

CHOMSKY'S THREE ANALYSES OF THE TOUGH
CONSTRUCTION: A STUDY OF THE
DEVELOPMENT OF TRANSFOR-
MATIONAL SYNTAX

By

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CHAPTER I

INTRODUCTION

Within the so-called MIT school of syntax, it is customary to divide the history of transformational grammar into four successive stages: the LSLT-period, the Aspects-period, the Conditions-period, and the Government and Binding (GB)-period.¹ Each of these periods was ushered in by an important piece of work by Chomsky, namely, The Logical Structure of Linguistic Theory (1955), Aspects of the Theory of Syntax (1965), "Conditions on Transformation" (1973), and Lectures on Government and Binding (1981).

The LSLT-period was one which "sought to make linguistics a science" (Chomsky 1977c, p. 106). It was during this period that for the first time in American linguistics the focus of research shifted from the precise description of linguistic data to the explanatory adequacy and depth of underlying principles. Thus, the nature of the intuitive, unconscious knowledge of a speaker of a language, which had been excluded from descriptive linguistics, became the focus of generative grammar, as well as the construction of an explanatory theory through deductive chains of reasoning. It was also during this period that the general principles of language began to be

considered as the biologically given system that underlies the acquisition of language. Internally, generative grammar contained three components: the rewriting rules, the transformational rules, and the morpho-phonological rules.

The second period saw the introduction of two interpretive components--the phonological component and, most conspicuously, the semantic component, which had been excluded from the grammar in the LSLT-period. The term "deep structure" was introduced to characterize the existence of a class of structures which receives the lexical items, undergoes semantic interpretation, and finally is converted to well-formed surface structures by transformation. And the frameworks for selectional restriction and strict subcategorization theory were developed.

The third period is characterized, among other things, by the linguists' concerted efforts to develop universal grammar (UG). The base was refined with the incorporation of the X-bar convention and the lexicalist hypothesis. The enriched lexicon made it possible to reduce the number of cyclic transformational rules of the second period (i.e., within the ST model) to NP-Movement and Wh-Movement (in Chomsky 1977b) and further to one, Move- α (in Chomsky 1980a). Massive overgeneration by this meta rule is blocked by a number of conditions which restrict the domains within which transformational and certain types of

interpretive rules may apply. Also, the Surface Structure of the second period was replaced by a combination of S(hallow)-Structure and Surface Structure, the former being the output of the transformation(s), which under Trace Theory serves as an input to Semantic Interpretation Rule (I) and at the same time is subject to the deletion and stylistic rules in the phonological component.

The fourth period, though considered by Chomsky (1982b, p. 75) "a qualitative improvement" on the Conditions framework, saw a significant shift in focus in the study of grammar from the study of rule systems to the subsystems of principles in which the concepts "government" and "binding" play crucial roles.

Baltin (1982, p. 1) divides the history of generative grammar into two periods: the "expansion" period, which roughly covers the LSLT- and Aspects-periods, and the "retrenchment" period, which covers the last two periods. As Baltin notes, during the early expansion period, "a primary concern was the description of grammatical phenomena that seemed to be beyond the reach of pure constituent structure grammars" (p. 1). On the other hand, the retrenchment period focused on the construction of a general theory of grammar by abstracting away from various transformations. The diachronic divisions of the history of generative grammar discussed above are summarized as shown in Figure 1.

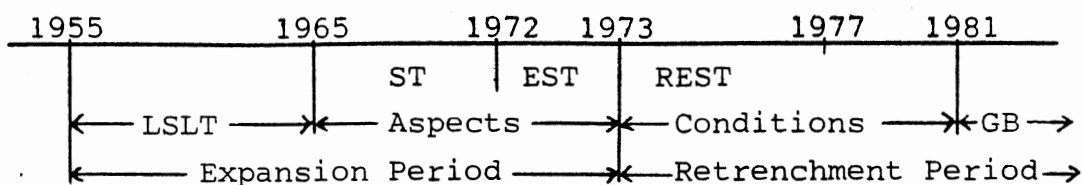


Figure 1. The Development of Chomskyan Generative Grammar

One of the English constructions which has resisted generative grammarians' systematic analysis throughout these periods, and which in fact has played a significant role in the modification of the theory of grammar in each period, is seen in sentences such as (1), which, despite Brame's well-known complaint (1976), I will refer to as the TOUGH construction in this paper.²

(1) John is tough to deal with.

A host of analyses were proposed during the expansion period to account for the TOUGH construction, and they can be categorized as involving one of the two transformational processes, which Jackendoff (1975, p. 437) called Tough Movement (TM) and Tough Deletion (TD), respectively.

The TM analysis assumes that all three sentences in (2) share the same deep structure as (3):

(2) a. To deal with John is tough.

b. It is tough to deal with John.

c. John is tough to deal with.

(3) [to deal with John] is tough

In this analysis, (2b) is derived from (3) by the

application of Extraposition, which substitutes "it" for the sentential subject, which is moved to the end of the sentence; (2c) is derived from (3) either by a one-shot movement rule³ or by a successive application of Extraposition and Tough Movement, moving "John" from the complement to replace "It" in the matrix clause.⁴

The TD analysis, on the other hand, assumes that "John" in (2c) is generated as the deep structure subject of "is tough," as in (4), and that (2c) is derived from (4) by Tough Deletion, which deletes the lower "John" under identity with its controller in the matrix sentence.⁵

(4) John is tough [to deal with John]

Independent of these two assumptions about the transformation involved in the TOUGH construction, there have been two competing positions regarding the deep structure of the infinitival complements to TOUGH predicates and others.⁶ One position claims that the status of the complement to TOUGH predicates is VP with no subject. According to this surface-oriented approach (e.g., Bresnan 1971; Brame 1976), the deep structure for (5) will be (6a).

(5) John is tough for Mary to deal with.

(6) a. $\begin{Bmatrix} \text{John} \\ \text{It} \end{Bmatrix}$ is tough [_{pp} for Mary][_{vp} to deal with]
 b. $\begin{Bmatrix} \text{John} \\ \text{It} \end{Bmatrix}$ is tough [_{pp} for Mary][_s PRO to deal with John]

The other position claims that all infinitival complements have the status of S and that the subject NP of the

complement can be realized as either a lexical NP or PRO, phonetically null NP, depending on the predicates of the matrix clause.⁷ This abstract approach (e.g., Chomsky 1973) assumes the underlying structure of (5) to be (6b).

The battle between supporters of the VP-complement (VP-hypothesis) and the S-complement (abstract S-hypothesis) has been as fierce as that between TD and TM analyses for some time, and it is still going on in a subdued manner. Contrary to the hyperbolic claims once made by supporters of the VP-hypothesis (e.g., Brame 1976), however, whether the deep structure of the TOUGH complement is a VP or a S has been of little significance in the theory of grammar. Rather, the choice seems to be a matter of personal beliefs, as observed by Chomsky (1982b).

More generally, the question is how impressed we are by the fact that the properties of gaps can be explained if we take them to be anaphors, pronominals, and namelike expressions of the sort corresponding to their semantics. So it seems to me again that the choice is between the belief, if you like, that there are going to be explanations for patterns that are alike in different parts of the language, which leads you directly to postulate an empty category which is an anaphor, pronominal, or variable, or alternatively just the belief that these phenomena are accidental, . . . (pp. 67-68).

Leaving this controversy as an open question, we can juxtapose the two different positions each on the deep structure and the transformation, creating four different combinations, one of which any analysis of the TOUGH construction can be identified with. The addition of Chomsky's conditions on transformations as an optional

criterion increases the possible combinations to eight. Table I summarizes the assumptions various analyses of the TOUGH construction are based on, i.e., assumptions about the deep structure, about the transformation involved, and about whether conditions on transformations have been used.

TABLE I
ASSUMPTIONS ADOPTED IN THE PRE-1977 ANALYSES
OF THE TOUGH CONSTRUCTION

	<u>Comp Structure</u>		<u>Transformation</u>		Condition
	VP	S	TM	TD	
Lees (1960)	*		*		
Rosenbaum (1967)		*	*		
Ross (1967)		*		*	
Postal (1971)		*	*		
Postal and Ross (1971)		*	*		
Akmajian (1972)		*		*	
Berman and Szamosi (1972)		*	*		
Chomsky (1973)		*	*		*
Lasnik and Fiengo (1974)	*			*	*
Brame (1976)	*		*		
Emonds (1976)	*		*		

For example, the table shows that the analysis in Chomsky (1973) is based on the assumptions that TOUGH-class adjectives have an abstract S complement, that the transformation involved is basically a Tough Movement, and that

various conditions are employed to block misgeneration.

All the analyses in Table I except Chomsky (1973) and Lasnik and Fiengo (1974) share one thing in common: they are all based on some version of the Standard Theory (ST) or the (earlier) Extended Standard Theory (EST) represented by Chomsky (1972) and Jackendoff (1972), as distinguished from what Fiengo (1977) first called Revised Extended Theory (REST), a refined version of EST presented in Chomsky's Conditions-series (1973; 1975a,b; 1977b). Thus, the TOUGH construction received ample, and to some extent exhaustive, analyses within the ST and EST frameworks (expansion period) and little within the REST and later frameworks (retrenchment period). In fact, Chomsky's own analyses in Chomsky (1973; 1977b; 1981) and those in several doctoral dissertations seem to be the only major analyses which appeared in the literature, though Bach and Horn (1976) and Bach (1977) treated this topic partially in the course of attacking Chomsky's overall grammar framework. This gap left by the relative paucity of research on the topic during the retrenchment period, covering the Conditions- and GB-periods, is what this thesis intends to fill.

The organization of this thesis is as follows. In Chapters Two, Four, and Six, I will present Chomsky's three major analyses of the TOUGH construction in terms of three assumptions crucially involved in any English sentence: they are the Conditions analysis, the Ghost Wh-Movement

(GM) analysis, and the Government and Binding (GB) analysis. Following each of these chapters is a critique of the analysis discussed in the preceding chapter. In Chapter Seven, where the present GB analysis is examined, I will also propose a modification of the GB analysis as a solution to some of the problems with the GB analysis. Chapter Eight is a brief summary of Chapters Two through Seven.

As implied in the previous discussion, the topic and the scope of this thesis are very narrow, with a lot of assumptions adopted without justification. First of all, autonomous syntax and the lexicalist's view of grammar is assumed; thus, this study will not deal with any non-transformational account of the TOUGH construction such as those in Bolinger (1960; 1974), Halpern (1976), and others.⁸ Second, regarding the infinitival complement structure of the TOUGH predicates, Chomsky's S-hypothesis is adopted without a priori reason. Third, the so-called transformationless grammar, which has been proposed by Gazdar (1981) and Williams (1981) as an alternative to the Move- α grammar, will not be considered. Thus, this study will be confined to the analyses of the TOUGH construction based on Chomskyan generative grammar.

NOTES

¹See Chomsky (1977c; 1982b) for a detailed discussion of the development of generative grammar.

²Brame (1976) objects to Postal's choice of "Tough Movement" on the grounds that (i) some speakers do not admit TOUGH in the class of Object Shift (Brame and Bresnan's term) predicates and (ii) there is "little reason to focus on a specific member of this class" (p. 84).

³Lees (1960) seems to be the first who suggested the one-shot movement rule. In his terms, (2c) is derived directly from (3) "simply by permitting the infinitive . . . to shift around its object to the end of the sentence" (p. 217) while (2b) is derived from (3) by what he calls It-Inversion.

⁴This rule has been variously called by different people: Pronoun Replacement (Rosenbaum 1967), Tough Movement (Postal 1971), Object Shift (Bresnan 1971), It-Replacement (Chomsky 1973), Object Raising (Emonds 1976).

⁵On the TD analysis, TOUGH predicates have three subcategorizations: (i) +[abstract NP] be ___]; (ii) +[it be ___ VP]; (iii) +[NP be ___ VP]. Thus, the underlying structures for (2a,b) will be as follows:

(iv) [_{NP} to deal with John] is tough (= i)

(v) It is tough [_S to deal with John]

⁶A third position, which was adopted in Postal (1971), claims that the deep structure underlying (5) is the following (p. 126):

{ It
John } is tough [_S for Mary to deal with John]

⁷In Chomsky's framework, "promise"- and "persuade"-type predicates have sentential complements, \bar{S} , with PRO as the subject NP.

⁸Quirk (1977), Iannucci (1979), etc.

CHAPTER II

THE CONDITIONS ANALYSIS

Chomsky's treatment of the TOUGH construction in the Conditions framework can be considered as a variant of the conventional TM analysis except for the fact that it used conditions on transformations as a device to constrain Tough Movement and other cyclic transformational rules. Thus, following a TM analysis, Chomsky (1973) assumes the structure underlying full-scale TOUGH constructions (i.e., with "for NP") to be of the form (7) (p. 24).

(7) It is - Predicate [for NP]_S NP - VP

Under this assumption and the assumption that the base rule, adopting Complementizer Substitution Universal presented by Bresnan (1970), includes (8), the structures immediately underlying sentences (9) will be as in (10).¹

(8) S → COMP S'

S' → NP Aux VP

(9) a. *The course is pleasant for the teacher for
the student to fail.

b. The race is easy for us to win.

c. Latin is a waste of time for us to learn.

(10) a. It is pleasant [_{pp}for the teacher]_S[for the
student to fail the course]

- b. It is easy [_{pp} for us][_s COMP PRO to win the race]
- c. It is a waste of time [_{pp} for us][_s COMP PRO to learn Latin]

In the case of (9b,c), the phrase "for us" is assumed to be the PP complement to the matrix predicate, with the subject PRO of the embedded clause base-generated and later deleted after being assigned coreference with the NP of the matrix for-phrase.

The transformation rule which maps deep structures (10) into corresponding forms in (9) is what Chomsky calls It-Replacement, which moves the object of the embedded clause, replacing "it" in the matrix clause. Ungrammatical sentences which might be generated by It-Replacement (and other movement and interpretive rules as well) are blocked by several general conditions governing the applicability of transformational and interpretive rules, such as the Subjacency Condition, the Subject Condition, the Specified Subject Condition (SSC), the Tensed-S Condition, etc. Relevant to the case of (9a) is the SSC, which can be stated as follows (Chomsky 1973, p. 262):

- (11) No rule can involve X and Y in the structure

... X ... [_a ... Z ... -WYV ...] ...

a = NP or S

- where a) Z is not controlled at all.²
 b) Z is controlled by a category not containing X.

In the case of (10a), "it" and "the course" fill positions

X and Y of (11), and "the student," which fills position Z, serves as a specified subject, blocking the occurrence of (9a). Thus, the SSC correctly predicts (9a) to be ill-formed. The SSC, however, incorrectly predicts sentences (9b,c) to be ungrammatical because in both cases the PRO of the embedded clause (=Z) is not controlled by the minimal major category containing X (MMC(X)) (-"it"), serving as a specified subject.³ In the face of this problem, Chomsky considers two possible solutions.

One solution is to add provision (12) to (11b) of the SSC (Chomsky 1973).

- (12) where the minimal major category containing X (MMC(X)) is a possible controller (p. 262).

Now, the SSC (11b) does not apply to (10b,c) since, though the PRO of the embedded clause is controlled by a category not containing X (i.e., by "for us"), the MMC(X) ("it") is not a possible controller. With this modification, the SSC, with provision (12), correctly predicts the grammaticality of more complicated examples such as (14), deriving from (13) (Chomsky 1973, p. 263).

- (13) a. It is tough for me [_{s₁} COMP PRO to stop [_{s₂} COMP
Bill's looking at Harriet]]
 b. It is tough for me [_{s₁} COMP PRO to stop [_{s₂} COMP
PRO looking at Harriet]]
 c. It is tough for me [_{s₁} COMP PRO to stop Bill
from [_{s₂} COMP PRO looking at Harriet]]

- (14) a. *Harriet is tough for me to stop Bill's looking
at.

- b. Harriet is tough for me to stop looking at.
- c. Harriet is tough for me to stop Bill from looking at.

(14a) is blocked because of the SSC (11a), which prevents It-Replacement from applying over the specified subject "Bill," whereas (14b) is not because provision (12) makes the SSC inoperative, thus permitting It-Replacement. Also (14c), which is a near paraphrase of (14a), is allowed because "Bill" is not in the subject position, thus not invoking the SSC.

A closer look at (13b,c), however, reveals that the extraction of "Harriet" violates the Subjacency Condition, which is stated as follows (Chomsky 1973):

- (15) No rule can involve X, Y, X superior to Y, if Y is not subjacent to X (p. 247).

With the definition of "superior" and "subjacent" properly understood, the Subjacency Condition amounts to saying that movement of any constituent out of more than one containing cyclic node is not allowed in any single rule application. In the case of (13b,c), "Harriet" must move from its original position over two cyclic nodes, S_1 and S_2 , in violation of the Subjacency Condition. One possible way of moving "Harriet" to the matrix subject position without violating the Subjacency Condition is to successively move "Harriet" through the COMP nodes, as in sentences such as (16a), deriving from (16b).

- (16) a. Who does Bill believe John told Ralph to kill?

b. COMP Bill believe [_{S₁} COMP John told Ralph
 [_{S₂} COMP PRO to kill who]]

In (16b), "who" in the S₂ moves initially to the COMP in S₂ and then to the sentence initial COMP position via the COMP in S₁, thus deriving (16a) without violating the Subjacency Condition. In the case of (13b,c), however, the movement of "Harriet" cannot get through because the matrix subject "it," which it is supposed to replace, is not a COMP, whereas the COMP condition requires that once an item is moved to a COMP position, it can move only to another COMP. Thus, there is no way of deriving (14b,c) without violating the Subjacency Condition.

In an attempt to preserve the Subjacency Condition and at the same time dispense with the undesirable provision (12), Chomsky suggests a second solution: a new rule called PRO-Replacement. This rule operates in the same manner as COMP-to-COMP Movement does: thus, the NP to be moved hops from PRO to PRO as a wh-phrase hops from COMP to COMP. The final destination of this NP, however, is not another PRO, but "it" in the matrix clause, whereas that of a wh-phrase is another COMP. A combined cyclic operation of PRO-Replacement and It-Replacement on (13b), for example, is illustrated below.

(17) It is tough for me [_{S₁} COMP PRO₁ to stop [_{S₂} COMP
 ————It-Replacement ———— PRO-Replacement —
 PRO₂ looking at Harriet]]
 ———— PRO-Replacement ————

"Harriet" is moved to PRO_2 on the S_2 cycle, then to PRO_1 on the S_1 cycle, and finally to "it" on the next cycle. In this way, Chomsky derives (14b) from (13b) without violating the Subjacency Condition and without resorting to provision (12) to the SSC.

The PRO-Replacement conceived only in terms of the PRO-to-PRO movement, however, incorrectly predicts that sentences such as (18) would be grammatical, as are the comparable sentences in (19) where wh-phrases can settle before the leftmost COMP position.

(18) a. *It is tough for me to stop Harriet looking at.

b. *It is tough for me Harriet to stop looking at.

(19) a. I wonder who John saw.

b. I asked who John believed Bill to have visited.

To prevent such ill-formed sentences as (18), Chomsky provides a stipulation to the effect that once PRO-Replacement has applied, then further application is obligatory as with the finishing It-Replacement.

NOTES

¹It should be noted that Chomsky (1973), which this chapter is about, does not incorporate the S-bar syntax notation, which is used in Chapter 4; thus, "S" in this chapter is actually the same as " \bar{S} " in Chapter 4 and on.

²Specifically, Z is a lexical item (such as "there") introduced by a transformation and not subject to control, a nonanaphoric pronoun, or the indeterminate element Δ " (Chomsky 1973, p. 262, note 39).

³The same problem also occurs in the case of Wh-Movement, which moves a wh-phrase to the sentence initial COMP position, which cannot be a controller. Thus, without provision (12) the SSC will wrongly predict (i), deriving from (ii), to be ungrammatical.

- (i) Who did they expect to kill?
- (ii) COMP they expect [COMP PRO to kill who]

In fact, it is It-Replacement and Wh-Movement that motivated the addition of the provision. In other cases, the provision is not necessary. For example, facts about Each Movement, whether we assume Dougherty's movement rule (1970) or Jackendoff's interpretation rule (1972), can be accounted for by the SSC (11b) without provision (12).

- (iii) We promised Bill to kill each other.
- (iv) We each promised Bill [COMP PRO to kill each other]

In (iv), X = "each", Y = "the other", and Z = PRO. The PRO, however, is not a specified subject because it is controlled by the MMC(X).

CHAPTER III

A CRITIQUE OF THE CONDITIONS ANALYSIS

Chomsky's analysis of the TOUGH construction can be evaluated in terms of the three crucial assumptions he makes, i.e., assumptions about (i) the deep structure of the complement, (ii) the transformation involved, and (iii) conditions on transformations. First, since there has been no convincing argument against (nor for) the S-hypothesis,¹ I will assume without justification that the S-hypothesis is correct or at least has the same effect as the VP-hypothesis. Second, I accept Lasnik and Fiengo's arguments (1974) against the TM analysis, a version of which Chomsky adopts in this analysis. I do not, however, accept their arguments for a TD analysis because, as Jackendoff (1975) has convincingly argued, "all of their arguments favoring TD over TM turn out to be based on the incorrect statement of constraints and we are again left without any arguments to decide between the two analyses" (p. 443).² Thus, leaving the TM vs. TD controversy unsettled until we reach Chapter Four where the two analyses are reconciled, this chapter will be concerned with a discussion of the conditions which are involved in the derivation of the TOUGH construction.

Two of the negative impressions one might receive immediately from his first encounter with the formulation of conditions in Chomsky (1973) are his way of positing conditions and the role of COMP. First, as Petr Sgall (1980) points out, Chomsky usually starts with a couple of examples, which serve as a starting point for the construction of a partial theory, and modifies it when some examples with other (unforeseen) properties are found, yielding a lack of perspicuity to the discussion as a whole (p. 77). As expected, then, many counterexamples are glossed over. Discussion of these counterexamples to his conditions will take up the first part of this chapter.

Another suspicious aspect of Chomsky's conditions is the role of COMP, which has been described as a COMP escape hatch by many critics. Its role, in the eyes of the critics, is to "take care of" the counterexamples to his conditions. The real question to ask, however, is whether the COMP is independently motivated or whether there is a clear criterion for determining the types of phenomena which involve the COMP node. The second part of this chapter will discuss this matter.

Bach and Horn (1976) are the first and the only source which provides a comprehensive criticism of Chomsky's conditions and his analysis of the TOUGH construction within the Conditions framework. Before considering their criticism, it would be useful to identify two methods of argumentation which have been widely used by generative

grammarians to refute a proposed constraint on transformations. In the absence of a proper description, I will refer to them as Arguments Type A and B, which can be stated as follows:

(20) Type A Argument

To reject a constraint, show that it is too strong; i.e., that it incorrectly predicts grammatical sentences as ungrammatical.

(21) Type B Argument

To reject a constraint, show that it is too weak; i.e., that it does not block ungrammatical sentences.

I will also assume that an argument for or against a condition on transformations is empirically valid if it satisfies the following three validity criteria:

(22) Criteria for evaluating Conditions arguments

- i. The data used for the argument are substantially representative of the class it belongs to and do not require native speakers' subtle or murky grammaticality judgments.
- ii. The transformation(s) on which the condition operates must be well-motivated.
- iii. The deep structure assumed for the transformation in (ii) must be justified.

The Specified Subject Condition

As examples of the Type A argument against the Specified Subject Condition, Bach and Horn provide examples (23), which they assume derive from the deep structures in (24).

- (23) a. Walter is hard for me to imagine anyone looking at.

- b. The house is ready for John to buy.
 - c. Bill saw more movies than Harry saw.
- (24) a. It is hard for me [_S PRO to imagine anyone
looking at Walter]
- b. The house is ready [_S for John to buy it]
 - c. Bill saw more movies [_S COMP Harry saw x-many
movies]

In (24), "anyone," "John," and "Harry" are specified subjects and therefore, in Chomsky's terms, should block the transformations involved, i.e., PRO-Replacement, Object Deletion, and Comparative Deletion, from applying over them, incorrectly predicting sentences in (23) as ungrammatical. Using these examples, Bach and Horn claim that the SSC is too strong.

Now, let's see if their arguments satisfy the validity criteria (22). All sentences in (23) seem to satisfy criteria (i) and (ii) of (22); they are one of the representative cases of examples used in each transformational rule and Bach and Horn's grammaticality judgment on (23) is not in dispute. Also, the transformations assumed are all readily acceptable except the It-Replacement involved in (24a), which, however, is not of concern here because a deletion analysis would bring the same result. As to the third criteria (22c), the deep structures in (24) are accepted by most linguists, except (24b), which is controversial; Chomsky (1973) and Lasnik and Fiengo (1974), whose analyses Bach and Horn are criticizing, assume that

the deep structure for (23b) is not (24b), but (25).

(25) The house is ready [_{pp} for John] { [_{vp} to buy it] }
 { [_s PRO to buy it] }

Thus, if (25) can be shown to be the correct deep structure for (23b), (23b) can no longer be a counterexample to the SSC. Bach and Horn, however, present four arguments against the assumption embodied in (25) in favor of (24b) and use these arguments to claim that examples like (24b) constitute direct counter-evidence to the SSC or, conversely, that the SSC imposes a wrong analysis of the complement structure such as (25). Thus, the validity of their arguments against the SSC hinges on the validity of their four arguments against the complement structure (25).

Bach and Horn's first and second arguments are, basically, based on their observation that independent for-phrases behave differently from complement subjects, as illustrated in (26), (27), and (28).

(26) a. It is pleasant for the rich [_s COMP PRO to do
 the hard work]

b. For the rich, it is pleasant to do the hard work.

(27) a. The house is ready [_s for John to buy it]

b. *For John, the house is ready to buy.

(28) a. It is pleasant for the rich for the poor to
 do the hard work.

b. *That house is ready for John for Bill to buy it.

They claim that a for-phrase in the subject position of the complement, as in (27a), cannot be moved freely, though it

can, as in (26a), when it is part of the matrix sentence. Secondly, sentences such as (27a) cannot contain two for-phrases, as illustrated by (28b), while sentences such as (26a) can, as in (28a).

Bach and Horn's third and fourth arguments are based on the assumption that Right Node Raising and Gapping apply in general to a single constituent. Thus, in examples like (29) and (30), "for anyone" and "for us" each must be part of the complement, thus forming a single constituent, S, not PP+S.

(29) The moussaka is ready and Mike says that the egg-lemon soup is almost ready--for us to eat.

(30) The kidney pie is ready for us to put in the oven, and the salad--for you to put on the table.

Their first argument becomes untenable by the fact that even matrix for-phrases sometimes cannot be preposed, as in (31a), deriving from (31b), as compared with (32) (Chomsky 1977b, p. 107).

(31) a. *For John, the house is ready.

b. The house is ready for John.

(32) a. *For John, the house is ready to buy.

b. The house is ready for John to buy.

Their second argument, illustrated by (28), cannot render any support to their claim because the distinction between (28a) and (28b), which is taken for granted, does not necessarily support their claim that the deep structure for (28b) is as in (27a); (28b) can be easily blocked by

the selectional restriction of the ready-class adjectives, which can be expressed by the deep structure (33).

(33) NP is ready (for NP) [_SPRO to VP . . .]

Their third and fourth arguments become invalid by the following examples from Chomsky (1977b, p. 107), in which for-phrases are part of the matrix, a fact Bach and Horn do accept.

(34) Young children are quite difficult, and Bill says that older children are still more difficult--for untrained teachers to control.

(25) The young children are difficult for Bill to control, and the older children--for Mary to teach.

Thus, out of the three major examples (23a,b,c) of Bach and Horn's Type A arguments against the SSC, (23a,c) still hold and remain to be counterexamples to the present formulation of the SSC.

Bach and Horn's Type B arguments against the SSC consist of a set of ungrammatical sentences such as (36), in contrast to the corresponding grammatical sentences in (37).

(36) a. *Harriet was tough for us to destroy books about.

b. *Who did they destroy pictures of?

c. *Who did you see a book about?

(37) a. Harriet was tough for us to write books about.

b. Who did they take a picture of?

c. Who did you write a book about?

They argue that the SSC "is not strong enough to block examples like the following (sentences such as (36)), in

which movement is forbidden even when the NP in question contains no specified subject" (p. 272).

As will be shown in the next section, however, sentences in (36) have little to do with the SSC, but rather have to do with selectional restrictions of individual predicates. Thus, Bach and Horn's arguments against the SSC based on irrelevant facts cannot hold.

The Subjacency Condition

Bach and Horn's Type A arguments against the Subjacency Condition include examples such as (38), deriving from (39).

- (38) a. Harriet is hard for me to imagine Bill wanting to kiss.
 b. It was Harriet that Bill wanted John to kiss.
- (39) a. It is hard for me [_{S₁} PRO to imagine [_{S₂} Bill wanting [_{S₃} PRO to kiss Harriet]]]
 b. It was Δ [_{S₁} COMP Bill want [_{S₂} COMP John to kiss Harriet]]

In (39b), "Harriet" must cross two cyclic nodes to reach the desired position Δ ; it cannot use the COMP escape hatch because its final destination is not a COMP. Likewise in (39a), even with the ad hoc PRO-Replacement, "Harriet" should cross two cyclic nodes (S_3 and S_2) because the PRO position in S_2 has already been filled by a lexical item "Bill." Thus, this movement violates Subjacency as well as the SSC.

Bach and Horn also point out problems with even Chomsky's later formulation of Subjacency, which was intended to exclude deletion rules operating in sentences such as (40) from its domain.

- (40) a. The house is ready for John to persuade Bill to stay.
- b. Bill saw more movies than Henry believed that Ralph saw.

As Chomsky intended, the sentences in (40) are not constrained by his later formulation of the Subjacency Condition even though they all involve crossing two cyclic nodes. There are, however, sentences which involve deletion rules but obey the Subjacency Condition, as illustrated by (41).

- (41) a. *The house is ready for us to find a man willing to buy.
- b. *Jill interviews people who know more interesting than Jeff interviews people who know.

Thus, no condition in Chomsky's system seems to block (41) unless the Subjacency Condition applies on a selective basis.

The examples which Bach and Horn provide as their Type B argument against the Subjacency Condition are basically the same as (36) and (37).

- (42) a. *What did you request an article about?
- b. *What did you see a book about?
- c. *What did they destroy a book about?

All sentences in (42) involve movement of wh-phrases across only one cyclic node (NP) and therefore should be grammatical in Chomsky's analysis; however, they are not. Thus, the Subjacency Condition cannot account for the ungrammaticality of the examples in (42).

The NP Constraint

Observing that all the counterexamples to Chomsky's SSC, Subjacency, and other conditions involve extraction from NPs except those of the form [_{NP} NP PP] with no POSS determiner, Bach and Horn (1976) propose a general condition on transformations as follows:

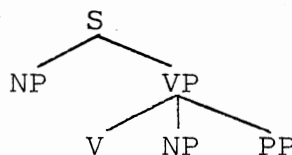
(43) The NP Constraint

No constituent that is dominated by NP can be moved or deleted from the NP by a transformational rule (p. 280).

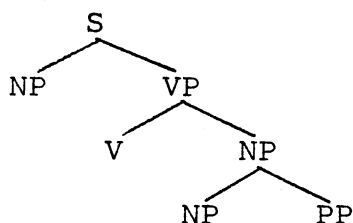
As they claim, the NP Constraint correctly accounts for the sentences which obey Chomsky's conditions and further counterexamples to his conditions, except for sentences such as (37), which are incorrectly predicted to be ungrammatical by the NP Constraint.

To account for these apparent counterexamples, Bach and Horn propose the underlying structure (44a) for sentences such as (37), as compared to the structure (44b) underlying (36) and (42).

(44) a.



b.



By assigning (44a) to sentences such as (36), (37), and (42), facts shown in these examples are no longer counterexamples to the NP Constraint.³ Thus, Bach and Horn's arguments can be reduced to their claim that the NP Constraint and the two structure analysis can account for most of the data Chomsky's conditions are intended to explain, as well as for the counterexamples to his conditions, including TOUGH constructions. Thus, examples such as (14) and (36a), repeated below, are correctly accounted for.

(45) a. *Harriet is tough for me to stop Bill's looking at.

b. Harriet is tough for me to stop looking at.

c. Harriet is tough for me to stop Bill from looking at.

d. *Harriet was tough for me to destroy books about.

Examples (45b,c) are not blocked because they involve movement from complement sentences, not from NPs. However, (45a,d), involving movement from NPs,⁴ are blocked.

Thus, Bach and Horn's NP Constraint and two-structure analysis seem to be a better alternative to account for English in general, including TOUGH constructions. There

are many problems, however, with this approach. Since Chomsky deals with these problems in his "On Wh-Movement" in detail, I will not discuss them here. Instead, we will take a fresh look at the TOUGH construction in terms of a meta rule, Wh-Movement, in Chapter 4.

The COMP Escape Hatch

Another major criticism against Chomsky's Conditions grammar is the role of COMP. According to Bach and Horn, Chomsky "explains away" apparent counterexamples to his conditions by the putative COMP condition, which allows movement of an element from a COMP position to another COMP position. Thus, they argue that examples such as (46), whose derivation from (47) would have been blocked by the SSC, the Tensed-S Condition, and the Subjacency Condition, respectively, are "taken care of" by the COMP condition and the principle of strict cyclicity.

- (46) a. Who do you believe John to have loved?
 b. Who did I tell you that Mary loves?
 c. Who did I ask you to tell him to meet?
- (47) a. COMP you believe [_S COMP John to have loved wh-]
 b. COMP I tell you [_S COMP Mary loved wh-]
 c. COMP I ask [_S COMP you to tell him [_S COMP PRO
 to meet wh-]]

One of the immediate criticisms of the COMP condition is that it weakens the generality of conditions. Thus, Bach and Horn (1976) claim that "more precisely, clauses

are added to the conditions that allow movement ('involvement') from a COMP position to a COMP position to override the relevant constraints" (p. 289).

Prior to evaluating Bach and Horn's criticism, it is important to note the distinction between conditions on the form of grammar and conditions on the function of grammatical rules, which constitute the general theory of grammar or UG. Bach and Horn indicate this distinction between formal and functional conditions by what they claim to be "innovative terminology [compared to Chomsky's]", "constitutive constraints" and "applicability constraints" (p. 265).

One of Chomsky's constitutive conditions which concerns us here is the Complementizer Substitution Universal, which is stated as follows (Chomsky 1973):

- (48) Only languages with clause-initial COMP permit a COMP-substitution transformation.

This principle "presupposes that COMP is a universal element that may appear in various sentence positions and asserts that an item can be moved to COMP position only when COMP is initial" (p. 234).

The COMP condition, being a constitutive constraint, cannot be considered as an ad hoc addition to conditions on transformations. In fact, Bach and Horn's criticism of the COMP escape hatch should be interpreted to be directed not so much to the "existence" of COMP as a sentence introducer as to its "use" as an escape hatch. Therefore, the

validity of their criticism of the COMP-to-COMP movement should be considered on the basis of whether there are clear criteria for the movement rules which utilize COMP nodes. If there are (i.e., if the COMP-to-COMP movement is found to account for a big chunk of English constructions with its applicability domain reasonably clear and consistent), their criticism cannot be considered salient.

In Chomsky's 1973 framework, there exists a dichotomy, though not so clear, between NP movement rules: between those rules that move NPs to the COMP node and those that move NPs to other NP nodes which have not been filled in the base. Included in the former category are direct and indirect wh-questions and relatives such as (49), deriving from (50). The latter includes passives and subject raising cases such as (51), deriving from (52).

- (49) a. Who did you invite to the party?
 b. I wonder who you invited to the party.
 c. I know the man who you invited to the party.
- (50) a. COMP you invite wh- to the party.
 b. I wonder [_S COMP you invited wh- to the party]
 c. I know [_{NP} the man [_S COMP you invited wh- to the party]]
- (51) a. The dog was beaten by the cat.
 b. John seems to enjoy fried rabbits.
- (52) a. The cat was beaten the dog by np
 b. np seems [_S John to enjoy fried rabbits]

The existence of the TOUGH construction (and subject raising cases), however, demonstrates that the dichotomy is far from being clear. Postal's (1972) examples such as (53), quoted in Bach and Horn (1976), illustrate this point.

- (53) a. Who seems to know the answer?
 b. Who is tough for me to stop Bill from looking at?
- (54) a. COMP np seems [COMP wh- to know the answer]
 b. COMP np is tough for me [COMP PRO to stop Bill from [COMP PRO looking at wh-]]

Assuming that structures (54) are underlying sentences (53), there is no way of deriving (53) without violating Chomsky's COMP condition that an element can move only to another COMP position once it has been moved into a COMP. Specifically, in (54a), for example, the wh-phrase, being a wh- element, cannot be raised to the matrix null NP position, represented by "np". The only possibility is for it to move to the embedded COMP position and then to the "np" position, violating the COMP condition. The other possibility is "to assume that Wh Movement can be bypassed on the lower cycle, and then to apply Passive and finally Wh Movement on the highest cycle" (p. 290),⁵ again in violation of the strict cyclicity principle. In short, there is no way of deriving sentences (53) without either violating the COMP condition or the strict cyclicity principle.

NOTES

¹The present status quo regarding this controversy seems to be attributable to the fact that the three assumptions in the text, especially (i) and (iii), are so interdependent that most of the arguments for either hypothesis lead to a circular form of argumentation. That is, as the specified idling speed of an automobile can be obtained, at least on the surface, by different combinations of timing, air intake, and fuel intake, so a consistent account of linguistic data with the same amount of success is possible on either hypothesis, with different formulation of the other two variables.

²By "incorrect statement of constraints," Jackendoff means Lasnik and Fiengo's wrong assumptions based on the early EST model that various constraints are best stated in the deep structure. Given trace theory of movement rules in the REST model, however, semantic interpretation is moved to the surface structure.

³To account for the following examples, however, Bach and Horn assign dual structures (44a,b) and quite plausibly argue that there is independent evidence that these examples, unlike those in (36a,b), are associated with two structures.

- (i) A book about Nixon was written by John.
- (ii) A picture of Ralph was taken by Bill.

⁴Poss-ing constructions are considered basic NPs, according to Bach and Horn.

⁵Wh Movement in this quote (and in this chapter) should mean Chomsky's Wh-Movement.

CHAPTER IV

THE GHOST WH-MOVEMENT (GM) ANALYSIS

In Chomsky (1977a), Chomsky proposed a reduction of all cyclic transformations to two meta rules: NP-Movement and Wh-Movement. Though he hinted "what" types of rules will be subsumed under Wh-Movement, he did not specify "how" individual rules within this rule would operate.

Included in this category, I believe, are the rules involved in formation of direct and indirect wh-questions, relatives, topicalization, cleft, comparatives, and a variety of infinitival constructions. But this proposal remains to be explained and justified (p. 206).

In Chomsky (1977b), he followed up this proposal in which Wh-Movement, along with its member rules including the rule involved in the TOUGH construction, is explicitly formulated. Parallel to the reduction of all transformational rules to the two meta rules, Chomsky's conditions have been modified. As a result, the two meta rules now meet the following conditions: Propositional Island Condition (PI), Specified Subject Condition (SSC), and Subjacency Condition, which is incorporated into the cyclic principle as part of its definition.

As in the previous chapter, Chomsky's analysis of the TOUGH construction in Chomsky (1977b) can be considered in

terms of the three assumptions: those about the deep structure, about the transformation, and about conditions governing transformations. Since the latter two general assumptions are claimed to apply to all English constructions including the TOUGH construction, I will first present their essentials with reference, when relevant, to their predecessors and then consider how they account for the specific data at hand.

Chomsky's use of the term Wh-Movement, in its intended meaning, can be misleading or at least confusing because the rule subsumes many transformational rules as well as the conventional direct and indirect wh-question transformation rules.

Based on Chomsky's informal discussion (p. 85), Wh-Movement can be formulated as follows:

(55) Wh-Movement¹

Move a wh-phrase to the left of the complementizer within the COMP node.

Wh-Movement is distinguished from the conventional wh-question transformations in two respects: its operation and the definition of wh-phrases.

First, Wh-Movement operates clause-internally, as in (56b), whereas conventional wh-question transformations can involve both clause-internal and clause-crossing movement rules, as in (57b), where the wh-phrase "who" moves directly to the matrix COMP position.

(56) a. I wonder who she loves.

- b. I wonder [_S COMP she loves who]
- (57) a. Who do you think she likes?
- b. COMP you think [_S COMP she likes who]

Thus, the application of Wh-Movement to (57b) will result in the intermediate structure (58), not the surface form (57a).

- (58) COMP you think [_S[_{COMP}who] she likes t]]

Chomsky's rule which moves the "who" in the embedded COMP of (58) to the matrix COMP, deriving (57a), is the following language-specific COMP-to-COMP movement rule (Chomsky 1977b):

- (59) Move wh-phrase from COMP to a higher COMP over a bridge (p. 85).²

Wh-question constructions, which were assumed to involve a single transformation (copy and deletion), now involve Wh-Movement (58) and, optionally, COMP-to-COMP Movement (59).

Second, the definition of the wh-phrase in Wh-Movement includes not only the traditional wh-phrases in indirect questions, such as (63), and direct questions, such as (64), but also imaginary wh-phrases which Chomsky assumes to exist in the underlying structures of comparatives (60), topical sentences (61), cleft sentences (62), relatives (65), and various infinitival clauses (66, 67, and 68).

- (60) a. John is taller than Mary is.
- b. John is taller than [_S COMP Mary is what]
- (61) a. This book, I really like.
- b. [This book][_S COMP I really like what]

- (62) a. It is this book that I really like.
 b. It is this book [_S COMP I really like what]
- (63) a. I wonder who John saw.
 b. I wonder [_S COMP John see who]
- (64) a. Where do you think Mary is?
 b. COMP you think [_S COMP Mary is where]
- (65) a. I know the man whom Mary loves.
 b. I know the man [_S COMP Mary loves who]
- (66) a. I found a book for you to read.)
 b. I found a book [_S COMP you to read what]
- (67) a. John is tall enough for us to see.
 b. John is tall enough [_S COMP us to see what]
- (68) a. John is easy (for us) to please.
 b. John is easy (for us) [_S COMP PRO to please who]

In all the above examples, the wh-phrase initially moves into the COMP node and, depending on various factors involved, goes through deletion obligatorily (61, 62, 66, 67, 68) or optionally (60, 65), to derive correct surface forms.

As before, Wh-Movement is constrained by several conditions: the Subjacency Condition, the Specified Subject Condition, and the Propositional Island Condition. The major differences between the conditions in Chomsky (1973) and those in Chomsky (1977b) are that (i) the category "S" has been added to the categories of cyclic nodes, which were assumed in Chomsky (1973) to comprise only S and NP and (ii) as a result of the expanded cyclic nodes,

the Subject Condition in Chomsky (1973) has been incorporated into the Subjacency Condition.³

The Subjacency Condition is formulated as follows (Chomsky 1977):

- (69) A cyclic rule cannot move a phrase from position Y to position X (or conversely) in the structure

... X ... [α ... [β ... Y ...] ...] ... X ...

where α and β are cyclic nodes

As in Chomsky (1973), the Subjacency Condition applies only to cyclic rules, not to interpretive rules or to post-cyclic rules, explaining the grammaticality of (70), which involves the so-called picture noun construction.

- (70) a. The men expected [\bar{S} that [$_{NP}$ pictures of each other] would be on sale]
 b. We want very much [\bar{S} for [$_{NP}$ pictures of each other] to be on sale]

Now, with S as one of the cyclic nodes, facts which were accounted for by the Subject Condition, such as (71a), deriving from (71b), can be accounted for by the Subjacency Condition.

- (71) a. *What was [John's love for t] incomprehensible to Mary.
 b. [\bar{S} COMP [\bar{S} [$_{NP}$ John's love for what] was incomprehensible to Mary]]

This reformulated Subjacency Condition now accounts for the counterexamples of Bach and Horn's Type B arguments against the earlier Subjacency Condition (12), which are repeated

here as (72).

- (72) a. *What did you request an article about?
 b. *What did you see a book about?
 c. *What did they destroy a book about?

Under the standard assumption that deep structures (73) underlie sentences (72), "what" in (73) should cross two cyclic nodes to reach the COMP node, violating the Subjacency Condition.

- (73) a. [_S COMP [_S you request [_{NP}an article about what]]]
 b. [_S COMP [_S you see [_{NP}a book about what]]]
 c. [_S COMP [_S they destroy [_{NP}a book about what]]]

On the other hand, sentences such as (74) (= 37b,c) are correctly predicted as grammatical because, following Bach and Horn (1976), their underlying structures are assumed to be (75), in which the wh-phrase crosses only one cyclic node (S).

- (74) a. Who did they take a picture of?
 b. Who did you write a book about?
- (75) a. [_S COMP [_S they take [_{NP}a picture] of who]]
 b. [_S COMP [_S you write [_{NP}a book] about who]]

The SSC and the Tensed-S Condition have been modified to accommodate some of the counterexamples. They can be stated as follows (Chomsky 1977b, p. 74-75):

- (76) The Specified Subject Condition

No rule can involve X and Y in the structure

... X ... [_α... Y ...] ... X ...

where α contains a specified subject, i.e., a

subject not containing Y and not controlled by X.

(77) The Propositional Island Condition

No rule can involve X and Y in the structure

... X ... [_α... Y ...] ... X ...

where α is a finite clause and is the cyclic node immediately dominating the category of Y.

The Ghost Wh-Movement (GM) Analysis

Admitting that "the analysis [of the TOUGH construction] proposed in Chomsky (1973) was unsatisfactory," Chomsky provides an analysis which can be considered a compromise between a TD and a TM analysis. Since this analysis requires a vacuous application of Wh-Movement, I will refer to this analysis as Ghost Wh-Movement (GM) analysis.⁴ The GM analysis involves three distinct rules: Wh-Movement, wh- Deletion, and the Rule of Predication.

Adopting the deep structure assumed in a TD analysis, the GM analysis assumes that the structure directly underlying sentence (78) is (79).

(78) John is easy (for us) to please.

(79) John is easy (for us) [_S[_{COMP}for][_SPRO to please who]]

In (79), the subject "John" is generated in place and the complement of "easy" is an S with an obligatory PRO subject. One thing different from a TD analysis is that the NP to be deleted is a wh-phrase, "who," instead of "John" or "him." On this assumption, there is no distinction between the sentences in (80) and those in (78): they

are all derived from the underlying structure of the form (81).

- (80) a. John is eager [for Bill to learn]
 b. John would be happy [for Bill to win]
 c. The house is ready [for John to buy it]

(81) X is Adj (for NP) [_S for NP to Verb Y]

The "who" in the embedded clause of (79), however, is not deleted in its place under coreference with the matrix "John," as it would have been in a TD analysis, but is moved to the COMP position of the embedded clause by Wh-Movement, drawing on a TM analysis. The resultant intermediate structure will look like (82).

(82) John is easy for us [_S [_{COMP} who for] [_S PRO
 to please t]]

Then, the obligatory deletion of the wh-phrase "who," followed by the complementizer ("for") deletion before PRO, produces the surface structure (78).⁵ The resulting open embedded proposition (i.e. [to please]) is interpreted as being about John by what Chomsky calls Rules of Predication, a concept never explicitly formulated.

As with the Conditions analysis, ungrammatical sentences which would be generated by this Ghost Wh-Movement are blocked by the Subjacency Condition, the SSC, and the PIC. For example, sentences (83), deriving from (84), are blocked by the Subjacency Condition and (85), deriving from (86) by the SSC.

(83) a. *John is easy for us to convince Bill of the

need for him to meet.

b. *John is easy for us to describe to Bill a
plan to assassinate.

(84) a. John is easy for us [_S COMP₁ to convince Bill
of [_{NP}the need [_S COMP₂ for him to meet who]]]

b. John is easy for us [_S COMP₁ to describe to
Bill [_{NP}a plan [_S COMP₂ to assassinate who]]]

(85) *What is John fun (for us) to give to?

(86) COMP₁ John is fun (for us) [_S [_{COMP₂} who][_S PRO
to give what to t]]

In (84), "who," after moving to COMP₂ by Wh-Movement, has to cross two cyclic nodes to reach COMP₁ where it is to be deleted. In (86), "what" cannot move to COMP₁ because of the specified subject "who" in COMP₂, which moved from the "t" position in the earlier stage of the derivation.

NOTES

¹In this paper, Chomsky's Wh-Movement will be distinguished from conventional wh-question transformations by its capital "W: and "M".

²Thus, while the clause-internal Wh-Movement is not constrained, extraction from a clause is lexically governed over a bridge, as illustrated below (Chomsky 1977b, p. 85).

- (i) *What did John complain that he had to do this evening?
- (ii) *What did John quip that Mary wore?

Chomsky, however, does not provide the properties of the bridge.

³The Subject Condition states that no rule can involve X and Y in the structure

... X ... [_α... Z ... -WYV ...] ...
where α is a subject phrase properly containing
MMC(Y) (Chomsky 1973, p. 253).

This condition accounted for the ungrammaticality of the following examples:

- (i) *Who does the story about amuse him?
- (ii) *What does the book about annoy her?

⁴The term "Ghost Wh-Movement" comes from Allen (1980, p. 261); however, her use of the term as a synonym for Wh-Movement should be distinguished from my use of the term GM analysis, which consists of Wh-Movement, Wh- Deletion, and the Rule of Predication.

⁵In fact, all rules which were considered involving deletion over a variable, such as Comparative Deletion (Bresnan, 1971), have been eliminated from the grammar in favor of the general rule Wh-Movement in Chomsky (1977b, p. 88).

CHAPTER V

A CRITIQUE OF THE GM ANALYSIS

If the Conditions analysis had conditions on transformation as its main improvement over earlier (TM and TD) analyses of the TOUGH construction, the GM analysis can be said to be an improvement on the transformational account of the Conditions analysis. Thus, whereas the transformations assumed in the pre-1977 analyses "directly" (either by TM or TD) relate the matrix subject NP to the gap in the complement clause, that of the GM analysis relates the two positions "indirectly" by vacuously moving the wh-phrase (complement NP) to the COMP position and then deleting it there. This vacuous application of Wh-Movement obliged Chomsky to stipulate a base condition for the TOUGH-class predicates. I will discuss the problems with the underlying structure imposed by Wh-Movement and the validity of the vacuous application of Wh-Movement.

First, one of the problems of the GM analysis is that an ad hoc base condition needs to be stipulated for the TOUGH construction, though other constructions whose transformations involve Wh-Movement do not require it. The case in point is illustrated by sentences (87) (Chomsky 1977b, p. 106).¹

(87) a. It was a waste of time for us [\bar{S} for them
to teach us Latin]

b. *Latin is a waste of time for us [\bar{S} for them
to teach us]

In the Conditions analysis, where (87a) served as the underlying structure for (87b), the ungrammaticality of (87b) was explained by the Specified Subject Condition. In the GM analysis, however, there is no device to rule it out because "Latin" is base-generated as the matrix subject and the movement of the wh-phrase, being confined to its own clause, does not violate the SSC nor the Subjacency Condition. Hard pressed for a solution, Chomsky resorts to the following base condition (p. 107):

(88) In the structure "NP is Predicate [for ___ to VP]"
___ is PRO if \bar{S} is subject to Wh-Movement.

The ad hoc nature of this condition comes from the facts that other constructions which involve Wh-Movement allow overt subjects in their complement clauses and that the condition is required in addition to the two regular mechanisms which restrict the class of base structures for any construction: subcategorization features in the lexicon and categorial rules in the base component.

In defiance of this counterintuitive nature of the condition, Chomsky further states that (88) can "be reformulated so as to fall together with other cases with obligatory PRO subject under generalizations relating 'it' and choice of complementizer. It seems to cover all cases"

(p. 107). If Chomsky presented the general mechanism alluded to above and additionally provided convincing arguments for the need for that mechanism as part of the grammar, as he does with his conditions on transformations, the base condition (88) could be justified. Since Chomsky simply suggested the possibility without any concrete proposal or arguments for it, his "belief" cannot be considered as realistic, but will remain as a belief.

Another problem with the GM analysis lies in the vacuous application of Wh-Movement, which is also involved in the derivation of other constructions such as comparatives. However, Chomsky's arguments in the case of comparatives are somewhat convincing. As evidence for Wh-Movement underlying comparatives, Chomsky quotes Bresnan's examples (1972; 1973).

- (89) a. John is taller than what Mary is.
 b. John is taller than what Mary told us that Bill is.

Presumably, sentences (89) are derived from (90) by Wh-Movement, in the case of (89a), and by Wh-Movement and COMP-to-COMP Movement, in the case of (89b), as illustrated below:

- (90) a. John is taller than [_S COMP Mary is what]
 b. John is taller than [_S COMP Mary told us [_S COMP Bill is what]]

Chomsky claims that this dialect of American English

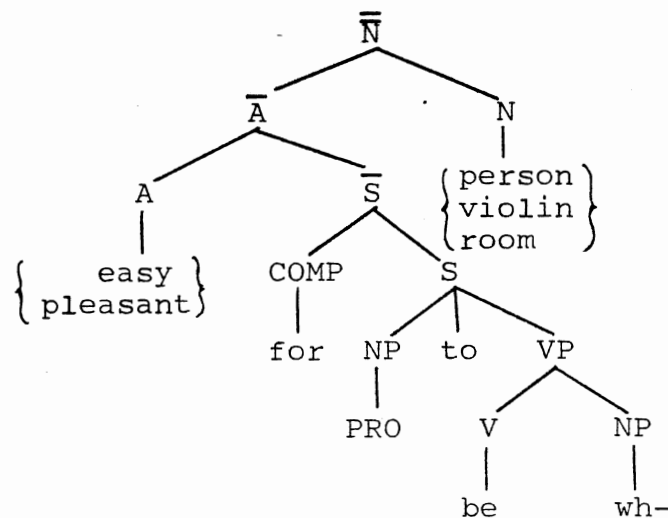
provides direct evidence for Wh-Movement; he further proposes that "there do not exist rules of 'deletion' over a variable" (p. 88).

Chomsky's evidence for Wh-Movement in the derivation of the TOUGH construction, however, smacks of artificial make-up. He provides sentences such as (91), which I will call discontinuous TOUGH constructions, as an instance where the wh-phrase may directly appear.

- (91) a. John is an easy person to please.
 b. This is an easy violin on which to play sonatas.
 c. This is a pleasant room in which to work.
- (92) John is easy to please.

Chomsky argues that (92) is analogous to (91a) and may have the full wh-phrase, as in (91b,c). Though Chomsky does not show how sentences (91) are derived, his implicit statement (p. 103) indicates that the following deep structure and derivation process is assumed for sentence (91c).

(93)



- (96) a. a person [COMP [who is easy to please]] →
b. a person [who [t is easy to please]] →
c. a person [easy to please] →
d. an easy person [to please] →

Thus, sentences such as (91) cannot lend any support to Chomsky's claim that Wh-Movement is crucially involved with the derivation of the TOUGH construction.

NOTES

¹Unless indicated otherwise, subsequent parenthetical references with only page numbers indicated are to be understood to come from Chomsky (1977b).

²James D. McCawley (1982) calls structures such as (95) "discontinuous constituents" (p. 91).

(vi) Control theory

Throughout the development of generative grammar, there has been a persistent tendency in much of the research: to impoverish the rule system, in the hope of narrowing the range of possible grammars consistent with the data of a language. As a result, the base component of the (English) rule system now consists of "the specification of a limited variety of parameters: +configurational, 'Head first', subject-VP order, etc; and an elaboration of language-specific idiosyncrasies such as properties of complex nominal expressions" (Chomsky 1982a, p. 10). And the transformational component had already been reduced to a single rule Move- α in Chomsky (1980a), with the theories of the principle system (97) responsible for determining where and how the rule Move- α can apply. Thus, in the present model of grammar, the rule system has become "fairly rudimentary in character" (Chomsky 1982a, p. 16).

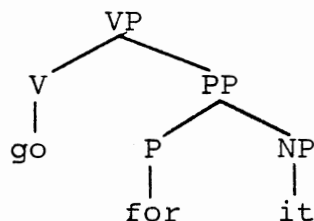
Although all of these theories of the principle system, along with the (impoverished) rule system, are involved with any construction, the notions which define these theories and which immediately concern us are the two notions "government" and "binding."

Chomsky (1982a) employs the traditional notion "govern," which had been used without a clear definition, and defines it as follows (p. 19):

- (98) α governs β if $\alpha = X^{\circ}$ (in the sense of X-bar theory), and β is not protected by a maximal projection.²

More informally, the definition says that α governs β iff (if and only if) α is the minimal governing node c(onstituent)-commanding β (Chomsky 1980a, p. 12). For example, in the tree structure (99), "for" governs "it" because "for" c-commands "it" and "it" is not protected by a maximal projection "PP". On the other hand, "go" does not govern but merely c-commands "it". Thus, the notion "govern" is superior to "c-command" in that the former can distinguish the relation between "go" and "it" and the relation "for" and "it" while the latter cannot.

(99)



Many theories of the principle system are built on the notion "govern." One of them is the Case Theory, the essentials of which are the following case assignment rules (p. 170):

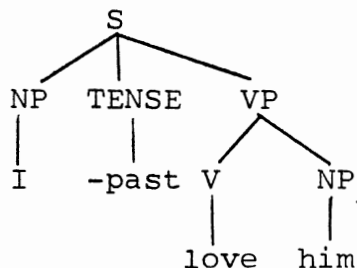
(100) Case Assignment Rule³

- (i) NP is nominative if governed by TENSE
- (ii) NP is objective if governed by V with the subcategorization feature: NP (i.e., transitive)
- (iii) NP is oblique if governed by P
- (iv) NP is genitive in [_{NP}- \bar{X}]

Thus, in the sentence "I love him" (not "*Me love he"), which can be tree-diagrammed as in (101), the NP "I" is governed by TENSE and, therefore, is assigned subject case; the NP "him" is governed by the transitive verb "love" and

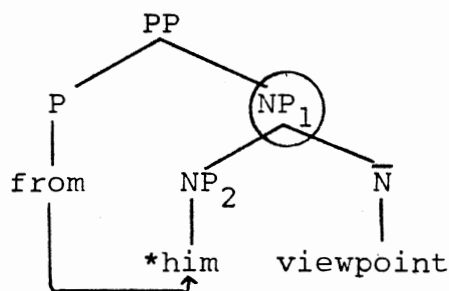
accordingly assigned objective case.

(101)

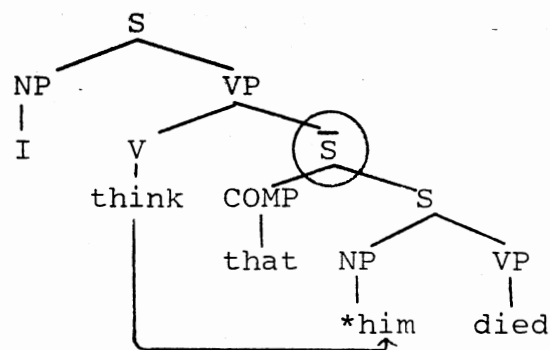


To prevent the assignment of wrong cases such as (102), Chomsky stipulates a condition (103), which amounts to saying that NP and \bar{S} (circled nodes in (102)) are absolute barriers to government.

(102) a. *from him viewpoint



b. *I think (that) him died.



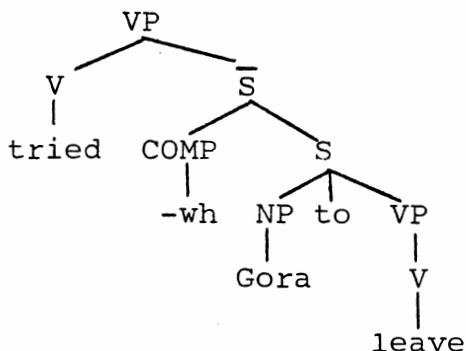
(103) The head of a maximal projection is accessible to an external governor but peripheral positions are not (p. 300).

In addition, Chomsky proposes Case Filter (104) as a device to rule out such ill-formed sentences as (105).

(104) * $[_{NP} \alpha]$

if α has no case and α contains a phonetic matrix or is a variable (p. 175).

(105) *Barbara tried Gora to leave.



In (105), "Gora" does not receive case. The categories which can possibly act as governors are "leave" and "tried." Both of them, however, cannot assign case to "Gora"; "leave" does not govern "Gora" because, in the first place, it does not even c-command "Gora." "Tried" cannot govern "Gora" because, though it governs "Gora," there is an absolute barrier (S-bar) between them. Thus, Case Filter (104) correctly rules out (105) as ill-formed.

Another important notion in the GB theory is the notion "bind," which can be defined as follows:

(106) α is bound by β iff α and β are coindexed and β c-commands α (p. 184).

Assuming the governing category for α to be the minimal S or NP containing α and a governor of α , Chomsky proposes principles of the Binding Theory as follows (p. 188):

(197) Binding Theory

- (i) An anaphor is bound in its governing category.
- (ii) A pronominal is free in its governing category.

(iii) An R-expression is free.

The binding theory serves as "sort of" a filter ruling out ill-formed sentences such as (108).⁴

(108) a. *John thinks that [_S himself will fail]

b. John thinks that [_S he will fail]

In (108a), "himself" is a reflexive anaphor, and Binding Condition (107i) requires that an anaphor have a coindexed antecedent NP which c-commands it within its governing category (S, in this case). But, there is no other NP within S, so this condition is not met. As a result, (108a) is ruled as ungrammatical. In the case of (108b), "he" is a pronominal and hence subject to Binding Condition (107ii), which says that a pronominal must not be coindexed with any c-commanding NP within its governing category (S). Within S, "he" is the only NP, so this condition is met. Since "he" is free, it can be interpreted as either (109a) or (109b).

(109) a. John_i thinks that he_i will fail.

b. John_i thinks that he_j will fail.

The GB Analysis

The deep structure assumed in the GB analysis is basically the same as that of the GM analysis except for the fact that the element subject to Wh-Movement in the GM analysis, i.e., the wh-phrase, is now assumed to be a phonetically null element, PRO, having the feature [-wh]. This analysis has an advantage over the GM analysis in

that there is no need for a rule deleting the wh-phrase in COMP (p. 66). Thus, the underlying structure for (110) will be (111).

(100) John is easy (for us) to please.

(111) John is easy (for us) [_S COMP [_S PRO to please
PRO]]

The transformational rule which moves the second PRO in (111) to the embedded COMP position is not Wh-Movement, but a more general rule Move- λ , which moves a category to anywhere; in this case, the PRO is moved to the embedded COMP position, yielding the following intermediate structure:

(112) John is easy (for us) [_S PRO_i [_S PRO to please t_i]]

The well-formedness of (112) and the coreferential relation between the NPs and empty categories in it are determined by various theories of the principle system, for example, by the trace condition, which is stated as follows (p. 56):⁵

(113) Trace Condition

- (i) trace is governed.
- (ii) the antecedent of trace is not in a θ -position.
- (iii) the antecedent-trace relation satisfies the Subjacency Condition.

In (112), (i) t_i is governed by the verb "please," (ii) the antecedent of t_i is in COMP (a non- θ -position), and (iii) the antecedent-trace relation (PRO-t) satisfies the Subjacency Condition (bounding theory). Furthermore, t_i is casemarked (objective), as expected of a trace left by

the movement of PRO_i to the embedded COMP.

The PRO in the embedded S also exhibits properties of a PRO (PRO condition): (i) it is ungoverned, (ii) it has an independent θ -role, and (iii) it is designated PRO_{arb} , meaning "arbitrary" in reference, by the binding theory because it is free. Finally, PRO_i is coindexed with "John" by the control theory; in the GM analysis, the Rule of Predication was employed to interpret the open proposition ([to please]) left by wh-deletion in the COMP as being about "John."

As Chomsky acknowledges, however, his GB analysis of the TOUGH construction still poses several problems: some are caused by the GB analysis itself while others are the ones which existed in his earlier analyses.

A problem inherent in the GB analysis is concerned with the θ -theory; more specifically, with the θ -criterion (of adequacy of LF), which states that

- (114) Each argument bears one and only one θ -role, and each θ -role is assigned to one and only one argument (p. 36).

"Arguments" refer to expressions that are assigned θ -roles such as "John," "the house," "he," etc. Non-arguments, which assume no θ -role, include idiom chunks ("too much" in "too much attention was paid to the baby."), existential "there," and pleonastic "it" (as in "it is true that the boy lied.").

As this θ -criterion correctly characterizes, the matrix subject position of (112) is a θ -position; "easy"

uniquely assigns a θ -role to the subject position, which in turn is filled with an argument such as "John." Therefore, the subject position cannot be occupied by non-arguments, as illustrated by (115) in contrast with (116) (p. 309):

- (115) a. *Good care is hard to take t of the orphans.
 b. *Too much is hard to make t of the suggestion.
 c. *There is hard to believe t to have been a crime committed.
- (116) a. Good care seems t to have been taken t of the orphans.
 b. Too much seems t to have been made t of the suggestion.
 c. There is believed t to have been a crime committed t.

The contrast exhibited by the above examples seems to support the assumption that the matrix subject position of the TOUGH construction is always a θ -position, whereas that of the subject-to-subject raising case, which involves NP Movement, is a non- θ -position. However, sentences such as (117), in which the subject position is occupied by a non-argument, contradict the θ -criterion.

- (117) a. It is hard [to like the course]
 b. It is pleasant for the teacher [for the student to fail the course]

One way of overcoming this problem is to allow dual subcategorization for the TOUGH predicates in the lexicon; this

approach, however, is at variance with the θ -criterion of the GB theory.

A related problem, which has lived through earlier analyses, is illustrated by sentences such as (118), as compared to (117b).

- (118) a. *The course is pleasant (for the teacher)
 [for the student to fail]
- b. The course is pleasant (for the teacher)
 [to fail]

In the Conditions analysis, the ungrammaticality of (118a) was attributed to the violation of the SSC, and in the GM analysis it was explained by the base condition (88). In the GB analysis, however, there is no device to rule out (118a).

Faced with the problem of explaining the ill-formedness of (118a), along with the paradox of θ -theory, Chomsky proposes that the adjective-complement phrase in (112) be subject to reanalysis as a complex adjective, yielding the structure (119).

(119) John is [_{AP} [_A easy to please] t_i]

After reanalysis, t_i , no longer \bar{A} -bound (see note 5), is treated as an anaphor; it also lacks case. Then, the Free Indexing Convention allows t_i to be coindexed with "John," obviating the need to invoke Control Theory, which was responsible for relating "John" to the PRO in COMP.

One of the consequences of this reanalysis is that the paradox of θ -theory is automatically resolved

because we can now assume that t_i , being in a θ -position, can transmit its θ -role to its antecedent, "John," as the trace left by Move- λ transmits its θ -role to its antecedent. Thus, the matrix subject position is no longer assumed to be a θ -position and, accordingly, we no longer have the paradox of θ -theory.

Second, the reanalysis approach also explains the ungrammaticality of (118a) if we simply assume that the reanalysis rule requires the matrix adjective to be adjacent to the embedded infinitive. Based on this condition, (118a) is asterisked as ungrammatical because of the intervening embedded subject phrase "for the student," whereas (118b), nothing barring reanalysis, is ruled as grammatical.

As Chomsky points out, however, the reanalysis approach requires a modification of some part of the theory because within the GB framework which we have assumed so far, lexical insertion occurs in the D-structure and the Projection Principle requires the matrix subject position to be a θ -position, contrary to the results of reanalysis. As a solution to this contradiction, Chomsky proposes that lexical insertion takes place "freely" either at D-structure or at S-structure and that the Projection Principle sees to it that in the case of the TOUGH construction lexical insertion occurs at S-structure and in other cases at D-structure (p. 313).

A third problem, which was mentioned in Chomsky (1977b) with less elaboration, is the difficulty of establishing appropriate criteria to measure the degree of grammaticality or ungrammaticality of complex TOUGH constructions. In essence, what Chomsky is trying to establish is that wh-extraction from some complex TOUGH constructions is more acceptable than that from other complex TOUGH constructions and that the yardstick determining varying degrees of grammaticality is whether the wh-phrase is extracted from "peripheral" phrases, such as "which violins" in (120), or from "internal" phrases, such as "which sonatas" in (121).

- (120) a. Which violins are the sonatas easy [to play on]
 b. The sonatas are easy [to play t on which violins]

- (121) a. *Which sonatas are the violins easy [to play on]
 b. The violins are easy [to play which sonatas on t]

Based on his grammaticality judgment exhibited in (120) and (121), Chomsky claims that "extraction of an 'internal phrase' from a complex adjective construction seems to be too severe a violation, while extraction of a 'peripheral phrase' is not a severe enough violation" (p. 311).

There are, however, sentences which, though the extracted wh-phrases are from peripheral phrases, are far less acceptable than (120), as in (122), or completely

ungrammatical, as in (123) (p. 311).

(122) a. Which table is the book easy [to put on t]

b. The book is easy [to put __ on which table]

(123) a. *How intelligent is John easy [to consider

(to be) t]

b. John is easy [to consider __ intelligent]

To account for these "sore thumbs," Chomsky proposes that the verbs in the complement of (122) and (123) be reanalyzed in the base as complex verbs, yielding the following intermediate structures:

(124) a. The book is easy [to [_v put on the table] t]

b. John is easy [to [_v consider intelligent] t]

After reanalysis, then, Chomsky's yardstick for grammaticality, which can be diagrammed as shown in Figure 2, can maintain its consistency.

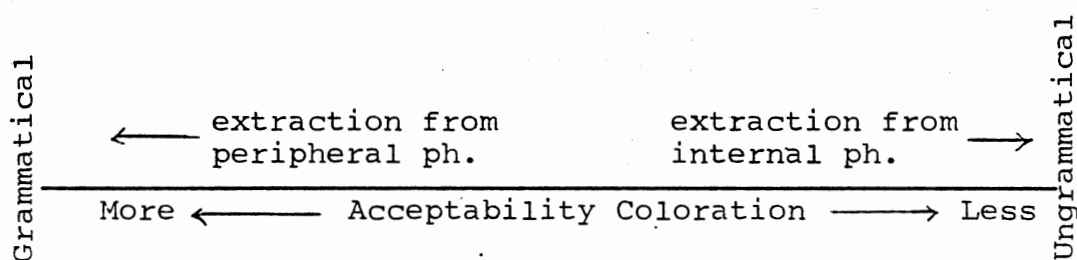


Figure 2. Acceptability Scale for the Complex TOUGH Construction

NOTES

¹Unless indicated otherwise, subsequent parenthetical references with only page numbers indicated are to be understood to come from Chomsky (1981).

²(i) X represents lexical categories such as V, P, N, and A; (ii) α c-commands β iff the first branching node dominating α dominates β , and α does not dominate β , nor β α (Reinhart 1976; 1981); (iii) β is protected by a maximal projection if only β (not α) is included in the latter.

³For the sake of simplicity, I use TENSE instead of Chomsky's AGR.

⁴In the Conditions (1973) framework, (108a) was blocked by the Tensed-S Condition; now, we do not need to resort to the condition. Binding theory also obviates the need to invoke the Specified Subject Condition, as illustrated by the following example:

*Jim wants [_S Mary to help himself]

⁵Chomsky distinguishes between two different traces: NP-traces and Wh-traces: NP-traces, which are bound by arguments (i.e., A-bound), are treated as anaphors in the binding condition. Wh-traces, which are bound by non-arguments (i.e., \bar{A} -bound), are treated as R-expressions.

CHAPTER VII

A CRITIQUE OF THE GB ANALYSIS AND SOME SUGGESTIONS FOR ITS MODIFICATION

Chomsky's GB analysis of the TOUGH construction can be evaluated in terms of two prominent features which his earlier analyses lacked: the reanalysis rule and the analysis of discontinuous TOUGH constructions.

Chomsky's reanalysis rule was originally formulated to overcome the paradox of the θ -theory, which is manifested in sentences such as (112) and (117), and to provide an explanation for the ungrammaticality of the TOUGH construction that has both the matrix and embedded subject positions filled with arguments (e.g. (118)).

The explanatory power of the reanalysis rule, however, goes beyond just solving these problems. It provides an explanation for the contrast in sentences such as (125), which the GM analysis could not explain properly.

- (125) a. *Which sonatas are the violins easy [to play
t on]
b. Which violins are the sonatas easy [to play
on t]

In Chomsky (1977b), the underlying structures for the two sentences were assumed to be (126).

- (126) a. The violins are easy [\bar{S} (which) for PRO to
play which sonatas on t]
- b. The sonatas are easy [\bar{S} (which) for PRO to
play t on which violin]

Under the assumptions of the GM analysis, it is impossible to extract the wh-phrase from the embedded \bar{S} in (126) without violating the SSC; the presence of "which" in the embedded COMP serves as a specified subject, making the embedded clause an island.

Chomsky's solution for this quandary in the GM analysis, which was far from being satisfactory, was to say that there is another structure underlying (125b), namely (127), where the PP "on which violin" is associated with the VP rather than the AP (Chomsky 1977b, p. 106).

- (127) The sonatas are [$_{AP}$ easy [\bar{S} (which) for PRO to
play t]] on this violin.

Given this new structure, "this violin" now belongs to the matrix sentence and, therefore, no constraint prevents it from moving to the matrix COMP position. The effect of proposing a second structure for (126b) was, of course, to circumvent the constraints governing movement rules. One question which immediately arises, however, is whether there is any criterion for allowing the dual structure for (126b) but not for (126a). Since Chomsky provides none, the dual structure, which suddenly emerges after the initial Wh-Movement in the complement, can be considered only as a makeshift escape to counterexamples to the

conditions.

Chomsky's GB analysis, however, overcomes this criticism. The structures underlying sentences (125) are assumed to be (128), which after reanalysis transform to (129).

(128) a. The violins are easy [_S PRO_i [_S PRO to play which sonatas on t]]

b. The sonatas are easy [_S PRO_i [_S PRO to play t on which violin]]

(129) a. The violins are [_A easy to play which sonatas on] t

b. The sonatas are [_A easy to play] t on which violins

Now, under the natural assumption that no element can be extracted from a lexical category, the ungrammaticality of (125a) is explained by the fact that wh-extraction from its underlying structure (129a) is impossible because "which sonatas" is now contained in a (complex) lexical item. In the case of (129b), on the other hand, "which violins" can freely move to the matrix COMP position because the move is within its own clause. In light of the fact that the reanalysis approach solves the above three problems, two of which constituted main obstacles for earlier analyses, it can be considered superior to earlier analyses.

The reanalysis approach, however, is not without problems. The most conspicuous is the fact that it does not square with Chomsky's analysis of discontinuous TOUGH

constructions such as (130).

(130) John is an easy person to please.

As in the GM analysis, Chomsky (1981) assumes that "to please" in (130) is a "residue of a clause that has undergone something like Wh-Movement" (p. 309). Thus, in Chomsky's account, at some stage of the derivation of (130), we would have the following structure:

(131) John is an [_Aeasy [_S PRO_i [_S PRO to please t_i]]
person

In accordance with Chomsky's implicit assumption, reanalysis should apply to structure (131), the output of Move- λ , yielding the following structure, which immediately underlies (130).

(132) John is an [_Aeasy to please] person

Here, we have the paradox of Chomsky's reanalysis approach because (130) cannot be derived from (132) without breaking up the lexical category [_Aeasy to please], a contradiction to the basic assumption behind the reanalysis approach that extraction from a lexical category is prohibited.

An even worse problem is observed when we consider discontinuous TOUGH constructions which have overt wh-phrases such as (133).

- (133) a. This is a pleasant room in which to work.
b. This is an easy violin on which to play
sonatas on.

Within the GB framework, (133) would have at some stage of its derivation the following structure, the structure

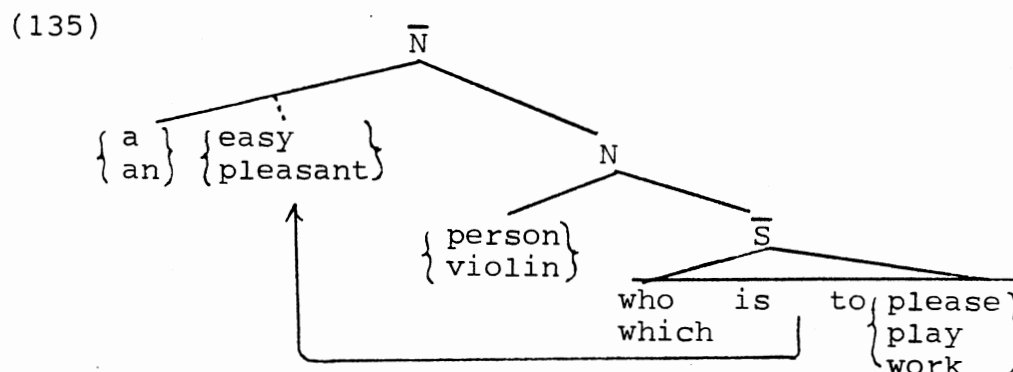
subject to Reanalysis.

- (134) a. This is a [_Apleasant [_S in which [_SPRO to
work t]]] room
- b. This is an [_Aeasy [_S on which [_SPRO to play
sonatas t]]] violin.

However, Reanalysis cannot apply to (134) because of the adjacency condition, which requires that there be no intervening element between the adjective and the infinitival complement. Even if we could overcome this problem by some means, we would still have the problem of violating the lexical category condition. Thus, there is no way of deriving (133) without violating the two conditions which "define" the reanalysis approach: the adjacency condition and the lexical category condition.

In the face of these problems, we might want to abandon the reanalysis approach. A closer examination of these problems, however, reveals that they are observed only in discontinuous TOUGH constructions such as (130) and (133), but not in pure TOUGH constructions. In fact, as we have seen, the reanalysis approach has several advantages over the Conditions and the GM analyses in other respects. Thus, it would be logical to consider the possibility that a modification of Chomsky's analysis of discontinuous TOUGH constructions might provide a solution to these problems. I will postpone tapping this possibility until after looking into a second problem with the GB analysis.

Another major problem with Chomsky's GB analysis of the TOUGH construction is his treatment of discontinuous TOUGH constructions (e.g. (130), (133)) as a special case of pure TOUGH constructions rather than that of relative constructions, which can be illustrated as something like (135) (Compare illustration (95)).



It was noted in the discussion of the GM analysis that sentences (130) and (133) can be derived by existing rules which are independently motivated and that Chomsky's analysis runs counter to a tradition of generative grammar which relates adjectives modifying nouns transformationally. Also, it has just been noted that Chomsky's analysis does not square with his Reanalysis approach.

Apart from these problems, Chomsky's analysis of the discontinuous TOUGH construction requires inconsistent rule application. This problem does not surface in TOUGH constructions--pure or discontinuous--without overt wh-items, such as (136), deriving from (137).

- (136) a. This violin is easy to play sonatas on.
 b. This is an easy violin to play sonatas on.

- (137) a. This violin is [_Aeasy [_S PRO_i [_S PRO to play sonatas on t_i]]]
- b. This is an [_Aeasy [_S PRO_i [_S PRO to play sonatas on t_i]]] violin

Before Move- α applied in (137), there was a PRO in the position now occupied by t_i. On the surface, there is no difference between (137a), a pure TOUGH construction, and (137b), a discontinuous TOUGH construction. Indeed, as Chomsky claims, (137b) seems to be a special case of (137a).

However, sentences such as (138), which are, for Chomsky, basically the same as (136), once again reveal the problematic nature of his analysis.

- (138) a. *This violin is easy on which to play sonatas.
- b. This is an easy violin on which to play sonatas.

It is quite natural to assume, as Chomsky apparently does, that sentences (136) and (138) have a common underlying structure. However, there is no way of deriving (138) from (137), which serves as the underlying structure for (136). In Chomsky's terms, there can be no explanation for (138b) unless he is willing to provide his favorite dual analysis for this case, too, i.e., that discontinuous TOUGH constructions can either take a PRO or a wh-item. However, how do we know whether we want to have a wh-item or not? Without a firm criterion for the choice between PROs and wh-items, Chomsky's analysis of discontinuous TOUGH constructions can at best be considered inconsistent.

So far, I have identified two sets of problems with Chomsky's GB analysis of the TOUGH construction which I think are most serious and also have pointed out that they are found only in discontinuous TOUGH constructions. Now, let's see whether a treatment of those constructions as a special case of the Relative construction can solve the problems.

It seems quite plausible to think of sentence (139) as a special case of Relatives ($[_{NP}^N \bar{S}]$) in which a pure TOUGH construction is contained in the relative clause. Structure (140), which underlies sentence (139) on this assumption, illustrates the point.

(139) John is an easy person to please.

(140) John is a person [\bar{S} COMP [\bar{S} who is easy [\bar{S} COMP
[\bar{S} PRO to please PRO]]]]

Move- λ , applied to (140), moves "who" and the second PRO to the COMP positions in their own clauses, yielding (141).

(141) John is a person [\bar{S} who is easy [\bar{S} PRO [\bar{S} PRO
to please t]]

In this analysis, structure (141) serves as the underlying structure for (142a), which in turn serves as the underlying structure for (142b).

(142) a. John is a person who is easy to please.

b. John is an easy person to please.

Thus, (142a) is derived by simply applying the reanalysis rule to (141). After reanalysis, t , according to Chomsky's assumptions about θ -role assignment, will be assigned an

independent θ -role and then be coindexed with "who" by the Free Indexing Convention. In the LF component, the "who" will be interpreted, customarily, as referring to "John."

Then, (142b) can also be derived by applying to (141) the usual Relative Reduction (or WHIZ deletion), followed by Modifier Shift, both of which are already available in the rule system to derive the prenominal modifier, such as "beautiful" in (143), from a relative clause attached to a head noun, such as (144).

(143) a beautiful woman

(144) a woman who is beautiful

Derivation of (142b), however, poses a little problem because the adjective phrase "easy to please" has already been reanalyzed as a complex adjective from which no element can be extracted. Thus, it seems impossible to derive (142) without violating the lexical category condition.

However, a closer look at the structure underlying (142c) (= 145) reveals that the category immediately dominating the adjective phrase (AP) in (145) is quite different from that in other TOUGH constructions which motivated the reanalysis approach, such as (146).

(145) John is a person [_{AP}easy to please]

(146) a. The violins are [_{AP}easy to play which sonatas on t]

b. John is [_{AP}easy to consider intelligent t]

In (145) the AP which is subject to reanalysis is dominated

by NP, whereas in (146) it is dominated by VP. This observation leads us to revise the present reanalysis rule as follows:

$$(147) \quad [_{vp} \text{be } [_{AP} \text{TOUGH to X t Y}] \Longrightarrow [_{vp} \text{be } [_{A} \text{TOUGH to X}] \text{ t Y}]$$

This modified rule contains a condition to reanalysis: the AP to be reanalyzed as A should be dominated by VP. It also incorporates Chomsky's adjacency condition that there should be no intervening element between TOUGH and the infinitival complement. The structure (145), then, is not subject to reanalysis and, therefore, nothing prevents "easy" from moving to the front of "person" by a rule shifting modifiers.

Thus, the revised reanalysis rule, along with the analysis of discontinuous TOUGH constructions as a special case of Relatives, seems more promising than Chomsky's analysis as presented in Chomsky (1981) insofar as it solves the problems we have discussed of the GB analysis.

CHAPTER VIII

CONCLUSION

Since the inception of generative grammar, the TOUGH construction has proved itself tough to account for by posing problems to any model of grammar. The question of how to relate the NP "John" in (148) to the corresponding gap "__" in the embedded clause has been, and still is, the root of the problem.

(148) John is easy to please __.

The purpose of this thesis was (i) to investigate how this fundamental question was answered in Chomsky's three major analyses of the TOUGH construction by presenting each analysis strictly in terms of the three assumptions crucially involved in any construction: assumptions about the deep structure, transformations involved, and conditions on transformations; (ii) to evaluate criticisms to each analysis; (iii) to suggest possible modifications of the current GB analysis.

The Conditions analysis attempted to relate the matrix NP and the gap in the embedded clause "indirectly" by a TM analysis, along with the proposed constraints governing the application of transformations. In the face of conflicts between his assumptions about transformations and those

about conditions, Chomsky chose to preserve his conditions by modifying his TM analysis. The result was one of the most bizarre transformation rules ever proposed: PRO- Replacement.

The GM analysis, a reconciliation of TD and TM analyses, tried to relate the matrix NP and its gap "indirectly" by assuming vacuous application of Wh-Movement and the obligatory Wh-Deletion rule. In this analysis again, Chomsky had to resort to a counterintuitive interpretive rule called Rule of Predication. From this analysis on, what I called discontinuous TOUGH constructions became the focus of subsequent analyses.

The GB analysis was an extension of the GM analysis in that basically the assumptions about the deep structure and about the transformations remained unchanged; however, conditions on transformations in the GM analysis were incorporated into several theories of the principle system. One consequence of this was for Chomsky to propose the reanalysis rule. After examining the problems with this approach and showing that they are confined to discontinuous TOUGH constructions, I proposed an analysis in which discontinuous TOUGH constructions are analyzed as a special case of Relatives rather than of pure TOUGH cases. I also proposed a reformulation of Chomsky's reanalysis rule.

The narrow scope of this thesis, however, is once again to be recognized. My analysis presented in this

thesis covers only part of the defects of Chomsky's GB analysis of the TOUGH construction, leaving still many others of them yet to be worked out. The areas which need more research work include Chomsky's proposal for lexical insertion at both D-structure and S-structure and the θ -role assignment after reanalysis in discontinuous TOUGH constructions.

Finally, it is hoped that this thesis can be a plus to our efforts to find a more comprehensive, principled analysis of the TOUGH construction and further to construct a theory of grammar with explanatory adequacy.

A SELECTED BIBLIOGRAPHY

- Akmajian, Adrian. 1972. "Getting tough." Linguistic Inquiry. 3.373-76.
- Allen, Cynthia. 1980. "Movement and deletion in Old English." Linguistic Inquiry. 11.261-323.
- Bach, Emmon and George M. Horn. 1976. "Remarks on 'Conditions on transformations'." Linguistic Inquiry. 7.265-99.
- Baltin, Mark R. 1982. "A landing site theory of movement rules." Linguistic Inquiry. 13.1-38.
- Berman, A. and M. Szamosi. 1972. "Observations on sentential stress." Language. 48.304-25.
- Bolinger, Dwight. 1960. "Syntactic blends and other matters." Language. 36.207-21.
- _____. 1974. "John's easiness to please." Special issue of IRAL on the occasion of Bertil Malmberg's 60th birthday, 17-27.
- Brame, Michael K. 1976. Conjectures and refutations in syntax and semantics. Amsterdam, The Netherlands: North-Holland.
- Bresnan, Joan. 1971. "Sentence stress and syntactic transformations." Language. 47.257-81.
- Chomsky, Noam. 1955. The logical structure of linguistic theory. Harvard mimeographed. Published under the same title in 1975. New York: Plenum Press.
- _____. 1965. Aspects of the theory of syntax. Cambridge, Mass.: The MIT Press.
- _____. 1972. Studies on semantics in generative grammar. The Hague: Mouton.
- _____. 1973. "Conditions on transformation." A festschrift for Morris Halle, ed. by Anderson and Kiparsky, 232-86. New York: Holt, Rinehart and Winston.

- _____. 1975a. "Questions of form and interpretation." Linguistic Analysis. 1.75-109.
- _____. 1975b. Reflections on language. New York: Pantheon.
- _____. 1977a. Essays on form and interpretation. New York: North-Holland.
- _____. 1977b. "On wh-movement." Formal syntax, ed. by P. Culicover, et. al. 71-132. New York: Academic Press.
- _____. 1977c. Language and responsibility. New York: North-Holland.
- _____. 1980a. "On binding." Linguistic Inquiry. 11.1-46.
- _____. 1980b. "Markedness and core grammar." Theory of markedness in generative grammar, ed. by A. Belletti et. al. 46-78. Scuola Normale Superiore, Pisa.
- _____. 1981. Lectures on government and binding. Dordrecht: Foris.
- _____. 1982a. Some concepts and consequences of the theory of government and binding. Cambridge, Mass.: The MIT Press.
- _____. 1982b. The generative enterprise. Dordrecht, Holland: Foris.
- Chomsky, Noam and H. Lasnik. 1977. "Filters and control." Linguistic Inquiry. 8.425-504.
- Emonds, Joseph. 1976. A transformational approach to English syntax. New York: Academic Press.
- Fiengo, Howard. 1977. "On trace theory." Linguistic Inquiry. 8.35-61.
- Gadzar, G. 1982. "Unbounded dependencies and coordinate structure." Linguistic Inquiry. 12.155-84.
- Halpern, R. 1976. "On the semantics of 'John is easy to please.'" Studies in Linguistic Sciences. Urbana, Illinois: The University of Illinois Press.
- Iannucci, David. 1979. "Verb triggers of tough movement." Journal of Linguistics. 15.325-29.

- Jackendoff, Ray S. 1972. Semantic interpretation in generative grammar. Cambridge, Mass.: The MIT Press.
- _____. 1975. "Tough and the trace theory of movement rules." Linguistic Inquiry. 11.437-47.
- Lees, R.B. 1960. "A multiply ambiguous adjectival construction in English." Language. 36.207-21.
- Lasnik, Howard and Robert Fiengo. 1974. "Complement object deletion." Linguistic Inquiry. 5.535-71.
- McCawley, James D. 1982. "Parentheticals and discontinuous constituent structure." Linguistic Inquiry. 13.91-106.
- Postal, Paul M. 1971. Crossover phenomena. New York: Holt, Rinehart, and Winston.
- Postal, Paul M. and John R. Ross. 1971. "Tough movement si, tough deletion no!" Linguistic Inquiry. 2.544-46.
- Quirk, Randolph. 1977. "A tough object to trace." Journal of Linguistics. 13.99-102.
- Rosenbaum, P.S. 1967. The grammar of English predicate complement constructions. Cambridge, Mass.: The MIT Press.
- Ross, J.R. 1967. Constraints on variables in syntax. Doctoral Dissertation, MIT. Distributed by Indiana University Linguistics Club.
- Sgall, Petr. 1980. "Review of 'Essays on form and interpretation'." Lingua. 51.73-79.
- Williams, E. 1981. "Transformationless grammar." Linguistic Inquiry. 12.645-53.

X 3

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