to (9) some writers speak of the infinitive as one of two objects.
>
> The correct analysis is that all these are analogous and contain not two objects (as in "I gave (made) her a ring"), but only one, which is a nexus containing the same two parts as a nexus that forms a complete sentence or clause; compare with (2) "I believe that he is as honest as I" and with (8) "this will have the effect that the watch goes." In (5) it is particularly easy to see that it is wrong to look upon the first part (himself) as the real object of slept: the result of his sleeping is that he became sober ("himself").[3]

Jespersen can be taken as asserting that the mere fact that a pronoun following the verb in infinitive constructions must take the accusative case in insufficient evidence on which to discard the clausal analysis for infinitive constructions. Since the accusative case is the property of any pronoun following a verb and can be explained with no reference to the logical constituency of the pronoun, there is no reason

whatever to assume that the noun "Tom" in sentence (4) above, for instance, is not actually the underlying subject of an infinitive clause taken as object. But where Jespersen's view avoids the inconsistencies observed in Poutsma's analysis, it is accompanied by a host of other difficulties. First, it now becomes extremely difficult to offer a coherent explanation of infinitive clause subject deletion. Why should it be the case, for example, that the subject is deleted in "I want to be a virtuous man" but not in "I believe myself to be a virtuous man"? Why should it be the case that a sentence like "what I want is to be a virtuous man" is grammatical but "what I believe is myself to be a virtuous man" is not. In preserving the clausal analysis to the exclusion of such constructions as Poutsma's accusative with infinitive, Jespersen effectively forfeited the ability to explain a wide range of differences which seem to accompany simple nexus constructions. He can and does list a good many of these differences, but never considers very seriously the possibility that these differences might actually have an explanation.

In fairness to both Jespersen and Poutsma, it must be pointed out that the sort of explanation whose absence is being claimed was simply not the issue involved in traditional linguistic analysis. It is difficult for the contemporary linguist to keep this in mind since both Jespersen and Poutsma say so many things that are either right or close to being

right. For instance, both linguists recognized the phenomenon referred to earlier in this text as extraposition. That the sentences "it is strange that John left" and "that John left is strange" are related by an implicit rule was not doubted. Both of them recognized that prepositions are often suppressed before infinitive and "that" clauses, e.g., "I am aware of John's being honest" and "I am aware that John is honest." One can cite many instances of such insights. But the fact remains that these insights are the result of attempts to determine the way in which parts of speech, which, for all purposes, seem to include such entities as clauses as well as words, perform logical functions in the sentence. Thus the "that" clause in "it is strange that John came" performs the role of subject even though it is not in the normal subject position. Since the "that" clause in "I am aware that John is honest" performs exactly the same logical function as the gerundive clause in "I am aware of John's being honest," preposition suppression follows as a logical consequence. The fact that traditional approaches to complementation contain so much that is appropriate is a testimony to the goals of traditional description. But it seems no tribute to the traditional grammars to assert that certain of their results are confirmed by research in transformational grammar since one can hardly agree with the postulates that lead to these results. Furthermore, it is just these postulates that lead

to so many conclusions which are simply false. In sum, the traditional grammarians did not use the data to get at the facts.

It is quite true, as both Poutsma and Jespersen thought, that clauses may play the role of an object in a sentence containing a transitive verb. But it is not the case, as both imply, that noun objects differ from clausal objects. This was a necessary conclusion, however, in a descriptive system which postulated a logical constituency rather than a grammatical constituency for sentences. Both clauses and nouns could be objects, subjects, and many other things, but the traditional grammarians found no way to express this generalization. This generalization is automatic in a description which posits a grammatical constituency for sentences since we may say that both nouns and clauses are instances of noun phrases and whatever affects a noun phrase affects both nouns and clauses. Thus we see that, in this case, the traditional grammarian who posits that a "that" clause may be an object of a verb is giving a correct observation for the wrong reason. A noun phrase may be the object of a verb and insofar as we can prove that noun phrases may dominate "that" clauses, such clauses may be interpreted as verbal objects.

When Poutsma devises the accusative with infinitive analysis for a class of constructions, we find that his

judgment is correct in many cases, e.g. "I defied John to go," but for entirely the wrong reason. The validity of this analysis has nothing to do with the accusative form of the noun following the verb, but rather with a variety of considerations raised earlier in this study. Poutsma's formulation is incorrect as often as it is correct and, once again, for reasons which his view of linguistic inquiry could not offer. Similarly, Jespersen's nexus hypothesis produces the right analysis for a small class of items, but not for any reason which he proposed. And the analysis fails for so many cases, in the sense that nexus covers such a wide range of different phenomena which just happen to look the same, that it becomes extremely difficult to think of the few correct instances as a virtue of the traditional approach to the phenomenon of predicate complementation. It thus seems inadvisable to devote further consideration to specific aspects of the traditional analysis of complementation. The traditional grammarians were extremely diligent. They present much data that is quite relevant to the construction of a grammar for the complement system. But it does not lie within the realm of theoretical possibility for a traditional approach to give us this grammar.

The most extensive treatment of the phenomenon referred to in this study as noun phrase complementation is found in Lees' <u>The Grammar of English Nominalizations</u>.[6] Lees correctly identified "that," "for-to," and "POSS-ing" clauses as instances

of noun phrase complementation, but was more concerned with the role played by such strings in the derivation of complex nominal structures than with the various underlying structures and transformations required to handle complementation in general. Lees' work is extremely insightful and it is pertinent to discuss those aspects of his discussion of nominalization which are relevant to the present study.

The noun phrase complement constructions discussed in this study are instances of what Lees calls "factive" nominals and "action" nominals. Sentence (1) is an instance of the former while sentence (2) is an instance of the latter.

(1) for him to have eaten vegetables was a great surprise

(2) to eat vegetables is healthful

In his discussion of factive nominals, Lees clearly recognized the necessity of an extraposition transformation, a preposition suppression transformation, and a generalized transformation which had the effect of embedding the nominal into a noun phrase. Certain features of Lees' discussion are not quite right however. In his analysis of the passivization of "complement-type" sentences, like "he was persuaded to work," we observe that he assigns a verb phrase complement analysis to the active form. In other words, "X persuaded Y to work," has the structure NP-AUX-V-NP-S. As we have seen earlier in this study, there is considerable justification for the analysis

in which the phrase "to work" is an instance of a noun phrase complement dominated by a preposition phrase. Lees' analysis was probably conditioned by Chomsky's early work in which verb phrase complementation was assumed to be a more productive phenomenon in English than it actually is.[7]

One of the most interesting aspects of Lees' analysis concerns the formulation of a "second passive" transformation to handle the derivation of sentences like (3).

(3) a. they were believed to have seen him

b. he was thought to be rich

In Lees' analysis, the second passive transformation operates on a string like "I think that he is rich" to generate the string "he is thought to be rich by me." Lees' was forced to postulate this additional transformation since the "regular" passive is obliged to apply to the highest level NP to the right of the verb in the phrase structure. Thus, the regular passive would always yield the string "that he is rich is thought by me" and never "he is thought to be rich by me" since the pronoun "he" is necessarily dominated by a higher NP. We now know that the passive sentence "he is thought to be rich by me" does arise through the application of the regular passive transformation, at least in part. The passive transformation produces the string "it for he to be rich is thought by me." Through the application of two independently motivated

transformations, the extraposition transformation and the pronoun replacement transformation, we generate first "it is thought by me for he to be rich" and second "he is thought by me for to be rich." By the later application of the complementizer deletion transformation, we derive the string "he is thought by me to be rich." It thus appears that Lees' second passive transformation is probably unnecessary.

In his discussion of gerundive nominals, Lees raises an interesting question concerning certain types of restrictions which are apparently imposed upon the subject of the complement sentence. Consider, for example, the following:

(4) a. 1) swimming there is great fun
2) *his swimming there is great fun
b. 1) dressing oneself is fun
2) *dressing himself is fun

Lees suggests that these restrictions may have something to do with the "action"-"factive" distinction, but it might also be the case that these restrictions are to be explained by certain more general considerations. We observe that "fun" may take a prepositional phrase, as in (5).

(5) a. swimming there is great fun for him
b. swimming there is great fun for somebody

It is abundantly clear that the subject of the complement sentence is the same as the noun phrase in the prepositional phrase.

(6) a. (his) swimming there is great fun for him

b. (somebody's) swimming there is great fun for somebody

Now let us suppose that in these constructions, as in all cases of verb phrase complementation for instance, identity between the subject of the complement sentence and the noun phrase in the prepositional phrase is obligatory. Since these two noun phrases are connected, it follows that the identity erasure transformation, which also must apply, will erase the subject of the complement sentence giving the sentences in (7).

(7) a. swimming there is great fun for him

b. swimming there is great fun for somebody

Finally, we know that pronominals like "somebody" can be deleted, giving thereby sentence (8).

(8) swimming there is great fun

We see that sentence (8) can have only one source; when the subject of the complement sentence is "somebody" and when the noun phrase in the prepositional phrase is "somebody." Furthermore, since the identity erasure transformation is obligatory, sentence (4a2) is automatically blocked. If the noun phrase in the prepositional phrase in the underlying structure for this sentence has been "somebody," then the identity erasure transformation would have blocked. If the noun phrase had been "he," the grammar would correctly have generated (7a).

These same considerations explain the restriction on (4b2). It is clear in this sentence that the underlying subject of "dressing himself" must have been "he." Thus, sentence (4b2) is blocked for exactly the same reason as (4a2).

Not all of the restrictions Lees raises can be handled in this manner however. Consider the following.

(8) a. eating vegetables is fashionable

b. *his eating vegetables is fashionable

There is no obvious independent motivation for postulating an underlying prepositional phrase analysis in this instance, although this possibility is not entirely out of the question. In any case, insofar as the action-factive distinction does not offer a reasonable explanation for the fact that the subject of the complement sentence in (8a) can and must be the unspecified pronoun "somebody" to the exclusion of everything else, one suspects that a deper explanation will be forthcoming. But short of stating that "fashionable" is an adjective which requires an unspecified pronominal subject in the underlying structure of the complement sentence, the considerations raised in this study seem to offer little help.

An examination of a few of Lees' analyses lead one to suspect that he overlooked certain relevant facts. Thus, for instance, one finds Lees assigning a common derivation to such pairs of sentences as (9) and (10).

(9) the man is reluctant to go

(10) the man is clever to go

As we have seen earlier, however, there are a great many differences between these sentences. Consider, for instance, the following:

(11) a. 1) it is clever of the man to go

2) to go is clever of the man

b. 1) *it is reluctant of the man to go

2) *to go is reluctant of the man

These data suggest that sentence (10) does not have the same derivation as (9), but rather something quite different. Perhaps, as suggested earlier, the derivation of (10) depends upon the application of the pronoun replacement transformation. This could not, however, be the case for (9).

With respect to sentences (12) and (13), Lees correctly points out the similarity between what we have called verb phrase complementation and the complementation observed in these sentences.

(12) he is willing to leave

(13) he is free to leave

There is little question but that sentence (13) is an instance of verb phrase complementation but it is not at all clear that the same may be said for (12). Consider for instance the following:

(14) a. 1) I am willing for you to leave whenever you are ready

2) what I am willing for is for you to leave whenever you are ready

b. 1) *I am free for you to leave whenever you are ready

2) *what I am free for is for you to leave whenever you are ready

The cost of insisting that sentence (12) is an instance of verb phrase complementation is the cost of losing the generalization that all verbs phrase complement constructions require obligatory identity of the connected noun phrases. Furthermore, to the extent that (14a2) is grammatical, it is clear that sentence (12) is a noun phrase complement construction and that the complement originates in a prepositional phrase in the underlying structure. Thus there is considerable virtue in asserting that these two sentences are not the same.

One could point to several other instances similar to the above. Their enumeration seems a little beside the point since it is perfectly clear that the above criticisms of Lees' work imply nothing more than Lees' sometimes overlooked relevant data. The general adequacy of his theoretical framework is not at issue.

What the present study tells us is that it is not the transformational machinery by which noun phrase complementation differs from verb phrase complementation. Indeed, the set of transformations required in the derivation of these constructions is the same for both. The only difference between the two resides in the underlying structure, produced by the phrase structure rules. The major burden in the grammar of the predicate complement constructions falls, therefore, not on the transformational rules, but on the phrase structures rules, in particular PS Rules 1 and 2 which produce the full range of predicate complementation in English.

Fillmore's work[8] on complementation is less extensive than Lees', but interesting nonetheless since it was Fillmore who first directed serious attention to complement sentence markers. His discussion of the telescoped progressive is particularly noteworthy. On another topic, however, Fillmore overlooked certain critical facts and was led to an analysis which is quite suspect. In Fillmore's analysis of the verb "believe," for instance, he postulates that the sentence (15) has an underlying structure in which the noun phrase "the butler" is verbal object.

(15) the detectives believe the butler to have been murdered

Fillmore never discusses these considerations which lead to the

formulation of an underlying structure or, in his terms, the two terminal strings which are combined through an embedding rule to generate (15). It is thus difficult to say much beyond simply asserting that the proposed structure of the two terminal strings in this instance fails on two grounds. First, this formulation does not permit us to relate the sentence (15) with (16).

(16) the detectives believe that the butler was murdered

Secondly, Fillmore's analysis leaves us without an explanation of the synonymy of the sentences in (17) and the non-synonymy of the sentences in (18).

(17) a. the detectives believe the butler to have been murdered by the cook

b the detectives believe the cook to have murdered the butler

(18) a. the detectives forced the DA to interrogate the butler

b. the detectives forced the butler to be interrogated by the DA

These facts are explained automatically on the assumption that the sentences in (17) are instances of noun phrase complementation while those in (18) are instances of verb phrase complementation. Under these analyses, the non-synonymy of the

sentences in (18) is predicted from the fact that the underlying verbal object is different in (18a), i.e., "the DA," from the underlying verbal object in (18b), i.e., "the butler." In (17), the verbal object is the entire noun phrase complement construction and the only difference between the two sentences is that the passive has applied to the complement sentence in (17a) but not in (17b).

This historical summary does many injustices to both the traditional and transformational linguists. The work of both groups warrants more intensive study. But the general characteristics of both approaches become fairly clear even on a cursory examination. The traditional approach to the study of predicate complementation is one of description without justification. The transformation approach, on the other hand, is one of description with justification where the essential goal is to provide a description which successfully explains the data exemplifying predicate complementation. The present work is in the latter tradition and can be construed as confronting earlier transformational descriptions of predicate complementation with new data. In this sense, the rules proposed in the present study do not represent a grammar of English which differs in any crucial respect from earlier formulations in the transformational tradition. Rather the present study constitutes a new synthesis of the rules in an adequate English grammar which differs from earlier formulations only insofar as it succeeds in providing an account of a new collection of syntactic phenomena.

NOTES

1. R. B. Lees, "Transformation Grammars and the Fries Framework," Readings in Applied English Linguistics, Ed. H. B. Allen, New York, 1964, p. 137.

2. H. Poutsma, A Grammar of Late Modern English, Groningen, 1904, pp. 433-533.

3. Ibid., pp. 576.

4. O. Jespersen, A Modern English Grammar on Historical Principles, IV, London, 1956, p. 5.

5. Ibid., p. 7f.

6. R. B. Lees, Grammar of English Nominalizations, Bloomington, 1960, especially Ch. 3.

7. N. Chomsky, "A Transformational Approach to Syntax," in Third Texas Conference on Problems of Linguistic Analysis in English, ed. A. A. Hill, Austin, 1962.

8. C. J. Fillmore, "The Position of Embedding Transformations in a Grammar," Report No. 3r--Project on Linguistic Analysis, Columbus, 1963.

APPENDIX

Verb Classifications

The lists following provide classifications of English verbs in terms of the complement structures in which particular verbs may participate. The lists are representative, but by no means complete.

I. Object Noun Phrase Complementation

A. "that" complementizer

accept	deny	hint	point out	require
acknowledge	deplore	hypothesize	preach	resent
admit	desire	imagine	predict	reveal
advocate	discern	imply	prefer	rumor
affirm	disclose	indicate	prescribe	say
allege	discover	infer	presume	see
announce	dislike	insinuate	profess	sense
answer	divulge	insist	promise	specify
appreciate	doubt	intimate	pronounce	state
ascertain	dream	intuit	prophesy	stipulate
assert	emphasize	know	propose	submit
assume	estimate	learn	prove	suggest
believe	expect	like	postulate	suppose
certify	explain	love	realize	surmise
charge	fancy	maintain	reason	suspect
claim	fear	mean	recall	swear
comment	feel	mention	reckon	teach
complain	figure	mind	recognize	testify
confess	find	mutter	recollect	theorize
confide	foresee	neglect	recommend	think
conjecture	forget	note	regret	tolerate
contend	gamble	notice	reiterate	understand
decide	gather	object	remark	verify
declare	guarantee	observe	remember	wager
decree	guess	order	reply	write
deduce	hate	own	report	
demand	hear	perceive	request	

B. "for-to" complementizer

1. optional extraposition

bear	hate	prefer
demand	intend	prescribe
desire	like	request
dislike	loathe	require
expect	love	want
fear	promise	

2. obligatory extraposition

acknowledge	conjecture	know	represent
admit	consider	maintain	show
affirm	declare	perceive	state
assume	deny	presume	suppose
attest	fancy	proclaim	suspect
believe	grant	pronounce	think
concede	guess	prove	understand
conceive	hold	realize	
conclude	imagine	recognize	
confess	judge	remember	

C. "POSS-ing" complementizer

abhor	deride	justify	reconsider
admire	disavow	like	regret
advocate	discredit	love	relish
allow	discuss	mind	remember
avoid	dislike	miss	repudiate
await	dread	neglect	renounce
bear	endorse	notice	resent
cherish	endure	overlook	resist
consider	entail	pardon	ridicule
contemplate	eschew	postpone	risk
countenance	evaluate	praise	savor
criticize	examine	preach	stand
curse	fear	preclude	suggest
defend	forget	prefer	survive
denounce	glorify	protest	value
deny	hate	publicize	veto
deplore	imagine	question	vindicate
deprecate	intend	recommend	welcome

II. Subject Noun Phrase Complementation

A. intransitive verbs

1. "that" complementizer

appear	matter
came to pass	seem
happen	turn out

2. "for-to" complementizer

appear	seem
chance	turn out
happen	

B. transitive verbs -- all complementizers

alarm	comfort	exasperate	pain
amaze	compliment	exhaust	please
anger	concern	exhilarate	relieve
annoy	deafen	fluster	sadden
appeal	defame	frighten	satisfy
arouse	delight	gall	scare
astonish	fascinate	gladden	shame
astound	depress	gratify	sicken
attract	disconcert	harm	soothe
awe	discourage	hearten	startle
baffle	disgrace	help	stupefy
bedevil	disgruntle	horrify	suit
befuddle	disgust	humble	surprise
beguile	dishearten	humiliate	sustain
bemuse	dishonor	hurt	tempt
benefit	dismay	insult	terrify
bewilder	displease	interest	torment
bolster	disquiet	irritate	trouble
boost	dissatisfy	madden	unnerve
bore	distress	mortify	unsettle
bother	disturb	nauseate	upset
calm	elate	nettle	worry
charm	embarrass	outrage	
cheapen	enchant	overawe	
cheer	enrage	overwhelm	

III. Intransitive Oblique Noun Phrase Complementation

A. "that" complementizer

admit (of)	decide (on)	pray (for)
ask (for)	hope (for)	rejoice (at)
conceive (of)	insist (on)	wish (for)

B. "for-to" complementizer

ache (for)	consent (to)	persist (in)	succeed (in)
aim (for)	decide (on)	plead (for)	thirst (for)
arrange (for)	hope (for)	plot (for)	wait (for)
aspire (to)	look (for)	pray (for)	wish (for)
beg (for)	long (for)	strive (for)	yearn (for)
care (for)	lust (for)	struggle (for)	

C. "POSS-ing" complementizer

approve (of)	elaborate (on)	plan (on)
arrange (for)	engage (in)	pore (over)
bank (on)	escape (from)	protest (against)
beware (of)	gamble (on)	provide (against)
blush (at)	gloat (over)	puzzle (over)
boast (about)	gloss (over)	react (against)
brag (about)	guard (against)	rebel (against)
check (on)	harp (on)	reflect (on)
comment (upon)	indulge (in)	rejuice (at)
conceive (of)	inhere (in)	reminisce (about)
consent (to)	inquire (into)	scoff (at)
concentrate (on)	insist (upon)	slur (over)
cope (with)	intrude (upon)	sneer (at)
correspond (to)	jeer (at)	subsist (on)
count (on)	joke (about)	succeed (in)
decide (on)	know (about)	talk (of)
delight (in)	laugh (at)	think (about)
depend (on)	long (for)	weary (at)
disapprove (of)	muse (on)	wince (at)
dispense (with)	participate (in)	wonder (about)
dwell (upon)	persist (in)	write (about)

IV. Transitive Oblique Noun Phrase Complementation

A. "that" complementizer

advise NP (of)	inform NP (of)	remind NP (of)
apprize NP (of)	notify NP (of)	tell NP (of)
assure (NP (of)	persuade NP (of)	warn NP (of)
convince NP (of)	reassure NP (of)	

B. "for-to" complementizer

advise NP (of)	drive NP (to)	persuade NP (of)
coax NP (into)	entice NP (into)	remind NP (of)
coerce NP (into)	force NP (into)	warn NP (of)
convince NP (of)	notify NP (of)	

C. "POSS-ing" complementizer

absolve NP (of)	discourage NP (from)	prevent NP (from)
accuse NP (of)	dissuade NP (from)	prod NP (into)
bully NP (into)	entice NP (into)	prohibit NP (from)
cajole NP (into)	exclude NP (from)	provoke NP (into)
caution NP (about)	fool NP (into)	remind NP (of)
coax NP (into)	force NP (into)	save NP (from)
coerce NP (into)	goad NP (into)	scare NP (into)
convict NP (of)	lecture NP (about)	suspect NP (of)
cure NP (of)	pester NP (into)	trick NP (into)
deter NP (from)		

V. Intransitive Verb Phrase Complementation

A. "for-to" complementizer

begin	continue	fail	manage
cease	dare	get	proceed
commence	decline	grow	refuse
condescend	endeavor	hasten	start

B. "POSS-ing" complementizer

cease	finish
commence	quit
complete	recommence
continue	

VI. Transitive Verb Phrase Complementation

A. "for-to" complementizer

admonish	command	help	order
allow	commission	impel	permit
appoint	compel	implore	predispose
assist	defy	incite	prompt
bribe	detail	induce	schedule
bring	direct	inspire	stimulate
beseech	empower	instruct	tempt
bestir	enable	invite	train
cause	encourage	lead	trouble
challenge	enjoin	let	trust
charge	entreat	make	urge
choose	exhort	motivate	warn
coax	force	oblige	

B. Progressive

apperceive	find	pass
behold	glimpse	perceive
catch	keep	see
detect	notice	show
discern	observe	watch
feel	overhear	witness

C. "POSS-ing" complementizer

imagine
picture
remember
visualize

(There is virtue, perhaps, in asserting that a sentence like "I imagine myself being tall" is an instance of object noun phrase complementation along with "I imagine that I am tall." This assertion requires, however, that we allow extraposition for "POSS-ing" complementizers. Although we find cases where complement sentences containing "POSS-ing" are extraposed from sentence initial position, as in "it is useless trying to do that," such extraposition is not, in general, possible in sentence initial position. Subsequent research may show, however, that vacuous application of extraposition is possible everywhere for all complementizers, in which case the above classification will have to be revised.)

VII. Oblique Verb Phrase Complementation

bank (on)
impose (upon)
presume (upon)
prevail (upon)
rely (upon)

BIOGRAPHY

The author was born in New York City, New York, in 1940 and received his primary education there. In 1954, he moved to Harrison, New York, where he received his secondary education. He entered Wesleyan University in 1958 and majored in history and Russian. The author received an A. B. with High Honors in General Scholarship and Distinction in Philosophy in June, 1962.

In September, 1962, the author entered the PhD in Linguistics program at the Massachusetts Institute of Technology and has studied linguistics as a graduate student in the Department of Modern Languages on a NDEA Fellowship since then.

The author enrolled in the EdM for General Purposes program at the Harvard Graduate School of Education in 1964 with the intention of studying the education applications of linguistics. In June, 1964, the author was invited to become a member of the Board of Editors of the Harvard Educational Review.

The professional experience of the author is limited to summer employment at the MITRE Corporation, in 1963, and at the IBM Corporation (Thomas J. Watson Research Center), in 1964. At both places, the author did gramatical research on English.

The author is a member of Phi Beta Kappa, Phi Delta Kappa (honorary education fraternity), and is the recipient of a Woodrow Wilson Fellowship and an NDEA Fellowship (Title IV). He is a member of the Linguistic Society of America, the Linguistic Circle of New York, the National Council of Teachers of English, and the Conference on College Composition and Communication. He has a publication forthcoming entitled "On the Role of Linguistics in the Teaching of English," Harvard Educational Review, (Summer, 1965).