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ON THE NATURE OF ISLAND CONSTRAINTS

by

NOMI ERTESCHIK (SHIR)

B.A., Tel-Aviv University
(1970)

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF
PHILOSOPHY

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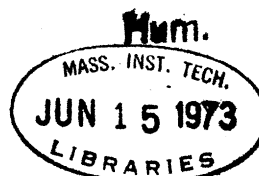
MASSACHUSETTS INSTITUTE OF
TECHNOLOGY

June 1973

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Submitted to the Department of Foreign Literatures and Linguistics on May 30, 1973, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

This thesis is an attempt to provide a semantic account of the conditions on extraction transformations for English and Danish. It is argued that previously formulated syntactic conditions fail to account for the full range of data presented (Chapter I). The semantic notion of dominance is first introduced, and a condition on extraction based on this notion is proposed (Introduction). Extraction out of a variety of Danish and English complement types is discussed, and the semantic condition on extraction is shown to account adequately for the data (Chapters II and III). Some properties of two classes of complex noun phrases are introduced; the extraction facts out of these are discussed as well (Chapter IV). Finally, in the last chapter, certain aspects of the incorporation of this condition into the theory are considered, and the possibility of replacing a number of structural conditions by this semantic condition on extraction transformations is examined.

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TO JAY AND TAMAR

ACKNOWLEDGMENTS

It is always pleasant to reach a point in the drafting of a dissertation at which one can acknowledge the assistance of one's instructors, friends and friend-instructors.

Though many people have contributed generously their insights and advice, I would like to emphasize that the responsibility for errors and gaucheries here is not theirs, but mine entirely.

Noam Chomsky, my advisor, has been my kind and supportive mentor as well. He, in addition to Paul Kiparsky and Haj Ross, the other members of my committee, have given freely of their time and expertise, with extensive comments on earlier versions of these chapters.

It was Roger Higgins who first suggested the seminal problem of Danish knot sentences to me. Those people to whom I am obligated for a critique of the entire dissertation and parts thereof include Ivonne Bordelois, Bob Faraci, Bob Fiengo, Roger Higgins, Lauri Karttunen, Ellen Kaufman, Mark Liberman, Gary Milsark, Dick Oehrle, and Dorothy Siegel. Peter Henriksen has served patiently as a native informant in Danish, and Boyce Thorne Miller has performed the same arduous task for English.

There are several individuals who, though not importuned to

lead me out of a specific linguistic wilderness during the course of my work, deserve nevertheless a bouquet of thanks for their sustaining interest in my efforts and unfailing comradeship during the black hours of the past year. Aliza and Emmanuel Dror, Tanya Reinhardt and Dorothy Siegel are such people.

My parents, who have steadfastly backed me during the period of my studies, deserve profound and affectionate appreciation.

A great debt is acknowledged in the dedication.

Kathy Milsark has typed this dissertation; Ann Rapkin has shepherded it and myself through numerous crises. I am grateful for their talents and human generosity.

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INTRODUCTION

SEMANTIC DOMINANCE

The aim of this dissertation is to define a condition on extraction transformations. By "extraction transformations" is understood transformations such as questioning, relativization and topicalization; i.e., transformations which move NPs leftward.¹ I shall not discuss the application of these transformations within simple sentences, but rather in cases where they apply to extract NPs out of embedded sentences and noun phrases.²

The condition on extraction which will be proposed is based on the notion of semantic dominance, which it is the function of this introduction to define. First, the idea of dominance will be illustrated. A number of ways in which one can test what is dominant in a sentence will be listed. Then, a number of factors that influence what can be interpreted as being dominant in a sentence will be determined. Finally, a definition of semantic dominance will be proposed.

The following sentence placed in two different contexts demonstrates what is meant by semantic dominance:

1) Otto: I saw Mary today. What do you think of her?

Francine: I believe that Mary is a fool.

- 2) Otto: Mary is such a fool -- I saw her acting up again today.

Francine: I believe that Mary is a fool, but why do you have to harp on it?

In example 1) Francine is giving her opinion of Mary; that is, the doubly underlined part of the sentence is that which is being communicated in the context of Otto's question. As a matter of fact, Francine might equally well have said:

- 3) Mary is a fool.

In the second example the sentence is used differently.

Here a contextual reference has been set up for the part of the sentence Mary is a fool, and that which is being communicated is that Francine believes this to be true. To describe the two different uses of this sentence in 1) and 2) I shall use the notion of semantic dominance in the following manner. In example 1), that Mary is a fool is considered to be semantically dominant; in example 2), the matrix is semantically dominant and the embedded sentence is semantically subordinate. A presupposed complement is always semantically subordinate, since it must have a contextual reference due to its being believed to be true by the speaker.³

- 4) Peter took into consideration that Mary was a fool.
- Sentence 4) presupposes that the embedded clause is true. The sentence asserts something about this fact: namely, that Peter took it into consideration. Here the matrix, similarly to 2), is semantically dominant.

The term "semantic dominance" can be used in the same way to describe the difference between definite and indefinite noun phrases. Since a sentence which contains a definite NP presupposes the existence of a unique referent for this NP, this NP, like the presupposed clause of 4), will be considered to be semantically subordinate.⁴ Thus, in the sentence

5) He has seen the picture of John.

the existence of the underlined noun phrase is considered to be presupposed due to its definiteness and subordinate due to its being presupposed. However, in 6), depending on the context in which it is uttered, the underlined phrase can be either subordinate or dominant:

6) He has seen a picture of John.

A few tests have been devised to distinguish between semantically dominant and semantically subordinate elements of a specific sentence. For the sentences that are ambiguous in this respect, the tests will indicate whether a given embedded sentence or phrase can be considered to be dominant or not. These tests make use of added contexts of various sorts. In examples 1) and 2), contexts were provided for the sentence I believe that Mary is a fool. The fact that the sentence can occur in the context of 1) indicates that the embedded clause can be interpreted as semantically dominant. Example 2) shows that the embedded clause can also be interpreted as being subordinate. Without the

relevant contexts, the sentence is considered to be ambiguous with respect to dominance.

A specific context test was formulated by Ross (personal communication): Let M be the matrix and P the embedded clause of sentence S which is being tested for its dominance relationships. The sentence is given the following context:

7) Tom said: "S"

a) , which is a lie -- $\sim M$

b) , which is a lie -- $\sim P$

If 7a) is an appropriate continuation, then M can be interpreted as being dominant; if 7b) is appropriate, then P can be considered as being dominant. If both are appropriate continuations, the sentence is ambiguous unless further context is provided. The principle behind this test is that what is semantically dominant can be naturally refuted. An example will clarify the use of the test:

8) Tom said: "Bill thinks that they're gonna win."

a) , which is a lie -- he doesn't.

b) , which is a lie -- they're not.

The test in this case shows that both M and P can be interpreted as being dominant. This test will be used rather extensively in the chapters that follow.

The test applies as follows to a sentence with a factive verb:

9) Tom said: "John rejoices that they came to the party."

a) , which is a lie -- he doesn't.

b) * , which is a lie -- they didn't.⁵

This test can also be used to give the correct dominance relations in complex noun phrases. Compare 10) with 11):

10) Tom said: "Bill saw a picture of his mother."

a) , which is a lie -- he didn't.

b) , which is a lie -- such a picture doesn't exist.

11) Tom said: "Bill saw the picture of his mother."

a) , which is a lie -- he didn't.

b) * , which is a lie -- such a picture doesn't exist.

This test will be referred to as the "lie-test" in the following.

Another context test which can be used in a limited number of cases is tag questioning. If the tag refers to M, M can be interpreted as being dominant in a certain context; if it refers to P, P in turn can be interpreted as being dominant. For example,

12) a) I believe that Dr. Spock is innocent. Don't I?

b) I believe that Dr. Spock is innocent. Isn't he?⁶

13) a) He mumbled that John was a fool, didn't he?

b) *He mumbled that John was a fool, wasn't he?

In 12) both M and P can be dominant; in 13) only M can be thus interpreted.

Yet another test results from an analysis of the interpretation of certain adverbs in the complement of factive and nonfactive verbs. This analysis was made by Richard D. Brecht (1972), who pointed out the following facts:

14) John assumes that he doubtlessly will be dead by midnight, but I for one have my doubts.

15) *John understands that he doubtlessly will be dead by midnight, but I for one have my doubts.

Brecht argues that when an adverb (doubtlessly in this case) qualifies the complement of a nonfactive verb, it can be interpreted ambiguously as representing the attitude of the speaker and the attitude of the subject of the sentence.

Thus, in 14) the adverb can be understood to reflect John's opinion, and hence the speaker can refute the statement being made. In 15) the adverb can refer only to the speaker's opinion of the situation, and the continuation, in which the speaker himself casts doubt on a statement he himself has referred to as being doubtless, is therefore anomalous.

Brecht thus shows that nonfactives can be used ambiguously. They can have what he calls a "factive" use, where the adverb expresses the speaker's opinion, as well as a nonfactive use, where the adverb expresses the opinion of the subject of the sentence. Using the terms of dominance, sentence 14) is ambiguous; both the embedded sentence and the matrix can be interpreted as being dominant. In sentence 15), only the matrix can be interpreted as being dominant. Thus an adverb in a subordinate clause cannot be interpreted as

referring to the opinion of the subject of the sentence.

Now consider the following examples:

16) ?Fred mumbled that Bess would certainly marry him,
but it is not at all certain.

17) Bill said: "Fred mumbled that Mary is a fool."

a) , which is a lie -- he didn't.

b) ?? , which is a lie -- she isn't.

Sentence 16) shows that it is odd to interpret the adverb as referring to the speaker of the sentence. Brecht is therefore wrong to argue that the distinction to be made with respect to the adverb interpretations is between factives and nonfactives. Mumble is a nonfactive verb which behaves here as a factive in Brecht's system. However, 17) shows that it is odd to interpret the complement of mumble as being dominant, which is also the case for the complements of factives. The fact that 16) and 17b) are equally unacceptable is an indication that the ambiguous interpretation of the adverbs is related to dominance, not factivity. Brecht's analysis should be extended at least for this set of facts to say that the interpretation of the adverb as referring to the attitude of the subject of the sentence depends on the possibility of interpreting the embedded clause as being semantically dominant. If this is so, sentences such as 16) can be used as a test to distinguish between those nonfactives which are ambiguous with respect to dominance and those that are not.

A quite different test can be developed from a very interesting analysis of interjections by James (1972). She argues that the interjection ah can refer only to material which is not presupposed or material which is not "in some sense 'old information'" (p. 167). James gives the following example (her (30)):

- 18) Ah, it is reported by Newsweek that Kissinger is a vegetarian!

James notes that the "ah" in 18) is ambiguous: it can either mean "I have just found out that, and it is significant that, Newsweek reports that Kissinger is a vegetarian"; or else it can mean "I have just found out that, and it is significant that, Kissinger is a vegetarian" (or, "is in all probability a vegetarian"). The latter interpretation, in my terms, depends on the embedded sentence of 18) being interpreted as being dominant. The ambiguity here is, then, a dominance ambiguity. Consider now this example:

- 19) Ah, it is editorialized in today's Times that Kissinger is a vegetarian!

Here no ambiguity is found. "Ah" can only mean "I have just found out that, and it is significant that, today's Times editorialized that Kissinger is a vegetarian." The sentence cannot mean "I have just found out that, and it is significant that, Kissinger is a vegetarian." In terms of dominance, only the matrix of 19) can be interpreted as being dominant. The same results are achieved by applying the lie-test to these examples:

20) Bill said: "It is reported by Newsweek that Kissinger is a vegetarian."

a) , which is a lie -- it isn't.

b) , which is a lie -- he isn't.

21) Bill said: "It is editorialized in today's Times that Kissinger is a vegetarian."

a) , which is a lie -- it isn't.

b) * , which is a lie -- he isn't.

This is an indication that the interjection "ah", as do the other tests, picks out the material that can be interpreted as being dominant. This test will also be used in the following chapters to argue that a certain part of a sentence is dominant.

All these tests are congruent with the principle that it is only the dominant part of the sentence which it is natural to comment on. One way to judge whether a test is valid or not is to examine whether the test defines a simple sentence as being dominant. (By definition, no simple sentence can be subordinate.) There is an endless number of context tests which use this principle. It is, however, not the case that all the tests listed are appropriate to examine the dominance relationships of any sentence. For example, the "lie" test is inappropriate to detect dominance in embedded questions, since it cannot apply to direct questions either. For example:

22) Bill asked: "Where were you?"

* , which is a lie -- you weren't.

23) Bill said: "I didn't know where you were."

a) , which is a lie -- he did know.

b) * , which is a lie -- you weren't.

The unacceptability of b) in the latter case is not an indication that the embedded question cannot be considered dominant, since the same continuation is unacceptable for the simple question in 22), which proves that the test is not a dominance test for embedded questions. In the following chapters, one test will be chosen to analyze the dominance relationships in each instance. In many of the examples, various tests are appropriate and the test is chosen at random (since no two tests make different predictions, there is no point in listing all the tests for each case). When a previously undefined context test is used, it will be shown in each case that the test is appropriate and that it agrees with the above principle.

It has already been noted that a presupposed embedded sentence determines that the matrix of that sentence must be interpreted as being dominant. In order to clarify further the notion of semantic dominance, I will proceed to discuss a number of other factors that influence what is interpreted as being dominant in a specific sentence. The following sentences show that some adverbs force an interpretation where the matrix is dominant:

24) ?Fred really believes that Bess will certainly marry him, but it is not at all certain.

25) ?Fred believes right now that Bess will certainly marry him, but it is not at all certain.⁷

It makes sense for it to be the case that when the matrix verb is qualified by an adverb, it takes dominance, though it would be ambiguous with respect to dominance without the adverb.

There are other factors which have a similar effect.

Emphatic stress on the matrix verb will force the interpretation where the matrix is dominant.

26) ?Peter believes that Bess will certainly marry him, but it is not at all certain.

Yet another factor which determines whether the embedded clause can be interpreted as being semantically dominant is the complexity of the matrix verb. It was mentioned that, although mumble is a nonfactive verb, it is not ambiguous with respect to dominance interpretations, as is the case with the adverbials in examples 24) and 25) and with the stressed matrix verb in 26). Compare 27) to 17):

27) Bill said: "Fred said that Mary is a fool."

a) , which is a lie -- he didn't.

b) , which is a lie -- she isn't.

In 27) both the embedded clause and the matrix can be interpreted as being semantically dominant. In 17), which differs from 27) only in that the matrix verb is mumble

rather than say, only the matrix can be interpreted as being dominant.

For the purposes of the discussion of dominance and extraction, it is necessary to show only that there is a correlation between the cases where the dominance tests show that the embedded sentence can be interpreted as being dominant and the cases where one can extract. However, one would hope to find an explanation for the fact that one matrix verb favors an interpretation in which the matrix is dominant and another matrix verb in the same context does not. I would like to suggest that it is the fact that mumble is semantically more complex which makes for the difference. The verb mumble is indeed semantically more complex than say, since it means say in a certain manner.

There are two complexity tests which prove this to be true. One test was proposed by Barkai (1972), who argues that it is only past participles which are not semantic primitives that can be positioned in front of the noun. Barkai cites the following examples:

28) The muttered (murmured, shouted, whispered, slurred, mispronounced, etc.) words were uttered in a fit of anger.

29) *The said words were uttered in a fit of anger.

According to this test, the verbs listed in 28) would be considered to be semantically more complex than the semantic

primitive say. Mumble is another verb which could be listed in 28), and the test therefore shows that mumble is semantically more complex than say. Another test which distinguishes semantic primitives from more complex lexical items was pointed out to me by Ross. It is possible to say:

30) To mumble is to say.

But the inverse is not possible:

31) *To say is to mumble.

The semantically more complex item must precede the simple one in this frame. Again, it is clear that mumble is semantically more complex.

It would be an enticing proposition that the more semantically complex the matrix verb is, the more likely it is that the matrix will be interpreted as being dominant. If this were found to be true, one could make the following generalization: The matrix is interpreted as being semantically dominant if it is emphasized by means of stress, by means of an adverb which qualifies the matrix verb, or by the use of a semantically complex verb. These three factors were found to be a feature of dominant matrices in many cases.

However, when one considers a number of verbs, it is not always possible, as in this case, to show clearly that one verb is more complex than another. This can only be done when one considers a set of verbs which form a linear hierarchy with respect to semantic complexity; i.e.,

verb A means x , verb B means $x + y$, verb C means $x + y + z$, and so on. Such hierarchies are not easy to find. For example, take the following three verbs: be glad, rejoice, exult. It is clear that rejoice is more complex than be glad, since it means be glad to some extent x , but it is not so easy to show that exult is more complex than rejoice, although it is probably used to mean be glad to extent y , where $y > x$.

Another example of the problem of semantic complexity is illustrated by comparing 32) to 17):

32) Bill said: "Fred animadverted that Mary is a fool."

a) , which is a lie -- he didn't.

b) * , which is a lie -- she isn't.

The fact that 32b) is less acceptable than 17b) shows that animadvert forces the interpretation that the matrix is dominant, whereas with mumble the other interpretation is still possible, though rather unnatural. It is not easy to prove that animadvert is more complex than mumble. Both include say in their interpretation. Mumble, as was mentioned above, implies a certain manner of saying. Animadvert means refer to with a negative connotation, but it does not include properly the whole meaning of mumble. The two complexity tests mentioned above do not solve this problem either, for they too distinguish only semantic primitives from other lexical items of the same semantic group. As long as there is no classification of verbs according to

semantic complexity, I can only argue negatively and say that no case has been found in which a semantic primitive verb takes dominance and in which a verb which is clearly more complex does not.

To conclude the discussion of semantic complexity we may say the following: To the extent that certain complexity tests apply, it can be shown that there is a strong correlation between semantically complex matrix verbs and matrices which must be interpreted as being dominant. If the notion of dominance is further developed, it may prove to be a way to test verbs for semantic complexity.

Semantic dominance can now be defined as follows: "A clause or phrase is semantically dominant if it is not presupposed and does not have contextual reference." (The notion of contextual reference was illustrated in example 2).)

The various dominance tests distinguish those embedded sentences which are presupposed or which have contextual reference from those which are not, thereby indicating the dominance relations of each sentence. If the tests show that the embedded sentence or phrase can be interpreted ambiguously as being both dominant and subordinate, the context in which it is uttered will disambiguate it.

In order to clarify further what is meant by semantic dominance, it might be fruitful to examine the differences

between the use of this term and other similar terms which are found in the literature. The term "assertion" has been used to mean that which is not presupposed in complex sentences where the embedded sentence is presupposed. Here, what is asserted is also what is dominant. However, in a sentence where the embedded clause is not presupposed, the whole sentence would be considered to be asserted, whereas only the embedded clause or the matrix would be dominant.

Another possibly relevant notion is that of "focus".

Chomsky (1969) defines focus as follows:

The focus is a phrase containing the intonation center; the presupposition, an expression derived by replacing the focus by a variable. Each sentence, then, is associated with a class of pairs (F,P) where F is a focus and P is a presupposition, each such pair corresponding to one possible interpretation. (p. 26)

Again, "focus" is a term which covers that which is not presupposed, as does semantic dominance. Moreover, it is not clear that "focus" cannot be used to characterize what does not have contextual reference, since the term "presupposition" is used in a broader than normal sense:

Note that we are using the term "presupposition" to cover a number of notions that should be distinguished. Thus "it was JOHN who was here" expresses the presupposition that someone was here in the sense that truth of the presupposition is a prerequisite for the utterance to have a truth value. On the other hand, when we replace one of the foci of "John gave Bill the BOOK" by a variable, it is not at all clear that the resulting expression determines a presupposition in the same sense, though it does characterize "what the utterance asserts" and to which utterances it is a proper response, when so understood. (note 27)

This second notion of presupposition is very similar to what is meant by contextual reference. However, sentences such as the following indicate that the use of focus instead of semantic dominance would be problematic.

33) He believed that John liked Picasso.

34) He rejoiced that John liked Picasso.

Sentence 33) is ambiguous with respect to semantic dominance, whereas in 34) the matrix is the part of the sentence which carries the semantic dominance unambiguously. It is probably the case that, in order to obtain the interpretation where the matrix of 33) is semantically dominant, the center of intonation must be on the matrix verb believe. However, such an intonation pattern is not necessarily used for sentences such as 34), which are not ambiguous with respect to dominance. Hence, if focus were to replace the notion of semantic dominance, the rules of phonology would have to distinguish three cases: i) cases like 33), where the matrix bears focus; ii) cases like 33), where the embedded clause bears focus; and iii) cases such as 34). The rules of phonology could take into account the distinction of factivity between 33) and 34), but if a sentence such as 33) were the input to the rules of phonology, there would be no way of distinguishing the two interpretations which warrant two different intonation patterns, unless a separate notion such as semantic dominance were employed as well. Therefore, since the notion of focus cannot be extended to cover all the cases for which the notion of semantic dominance is

relevant, the latter notion will be used throughout and no mention will be made of those cases where what is semantically dominant happens to be the focus as well. In order to maintain the two notions, it would probably make sense to use "semantic dominance" to apply to complex noun phrases and clauses and "focus" to apply to the phrases contained within them. An example which clarifies this distinction was brought to my attention by Karttunen:

- 35) It is very significant that it's JOHN who ate the porridge.

Here JOHN is the focus, but the underlined part of the sentence is semantically dominant.

Another term used by adherents to the school of functional sentence perspective is "communicative dynamism". The use of this term might be interpreted as being quite similar to the use of "semantic dominance" here, but the definition of communicative dynamism in the literature is not precise enough, nor are enough examples discussed, to clarify the connection between the two terms. However, the following quotes concerning communicative dynamism are an indication that an investigation of the parallels might prove fruitful, or that it may at least clarify intuitively what is meant by semantic dominance:

By the degree of CD [communicative dynamism] carried by a sentence element we understand the extent to which the sentence element contributes to the development of the communication, to which it "pushes the communication forward," as it were.

It is obvious that elements conveying new, unknown information show higher degrees of CD than elements conveying known information. (Firbas, 1964, p. 270)

The difference between known and unknown information suggests different degrees of CD. Similarly, known information suggests contextual dependence, unknown information contextual independence. (Firbas, 1962, p. 137)

The theme is constituted by the sentence element (or elements) carrying the lowest degree(s) of CD within the sentence. (Firbas, 1962, p. 137)

If I am making the correct parallel, then the following terms would be equivalent: the theme is the part of the sentence which is semantically subordinate, the rheme, or the part of the sentence which has the greatest CD, is in my terms the semantically dominant part of the sentence. Firbas also mentions a transition which lies between the theme and the rheme with respect to CD. In the terms defined here, this would mean that in a sentence with more than two phrases one phrase can be semantically dominant with respect to another, which in turn is dominant with respect to the remaining one. Since the few examples given in these articles are usually simple sentences, it is possible that I am extending the meaning of CD beyond what it was meant to cover. Hence, I have chosen to use a different term, namely semantic dominance, and the definition given above will be assumed throughout the following chapters.

Having defined semantic dominance, I will proceed to argue for the following theory of extraction:

Extraction can occur only out of clauses or phrases which can be considered dominant in some context.⁸

This condition will henceforth be referred to as the "dominance" condition on extraction. The following chapters will argue for this approach as follows: Chapter I will discuss various other theories of extraction from the literature. Chapter II will present facts from Danish which argue for the present approach and which indicate further that purely structural approaches are inadequate. Chapter III, which is the focal point of this dissertation, is an attempt to clarify the dominance relations in the different kinds of complements in English and to show that the extraction facts follow naturally from the dominance theory. Chapter IV deals in a similar manner with two kinds of complex noun phrases. Chapter V attempts to show that the sentential subject constraint follows naturally from the theory, since sentential subjects will always be semantically subordinate. The last chapter discusses at which level in transformational grammar the dominance relations and the condition on extraction should be stated.

Before proceeding to the first chapter, I would like to postulate what a counterexample to this theory would look like. For example: If the definition of dominance, along with the various dominance tests, indicates that a certain

embedded sentence is semantically subordinate; and if a speaker of the sentence agrees to its subordination and still proceeds to extract out of that sentence, this case would furnish a clear counterexample to the present theory. However, I have found no such instance.

FOOTNOTES

INTRODUCTION

1. Certain kinds of questioning, such as rhetorical questions and echo questions, will be excluded from this discussion due to their different behavior, which will be pointed out when relevant.
2. By an embedded noun phrase is meant a NP which dominates another NP, the latter being the candidate for extraction; in other terms, [..._{NP}[_{NP}a picture]_{PP}of_{NP}John]]].
3. Presupposition here is used in the same sense as defined in Kiparsky and Kiparsky (1968).
4. Pope (1972) argues for a semantic class which includes presupposed sentences and definite noun phrases (and also generics, which I exclude from the present discussion). She describes the connection between these noun phrases and sentences as follows: "the relationship between truth and S's is the same as that between existence and NP's" (p. 14).
5. The test works equally well with other comments on the dominant part of the sentence. For example, as a continuation to 9):
 - a) , which is true -- he does.
 - b) , which is true -- they did.

- or: a) , which is nice -- he doesn't.
 b) * , which is nice -- they didn't.

6. These examples were quoted by Anderson (1970) from Langendoen (1971). Out of 46 speakers tested, 36 responded as in 9a) and ten as in 9b). Anderson uses this and other examples to argue for "The Starting-Point Hypothesis," which is stated as follows:

In certain types of semantic base-structures, the rules of the syntax may allow processing to start at different clauses, in accordance with what is most central to the concern of the speaker....

This hypothesis in a sense makes the same kind of distinction as that made by positing dominant vs. subordinate embedded clauses. It is not quite clear to me to what extent the two theories are otherwise similar.

7. Similarly, Aijmer (1972), pp. 58-59, comments as follows (her 138) concerning the difference between the following two sentences:

- a. I believe that Peter is here.
 b. I believe right now that Peter is here.

These are ambiguous between what she calls a self-referring sense, in which the sentence reflects the speaker's belief, and a sentence qualifying meaning (I believe functions as a parenthetical). She says: "If 'I believe' expresses modal modification [the latter sense] in (139) [b) here], the message the speaker wants to communicate has the form of the declarative sentence 'Peter is here.'

'I believe' shows how the sentence is to be taken but is not part of the information which the speaker wants to convey. It follows that 'I believe' cannot be associated with a deictic element such as 'right now' indicating the temporal situation of the speech act."

8. In Chapter III A) the reason for the wording "in some context" will be clarified.

CHAPTER I

ISLAND CONSTRAINTS

Ever since the first work in generative grammar, one of the major goals of linguists working in this field has been to constrain the grammar. Various conditions and constraints on all parts of the grammar have been proposed. The reason linguists aim their efforts in this direction was put concisely by Chomsky in his paper "Conditions on Transformations" (1971):

From the point of view that I adopt here, the fundamental empirical problem of linguistics is to explain how a person can acquire knowledge of a language. ... To approach the fundamental empirical problem, we attempt to restrict the class of potential human languages by setting various conditions on the form and function of grammars; the term "universal grammar" has commonly been used to refer to the system of general constraints of this sort. (p. 1) (my underlining)

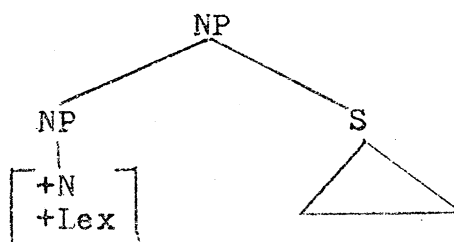
In this chapter I will review most of the constraints on extraction which have been advanced to date. By extraction I mean leftward movement rules such as relativization, questioning and topicalization. I will attempt to show that these proposed constraints are to a large extent descriptively inadequate due to their dependence on purely structural factors.

The first constraint of this sort was the A-over-A principle introduced by Chomsky (1962). It states that "if the phrase X of category A is embedded within a larger phrase Z_XW

which is also of category A, then no rule applying to the category A applies to X (but only to ZXW)." (pp. 930-931) This condition, as stated without modification, has been shown to be too strong both by Chomsky himself and by Ross (1967). Ross thoroughly examines the A-over-A principle and replaces it. In so doing, he introduces the notion of an island, which is the syntactic unit into which phrase markers are divided by the constraints that he sets up:

...if the main branch of the maximal strip of A [A is an element of phrase marker P] (that is, the branch consisting of all and only those nodes of P that dominate A) contains one of the types of nodes which is specified in the statement of the CNPC [Complex Noun Phrase Constraint], the CSC [Coordinate Structure Constraint], the LBC [Left Branching Constraint] or the SSC [Sentential Subject Constraint] as not permitting the chopping of one of its constituents, then the maximal strip is cut into a smaller strip at that node. That is, if the main branch contains a complex NP with a lexical head, a coordinate node, an NP on the left branch of a larger NP, or a sentence in subject position, the main branch (and the strip it is a part of) is cut at this node. The resulting substrips I call islands, and it is these islands that the feature changing and chopping rules are constrained to operate within. (p. 264)

I will direct my attention to the problems surrounding the complex noun phrase constraint. The embedded sentence in the following structure is defined as being an island by the constraint:



The structures of this form are mainly relative clauses and that-clauses with lexical heads. The first problem with the complex noun phrase constraint is that it is not universal. The following sentences illustrate that the constraint does not hold for Danish:

- 1) Det hus er der en mand som har købt.
that house is there a man who has bought
- 2) Det er den mand som der er mange der kan lide.
it is that man that there are many who like

In these two examples the rules of topicalization and clefting respectively have applied to extract material out of relative clauses. Although it is by no means all Danish relative clauses that defy the complex noun phrase constraint, a large number of examples such as the above do exist. These all have certain definable features in common which I shall return to in Chapter II. However, the important point to note is that they are not structurally distinct from regular relative clauses.¹ One cannot, therefore, prevent the constraint from applying to these examples by pointing to structural differences between them and the embedded sentences to which the constraint does apply. The best one can do with a structural constraint is to relegate examples of the above sort to the "exceptions box." But this would merely be a shift from descriptive to explanatory inadequacy.

A further problem was referred to by Ross himself in his

thesis, and the following examples are his:

- 3) ?The money which I am making the claim that the company squandered amounts to \$400,000.
- 4) The money which I have hopes that the company will squander amounts to \$400,000.

The grammaticality of these examples lies somewhere in between that of their paraphrases without head nouns and that of examples where no such paraphrase exists:

- 5) The money which I claim that the company squandered amounts to \$400,000.
- 6) *The money which I discussed the claim that the company squandered amounts to \$400,000.

Ross proposes tentatively that sentences such as 3) and 4) -- which he calls modal constructions -- have a different derivation than examples like 6). He thus hopes that a better understanding of modal constructions will show them to be structurally different from the regular complex NPs and consequently not sensitive to the constraint. To support such an approach, Ross gives a series of aspects in which modal constructions differ from the other examples. Yet there is one immediate problem with such a solution: If sentence 3) could indeed be shown to differ from 6) structurally to the effect that the complex noun phrase constraint could not apply to it, one would assume that it was just as acceptable as 5), which is clearly not the case. That is, some other constraint must be introduced to distinguish between the acceptability of 3) and 5). I

shall deal with this type of construction in Chapter IV.

Janet Dean (1967) proposed a more general condition to govern the cases of the complex noun phrase constraint:

"No element of a subordinate clause may be moved out of that clause." A subordinate clause is defined as an embedded clause with a complementizer. This explains why one cannot extract items from within that-clauses where the complementizer is obligatorily present:

7) *Peter rejoiced she had given him the present.

8) *What did Peter rejoice that she had given him?

However, this parallel does not always hold true:

9) *It is likely she has given him the present.

10) What is it likely that she has given him?

11) *Peter regretted she had given him the present.

12) What did Peter regret that she had given him?

Moreover, as can already be seen in the preceding examples, it is not true that the complementizer must be absent for extraction to occur. It must merely be deletable for extraction to occur in a specific environment.

Ross, who refers to this proposal, points to other problems with the condition. Most of these can be obviated, as he demonstrates, by adding that "the main verb of the subordinate clause be finite." However, some exceptions to this modified version of the condition remain, such as (Ross' examples):

- 13) He told me about a book which I can't figure out why he read.
- 14) *The cages which we donated wire for the convicts to build with are strong.
- 15) *What kind of parakeets are they investigating all people owning?

Examples similar to these will be examined in Chapter III.

These cases similarly indicate that the tensed-S constraint proposed in Chomsky (1971a) is both too strong and too weak, if it is not further modified. The constraint is stated as follows:

No rule can involve X, Y in

...X...[α ...Z...-WYV...]...

where (i) not relevant here

(ii) Y is in COMP and X is not in COMP

or (iii) Y is not in COMP and α is a tensed S

The nontensed sentences of English are the infinitive and the gerund. (Subjunctive that-clauses are considered to be tensed.) Examples 14) and 15) show that extraction is not free out of nontensed sentences. It is not clear whether these are indeed instances of bona fide infinitives and gerunds respectively. If they are NPs, then the constraint will block their derivation, since transformations cycle on noun phrases; but noun phrases have no COMP for the extracted item to escape through. There are clearer examples to show that infinitives can be islands:

16) *Who was it instructive for her to emulate?

17) *Where did it suffice for her to be?²

The more severe problem is with gerunds, where extraction is usually blocked:

18) *What did she regret his learning?

19) *This is the man that Peter dislikes her seeing.

Cases where extraction is possible out of gerunds are not as easy to construct:

20) Who do they approve of your seeing?

The tensed-S constraint alone would define examples like 20) as being the norm. However, the specified subject constraint, which is also involved here, would distinguish between the following two sentences (Chomsky's examples):

20b) What did you count on doing?

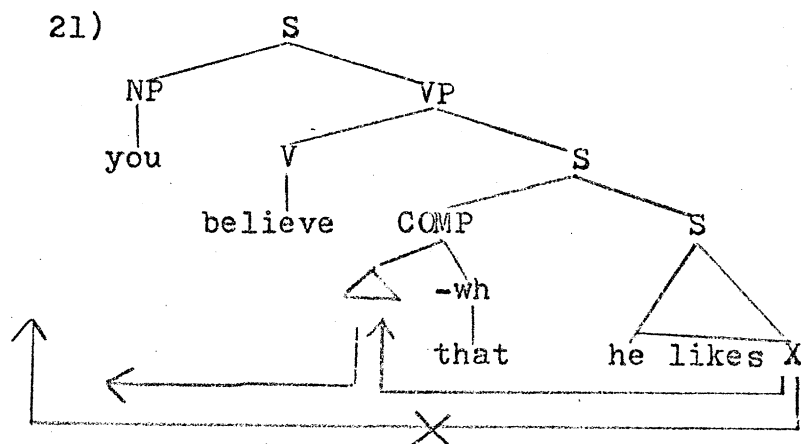
20c) *What did you count on your son's doing?

This means that 20) would be ruled out due to the specified subject your son's, but that 20d) would not be blocked, even though it should be:

20d) *Where did you regret going?

Another approach would be to suggest that gerunds somehow differ from other nontensed sentences. It has been proposed [Williams (1971)], for example, that gerunds have no complementizer. This would prevent all extraction out of gerunds. However, the few cases where extraction out of gerunds is possible are left unaccounted for. I shall return to these and a discussion of the infinitives that are islands in Chapter III.

A similar kind of problem with the tensed-S constraint arises when one examines that-clauses in English. According to Chomsky's theory, extraction should always be possible, as the following structure illustrates:



22) Who do you believe that he likes?

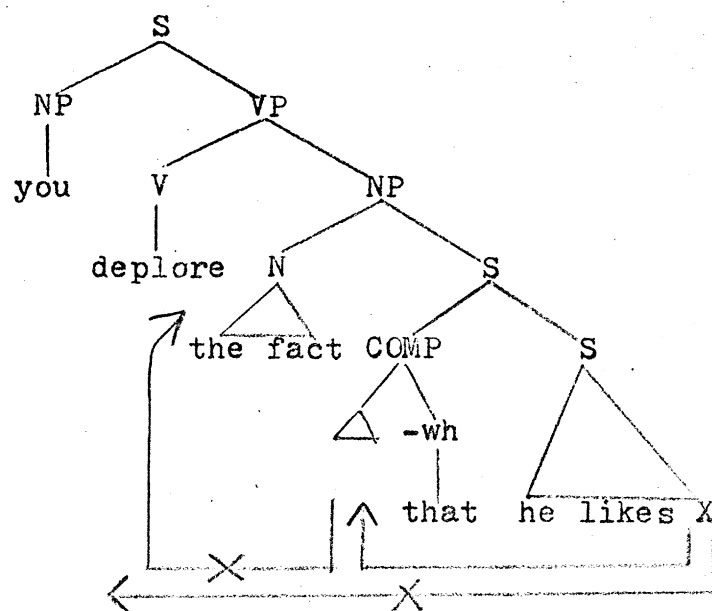
The derivation of sentences such as 22) is possible, since the dummy node in the complementizer is available for the extracted item to pass through. Extraction out of the embedded tensed sentence is blocked unless the extracted item is in COMP. However, again we find examples of that-clauses where extraction should be blocked:

23) *Who do you exult that Golda had castrated?

24) *This is the man that John rejoiced that you had seen.

These sentences can not be blocked by the constraint unless one accepts the analysis of Kiparsky and Kiparsky (1970), in which all factive clauses have underlyingly the head noun fact:

25)



Although extraction into COMP is possible as before, extraction on the NP cycle is not, since NPs have no complementizers. Nor does this analysis account for the facts, for many factive verbs do allow extraction:

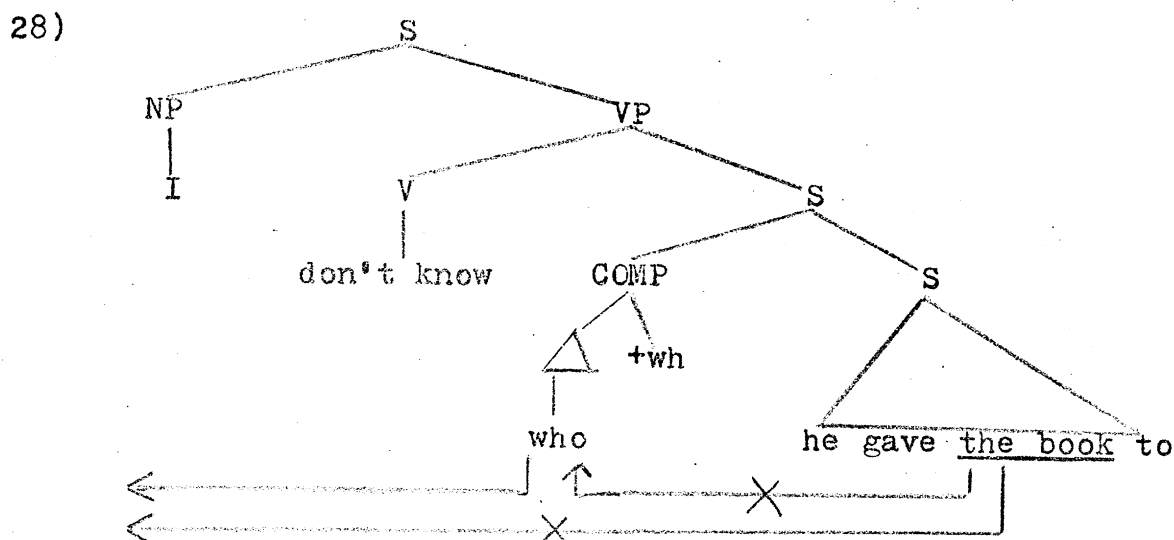
26) Who are you sorry that he likes?

27) This is the man that he is aware that you like.

Whatever analysis of factives one chooses, the tensed-S constraint would apply either to incorrectly block examples such as 26) and 27), or to incorrectly allow the examples 23) and 24). Some nonstructural principle must be found to distinguish between these two sets of examples. This principle could be appended to the tensed-S constraint, or it could replace it entirely.

The most serious problem with the tensed-S constraint, and one which cannot be solved by adding some principle to it, arises from Danish. Intended to be universal, the constraint must universally block extraction out of embedded questions

in languages where the embedded question is formed by fronting the wh-word. For example:



29) *This is the book which I don't know who he gave to.

Sentence 29) is blocked because the NP the book cannot move into the already filled complementizer. Yet the parallel Danish sentence 30) is grammatical:

30) Dette er bogen som jeg ikke ved hvem han har givet.

this is the book which I not know who he has given

This is precisely the sort of example that the constraint is built to exclude. Therefore, no minor alteration or addition can make the constraint apply correctly to both English and Danish. Moreover, 30) is not an exceptional case in Danish, in which extraction out of embedded sentences is generally possible. Some further examples follow:

31) Den mand ved jeg ikke om hun kan lide.

that man know I not whether she likes

32) Den mand spurgte han hende om hun virkelig troede paa.

that man asked he her whether she really believed in

One might maintain that the constraint remains specific to English and that for some reason it does not apply to Danish. However, extraction out of some Danish embedded questions is not as good:

33) ?Her er bogen som det ikke er klart hvem der kunne lide.

here is the book which it not is clear who there likes

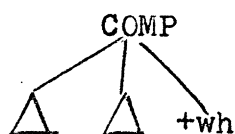
34) ?Den bog afslørede han hvem der havde skrevet.

that book revealed he who there had written

We have also seen (example 13)) that evidence exists of extraction out of English embedded questions, although such instances are severely restricted and could be considered as exceptions to the constraint. In Danish these "exceptions" are the rule. To allow the constraint to apply to English but not to Danish would indicate that one has adopted the practice of setting up a principle according to quantity. In other words, merely because the number of embedded questions that are islands in a certain language is greater than those that are not, such a structural approach would furnish that language with an island constraint, but would not provide it for another language in which the ratio is reversed. One might also raise the point that the maintenance of a universal constraint would be much more significant.

One way to make the tensed-S constraint apply correctly would be to posit that the phrase structure rules of Danish differ from those of English in that the complementizer node has

two dummy nodes:



This structure would be necessary only for the embedded questions, but the existence of such an extra dummy node would not complicate the account of other embedded sentences. This modification would allow the constraint to remain and still enable one to generate the sentences 30), 31) and 32). However, the less acceptable sentences 33) and 34) would also be produced. The problem inherent in all the structural constraints remains: a structural constraint on extraction implies either that extraction is possible in all cases out of a certain structure, or else that it is always blocked. Whenever the facts indicate that this is not so, one is left with "exceptions." I believe that whenever a generalization can be sustained vis-à-vis such a group of exceptions, and when this generalization is a nonstructural one, then the structural constraint is not the correct way to approach the facts to begin with. Thus, the allowing of extraction out of all embedded questions in Danish and the blocking of extraction in all instances in English does not explain the conditions on extraction; it is only an approximate description of the facts. It remains, of course, to be shown that a nonstructural constraint can in fact capture this kind of generalization.

As in the other cases where a particular fact from Danish

or English did not conform to a proposed structural constraint, one might suggest that rephrasing is the solution for those cases of Danish embedded questions that allow extraction. But again, one would be left with the problem of defining when rephrasing is permitted. Hence, the constraint does not do the work it is intended to do: to define when extraction is possible. This problem is left for the rephrasing rules. This to me would indicate that the constraint itself is superfluous, unless some motivation can be found for it in addition to these cases of extraction. Rather than saying: "When X conditions hold, rephrasing occurs" (which would prevent the constraint from applying), I would prefer to say: "Extractions depend on the existence of conditions X." The reason for this is that "conditions X" are consistently semantic conditions, as will be shown in the next chapters. Therefore, the conclusion will be that the constraints depend only on semantic factors with no structural intermediaries, except the distinction between matrix and embedded sentence.

That difficulty with those Danish relative clauses that are not islands which was discussed in relation to the complex noun phrase constraint remains here as well.

One might begin to wonder, after a thorough examination of English and Danish, whether there are any bona fide islands. If no structure can be found to be an island in

just two languages -- and two closely related languages at that -- then perhaps no universal constraints on extraction transformations can be set up which will be even descriptively adequate. Ross (1971) has outlined a new approach to islands in an attempt to deal with these problems. Extraction in this analysis depends on three variables:

- a) The inherent strength of the rule;
- b) The inherent freedom of the context;
- c) The variable strength provided by the language.

He presents a hierarchy, or squish, of such environments, another squish of rules, and a third one of languages according to their ripping strength. These are not merely lists, since certain empirical issues are at stake. For example, according to his list, if the that-sentential objects of nonfactives are islands for any rule, then objects of factives will be as well. The following examples from English show that this diversion is incorrect:

- 35) *What did he stammer that she'd done? (nonfactive)
- 36) *What did he animadvert that she'd done? (nonfactive)
- 37) *What was it false that he'd done? (nonfactive)³
- 38) What did he regret that he'd done? (factive)

The same hierarchy would obtain between nonemotive factives and emotive factives, but again examples to the contrary can be found:

- 39) *What did he bear in mind that he had given her?
(nonemotive factive)
- 40) What was he sorry that he had given her? (emotive factive)

Ross (personal communication) feels that the context squish as stated on the handout is too gross to be correct, but that it can be amended according to the above mentioned counterexamples. It is an open question whether the squish can indeed be amended according to these facts and still maintain its empirical value, since, for example, the squish of environments would very quickly turn into a list of lexical items.

As for rules having inherent relative strength, it seems that the facts are not consistent. Ross quotes the following sentences to show that topicalization is a stronger rule than question formation:

41) *What are you surprised that she would wear?

42) This hat I'm surprised that she would wear.

Some native speakers of English, however, feel that 41) is preferable to 42). Relativization is supposed by Ross to be stronger than both topicalization and question formation. However, this is not consistently so:

43) {What
Which book} did he regret that he'd read?

44) I bought the book which he regretted that he'd read.

45) This book he regretted that he'd read.

According to my informant, 43) is better than 44), which in turn is better than 45). One could conclude that for this dialect question formation is consistently better than relativization, which is consistently better than topicalization, whereas in Ross' dialect the order is: relativization <

topicalization < question formation. However, my native informant would agree with Ross that in the following context relativization is more acceptable than question formation:

46) This is the car that I don't know how to fix.

47) $\left\{ \begin{array}{l} ?\text{Which} \\ ??\text{What} \end{array} \right\}$ car don't you know how to fix?

Since these facts seem to indicate that the rules cannot consistently be ordered according to inherent strength even within English, I shall for the time being ignore the fact that in a specific context one of the extraction rules will give a better result than the other. Possible extraction will mean that at least one of these extraction rules will derive an acceptable sentence.

As for the third hierarchy -- the variable strength which is provided by the language -- my main criticism is that no explanation of the facts is provided. (This holds also for the other two hierarchies.) Danish is listed above English at the top of the hierarchy, to indicate that the extraction rules of Danish apply in many more contexts than they do in English. This is indeed a true fact, and a highly peculiar one at that, since the grammars of English and Danish are otherwise highly similar. Therefore, it would not seem to be sufficient merely to make a list of stronger and weaker languages without providing some insight as to why the languages behave differently. I shall make some attempt to do this in Chapter III.

The fact that extraction is possible out of a subset of Danish relative clauses would probably also be a problem for this theory. Relative clauses, I assume, would be low on the hierarchy of contexts; they would be "strong" islands. The fact that extraction is at all possible out of relative clauses in Danish, but not in English, is reflected in the higher placement of Danish in hierarchy c), but how does one account, within such a theory, for the difference between the following two sentences?

48) Is kender jeg mange der kan lide.

ice cream know I many who like.

49) ??Is talte jeg med mange der kan lide.

ice cream talked I with many who liked

These are not examples of different structures which can be distinguished by the hierarchy; nor do the main verbs belong to different semantic classes. The hierarchy would have to list:

50) a. Relative clauses as objects of the verb kende.

b. Relative clauses as objects of the verb tale med.

I cannot accept such a solution as a desirable result.

Two other theories that I am aware of have been advanced recently to account for the fact that languages differ with respect to island constraints and to provide reasons for this. Perlmutter (1972) makes the following claims (p. 1):

51) (1) Rules that "chop" constituents over variables in the sense of Ross (1967) do not exist.

- (2) Rules that appear to be "chopping rules" are actually "copying rules" that leave behind a shadow pronoun in the position of the constituent that has apparently been "chopped."
- (3) Shadow pronouns undergo whatever transformations would normally apply to pronouns in the structures in which they appear.
- (4) Shadow pronouns are subsequently deleted by a rule I will refer to as Shadow Pronoun Deletion or simply as Shadow Deletion.
- (5) It is the rule of Shadow Deletion that is sensitive to island constraints in the sense of Ross (1967).

Perlmutter applies this theory to a typological division among languages: "... whether or not a language will be sensitive to island constraints is an automatic consequence of whether or not it has Shadow Deletion." (p. 19) Perlmutter cites Arabic, Japanese and Turkish to illustrate his claim. Since Arabic does not have the rule of shadow deletion in relative clauses, and since it is shadow deletion that is sensitive to island constraints, it is possible in Arabic to relativize into islands. Japanese has no surface shadow pronouns, and it is still possible to relativize into relative clauses. The claim is that "Japanese has a general rule of Pronoun Drop that deletes all pronouns." (p. 23) This rule is not sensitive to island constraints because it is a general rule of deletion which is not triggered by an item outside its clause. Perlmutter summarizes the universal as follows:

- 52) (126) If shadow pronouns are deleted by Shadow Deletion, island constraints will not be violated. If they are not deleted, or are deleted by some other rule, relativization into islands will be possible.

Again the theory cannot account for the Danish data. Extraction is possible out of relative clauses in Danish, but only from a subset of them (examples 1), 2), 48) and 49)).

There is no rule other than shadow deletion to delete the pronouns which would be left under Perlmutter's theory as shadows in the relative clauses. As a matter of fact, the rules dealing with pronouns are remarkably similar to those of English where the same kind of extraction should be blocked. It is also obvious that if there were such a rule of pronoun deletion, it would apply to all relative clauses, and one could therefore not account for the fact that it is only a subset of relative clauses which allow extraction. This seems to be true in Japanese. There are structural constraints on the relativization into relative clauses in Japanese, but no such constraints apply to the general pronoun drop.⁴

Keenan, in "The Logical Status of Deep Structures" (1972), presents a theory which has similar consequences. He argues that "the more a syntactic process, such as relative clause formation, preserves logical structure, the greater the variety of contexts in which it applies and the more 'difficult' the positions it applies to. In this respect then some languages are argued to be logically more expressive than others." This kind of approach would provide the missing "explanation" in Ross' hierarchy of languages. A comparison of languages which retain pronouns in place of

the relativized item in the clause and those which do not is brought to show that pronoun retention extends the domain of relativization. This is because logical structure is preserved to a greater extent in the pronoun-retaining languages than in non-pronoun-retaining languages such as English. Keenan also notes that "of the pronoun deleting languages, English is one of the most liberal we have looked at from the point of view of relativization. The use of a relative pronoun which carries case markers and full prepositions appears to be responsible for this." The author shows that Malagasy discriminates fewer functions played by head nouns in subordinate clauses and hence preserves less of the logical structure of the relative clause. This explains why relativization goes into fewer environments in Malagasy than in English. From Keenan's discussion one might predict that relativization in Danish would go into fewer environments than in English, since Danish has an invariable Rel-marker som which can optionally be replaced by der in subject position, compared to English where case markings are more clearly observed.⁵ However, as has been shown repeatedly above, the opposite is the case. I do not think that it is in the nature of an encompassing theory of this kind to allow for an exceptional language such as Danish. Rather, the theory must be amended to include Danish; I cannot see how this could be done.

The foregoing has been an attempt to prove that any set of

syntactically conditioned principles or constraints will always leave a large number of unexplained "irregularities:"

I do not think that the problem lies in either of these theories, having been formulated incorrectly; no amount of patching up of the constraints will suffice. I believe that the principles behind extraction cannot be defined syntactically.

FOOTNOTES

CHAPTER I

1. It is not plausible to argue that there is a rule of reanalysis or rephrasing which applies to the subset of Danish relative clauses which allow extraction. Such a rule of reanalysis would rephrase the source of sentence 1) so that the matrix would form one unit and the embedded clause another. This argument implies, of course, that the complex noun phrase constraint does not apply to rules of reanalysis. There would then be no complex NP left, and the constraint would not apply. In order to maintain the constraint, one would have to consider any supposed violations of a structural constraint as cases of reanalysis. In the instance of the Danish relative clauses, as in all other instances of extraction, it would be possible to define the factors that would cause such a reanalysis; however, rather than positing a rule of reanalysis, one might as well argue that these factors define the cases where extraction is possible and the retention of the constraint seems therefore to be superfluous. Since I argue that the conditions on extraction are the same for all the varieties of embedded sentences, it will become clearer later on that individual constraints such as the complex NP constraint would only complicate the grammar.

2. Some speakers cannot get the sources of these sentences either:

It was instructive for her to emulate Mary.

It sufficed for her to be in a beautiful environment. These speakers are strict in their use of infinitives as complements that cannot be presupposed. However, there are many speakers who find these sentences good, but who cannot get 16) and 17).

3. Extraction is also bad out of the complements of be true and turn out. These are considered to be implicative verbs by Karttunen (1971). One could therefore say that implicative verbs should be entered separately in the hierarchy.
4. While investigating the complex NP constraint with respect to Japanese relative clauses, it became clear that one cannot freely doubly relativize (that is, relativize two NPs from the same sentence) in Japanese. The subject can be relativized after the object has been relativized, but the object cannot be relativized after the subject has been relativized, as in the following diagrams:



5. Danish has some wh-words, but they are rarely used since they are archaic.

CHAPTER II

DANISH KNOT SENTENCES

In the preceding chapter the crucial examples that showed the failure of a syntactic approach to islands were taken from Danish. These kinds of sentences, which have long intrigued Danish grammarians, have been named 'knot sentences' or 'sentences that are wound together.' Erik Rehling describes them as follows: "A matrix and a subordinate verbal-unit can grow together by a member of the one's being accepted into the other and by its being treated as a member of the second. ... One can, thus, position a member, which logically belongs to the subordinate unit, initially in the matrix sentence, as initial to the whole sentence or [in questioning or relativizing] as a complementizer in the clause." (Rehling, pp. 149-150). Sentences in which extractions had occurred out of that-clauses, embedded questions, and relative clauses were all grouped together as knot sentences and were all considered as being equally out of the normal. The old prescriptive grammarians believed that they should be avoided. Aage Hansen says: "All cases of knots belong especially to the spoken language; the last cases [extraction out of relative clauses] and the aberrant constructions among the rest are characterized by clumsiness, negligence or linguistic audacity." (Hansen (1967) I, p. 110). The point to note is that all extractions out of embedded sentences were considered to be knot sentences and hence

abnormal. The issue which will be examined in this chapter is whether Danish knot sentences have anything in common in addition to their name and the fact that they are not considered to be good style. I will show that such a common denominator is indeed to be found, namely, that the condition on extraction proposed in the Introduction applies. I shall proceed to examine the various Danish embedded sentences in order to show what the conditions on extraction are.

A) Danish Relative Clauses

i) A General Description

In order to present the special features of those relative clauses from which extraction is possible, it is necessary to examine the properties of Danish relativization in general. Danish relativization is very similar to English relativization, in that there is a choice between relativizing with *wh*-words and neutral words such as the English *that*; however, the latter kind of relativization has become more common. The following are examples of relativization with *wh*-words:

- 1) Manden til hvem jeg henvendte mig var rar.
the man to whom I addressed myself was nice
- 2) Hun saa de kulørte lamper fra hvilke der faldt et
broget skaer over de dansende.
she saw the colored lamps from which there fell a
colorful glow over the dancing (people)

- 3) Manden hvis bil jeg købte var rar.

the man whose car I bought was nice

The following might be considered grammatical but would rarely be used in modern speech:

- 4) ?Manden hvem jeg traf var rar.

the man whom I met was nice

- 5) ?Manden hvem jeg henvendte mig til var rar.

the man whom I addressed myself to was nice

Sentences 1) - 3) are examples of relative clauses where the use of wh-words is compulsory, since prepositions cannot be Pied Piped onto som, the Danish equivalent of that:

- 6) a) *Manden til som jeg henvendte mig var rar.

the man to that I addressed myself was nice

- b) Manden som jeg henvendte mig til var rar.

the man that I addressed myself to was nice

- 7) a) *Hun saa de kulørte lamper fra som der faldt

et broget skaer over de dansende.

she saw the colored lamps from that there fell
a colorful glow over the dancing

- b) Hun saa de kulørte lamper som der faldt et

broget skaer fra over de dansende.

she saw the colored lamps that there fell
a colorful glow from over the dancing

No genitive form of som exists:

- 8) *Manden som's bil jeg købte var rar.

the man that's car I bought was nice

The examples 4) and 5) do have equivalents with som:

9) Manden som jeg traf var rar.

the man that I met was nice

10) Manden som jeg henvendte mig til var rar.

the man that I addressed myself to was nice

Sentences 9) and 10) are much preferable to 4) and 5). It seems that the tendency is to use the wh-words only when no parallel with som exists.

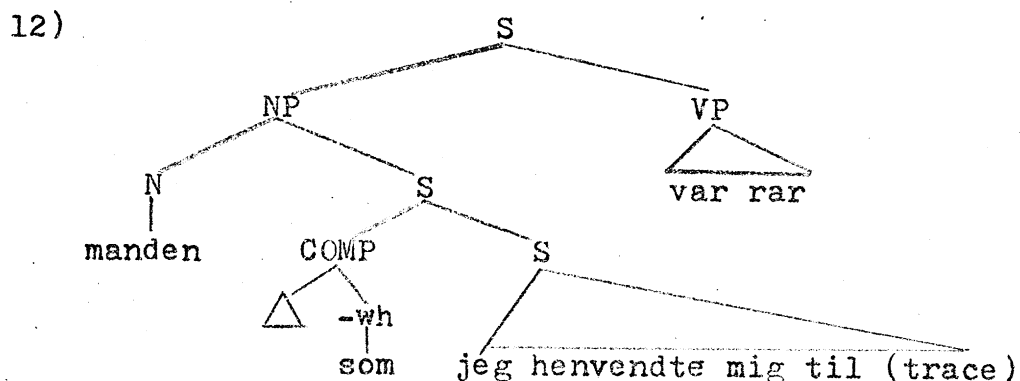
The subject wh-word hvo (= the English who) has become completely extinct. In subject position either som or der can be used:

11) Manden $\left\{ \begin{smallmatrix} \text{som} \\ \text{der} \end{smallmatrix} \right\}$ var her igaar var rar.

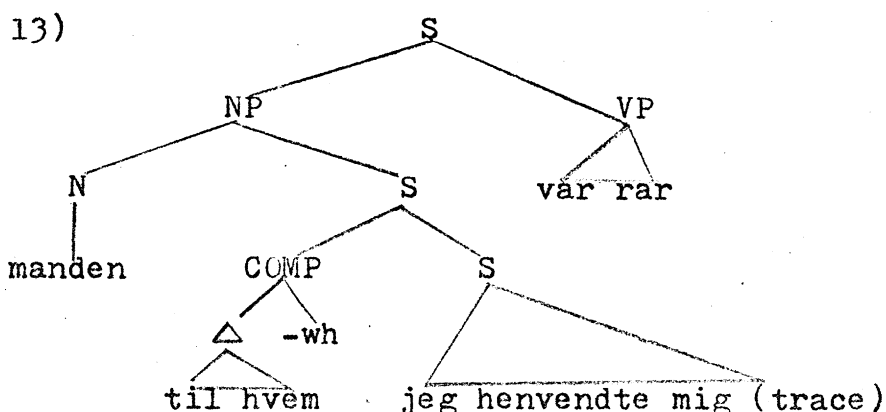
the man that was here yesterday was nice

Der is used only in subject position and is preferred over som in that position by many speakers. Som is obligatorily used in subject position of appositional relative clauses and in conjoined relative clauses, but otherwise no concrete differences between som and der can be found.

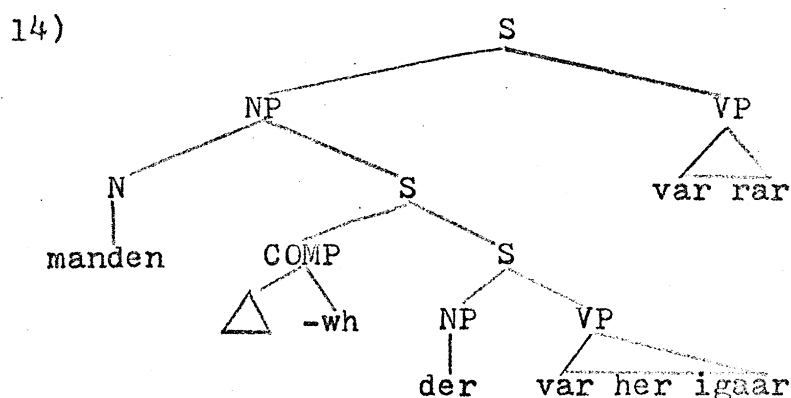
Using rules for the complementizer and for relativization proposed by Chomsky (1971a), the following would be the derived structure of 10):



whereas 13) would be the derived structure of 1):



Der has no equivalent in English relative clauses. I would like to argue that der is not in complementizer position as are som and the wh-words, but rather remains in the subject position of the embedded clause:



The main argument is that der appears only when the subject of the clause is relativized. If der were another option in the complementizer, a condition would have to be imposed to restrict it to the cases where the subject has been relativized. Moreover, the rule inserting der in the complementizer would be no simpler than the one inserting it in place of the subject NP. The latter rule could probably be collapsed with the Danish rule of there-insertion, der being inserted in all 'empty' subject positions. Der is

the Danish word for there, which, as in English, is also limited to subject position. Der-insertion also occurs in subject position of embedded questions and that-clauses, as will be shown later. Moreover, the following pair shows clearly that der does not move out of its subject position (this test was suggested to me by Ross):

15) Manden som jeg tror er syg...

the man that I think is sick...

16) *Manden der jeg tror er syg...

An additional fact which bears out this analysis of the various Danish relative pronouns is that certain speakers will use more than one pronoun in a given sentence. According to Hansen (1967), the order in such cases will always be wh-word, som, der. For example:

17) Kender du den mand som der har købt den røde villa?

Know you that man that there has bought the red villa?

Unless Danish is different from English in that it has three nodes in COMP, the analysis suggested above must be correct.

ii) Knot Sentences Formed from Relative Clauses

Sentences 1), 2) and 48) were examples brought in Chapter I to show that extraction is possible out of a subset of Danish relative clauses. I would like to proceed to illustrate the properties of those relative clauses where extraction is possible. The following are some additional examples:

- 18) Det er der mange der kan lide.
 that are there many that like
 (there are many who like that)
- 19) Fransk var vi en lille skare der studerede ivrigt.
 French were we a little group that studied eagerly
 (we were a little group that studied French eagerly)
- 20) Det hus kender jeg en mand som har købt.
 that house know I a man that has bought
 (I know a man who has bought that house)
- 21) Den stil har jeg nogle elever der har skrevet.
 that composition have I some pupils that have written
 (I have some pupils who have written that composition)¹

The examples show that the matrix must either be the existential operator 'there is' with an indefinite object as in 18), or expressions such as 'we were', 'I know', or 'I have' as in 19) - 21) which can be regarded as being parallel. Consider therefore the application of the dominance test on the source of an example similar to 18). (I shall apply the test to the corresponding English examples to facilitate the reading. The test will give the same results for either language in all cases):

- 22) Bill said: "There are many people who like that."
 a) , which is a lie -- there aren't.
 b) , which is a lie -- many people
 don't like that.

The test shows that the embedded clause can be considered

dominant. According to the condition on extraction proposed in the Introduction which says that the clause from which extraction occurs must be dominant, extraction should be possible in this case; and indeed it is in Danish.² I would like to argue, with respect to sentences such as 19) - 21), that their source sentences are also ambiguous with respect to dominance. Like a sentence where a relative clause is embedded to a matrix which consists of the existential operator, the embedded clause can be interpreted as being dominant. It is the fact that there is an interpretation for the sources of these sentences in which the relative clause can be considered dominant which makes extraction possible in accordance with the constraint. The following examples give the dominance test for the sources of the other examples:

23) Bill said: "We were a little group that studied French eagerly."

- a) , which is a lie -- they weren't.
- b) , which is a lie -- they (it) didn't.

24) Bill said: "I know a man who has bought that house."

- a) , which is a lie -- he doesn't.
- b) , which is a lie -- nobody has.

25) Bill said: "I have some pupils who have written that composition."

- a) , which is a lie -- he hasn't.
- b) , which is a lie -- nobody has.

The following long list of examples brings up a point which

was mentioned in the Introduction, namely that a matrix takes dominance which is more complex semantically (or, as in 26), where the matrix verb bears emphatic stress).

With respect to the Danish relative clauses, this means that the more complexity is introduced in the matrix, the more difficult it is to interpret this matrix as an introducer parallel to the existential operator:

26) *Det hus kender jeg en mand som har købt.

that house know I a man who has bought

27) a) Det er der mange der har gjort.

that are there many who have done

b) Det kender jeg mange der har gjort.

that know I many who have done

c) Det har jeg set mange der har gjort.

that have I seen many who have done

d) Det har jeg mødt mange der har gjort.

that have I met many who have done

e) Det har jeg truffet mange der har gjort.

that have I encountered many who have done

f) Det har jeg talt med mange der har gjort.

that have I talked to many who have done

g) ?Det har jeg gaaet i seng med mange der har gjort.

that have I gone to bed with many who have done

h) ?Det har jeg delt værelse med mange der har gjort.

that have I shared a room with many who have done

i) ?Det har jeg $\left\{ \begin{array}{l} \text{let} \\ \text{grint} \end{array} \right\}$ af mange der har gjort.

that have I laughed at many who have done

j) ?Det har jeg leget med mange der har gjort.

that have I played with many who have done

k) ??Det har jeg spurgt mange der har gjort.

that have I asked many who have done

l) *Det har jeg peget paa mange der har gjort.

that have I pointed at many who have done

m) *Det har jeg arbejdet med mange der har gjort.

that have I worked with many who have done

n) *Det har jeg taget mig af mange der har gjort.

that have I taken care of many who have done

o) *Det har jeg drillet mange der har gjort.

that have I made fun of many who have done

p) *Det har jeg draebt mange der har gjort.

that have I killed many who have done

q) *Det er jeg gaaet tur med mange der har gjort.

that have I gone for a walk with many who have done

r) *Det har jeg vaeret sammen med mange der har

gjort.

that have I been together with many who have done

s) *Det har jeg vaeret i familie med mange der

har gjort.

that have I been related to many who have done

It is difficult to see in some of these examples why one matrix can be interpreted as functioning as a mere introducer and another cannot. The following dominance tests illustrate, for a few of the examples, that as one progresses down the list it is more and more difficult to interpret the embedded

clauses as being dominant. When the matrix is sufficiently semantically complex it must unambiguously take dominance.

28) Bill said: "I have met many people who have done that."

a) , which is a lie -- he hasn't.

b) , which is a lie -- nobody has done that.

29) Bill said: "I have asked many people who have done that."

a) , which is a lie -- he hasn't.

b)?? , which is a lie -- nobody has done that.

30) Bill said: "I have made fun of many people who have done that."

a) , which is a lie -- he hasn't.

b) * , which is a lie -- nobody has done that.

It is interesting to note that not all speakers get the same order of preference among the sentences of 27). (These facts were all supplied by one specific informant.) However, the claim is that whatever the order, it would be reflected by a similar order in the results of the dominance test.

The subset of Danish relative clauses from which extraction is possible differs from other relative clauses not only in that the matrix must be relatively simple, but also in the definiteness of the head of the relative clause:

31) *Peter kender jeg manden der kan lide.

Peter know I the man who likes

(I know the man who likes Peter)

32) Peter kender jeg en mand der kan lide.

Peter know I a man who likes

(I know a man who like Peter)

These facts follow from the condition on extraction and from the fact that the definite head noun in 31) causes the embedded relative clause to be presupposed. Since a presupposed clause is by definition subordinate, extraction from it is not possible. Thus the subset of Danish relative clauses which allows extraction is clearly defined by the dominance relations that hold in them. If the relative clause can be interpreted as being dominant, extraction is possible; if the matrix takes dominance due to its being semantically complex or due to the embedded clause being presupposed, then extraction cannot occur.³

I have tried to show up to now that the Danish relative clauses which allow extraction constitute firm evidence in favor of the condition on extraction proposed here. I will discuss the fact that this subset of relative clauses is not structurally distinct from other relative clauses, and hence none of the structural conditions presented in the previous chapter could account for these facts. One aspect of these knot sentences which might help to distinguish these relative clauses from others is the fact

that it is only in subject position that der optionally takes the place of som. Moreover, my native informant prefers der to som in many knot sentences. Thus, he would prefer 34) to 33):

33) a) Suppe kender jeg mange der kan lide.

Soup know I many who like

b) Her har jeg en onkel der bor.

here have I an uncle who lives

34) a) ?Suppe kender jeg mange som kan lide.

b) ?Her har jeg en onkel som bor.

If it were the case that der was obligatory in all relative knot sentences, then one might suggest that this is the key to the problem, since the whole complementizer node would be empty, according to my analysis that der is in subject position. This is a structural distinction, but: a) there are acceptable knot sentences with som; and b) not all relative clauses with der permit extraction.

A second and more probable structural analysis would be that the derivation of these relative clauses is different from the derivation of regular relative clauses. The same kind of syntactic relationship which holds between 35a) and 35b) might be said to hold between 36a) and 36b):

35) a) People are in the street.

b) There are people in the street.

36) a) People like ice cream.

b) There are people who like ice cream.

This analysis, however, is conceivable only for the cases where the matrix is the existential operator. No structural relation could be posited to hold between 37a) and 37b):

37) a) People like ice cream.

b) I know people who like ice cream.

Since 37b) belongs to the subset of relative clauses to be distinguished from other relative clauses, this structural approach does not get us very far.

Still, there is one aspect of knot sentences formed from relative clauses which seems to be structural: namely, it is always the subject of the clause that is relativized, and that consequently, the extracted object is the direct or indirect object. This kind of structural condition on extraction will reappear again and again in the examination of extraction out of other kinds of embedded sentences.

The following sentences illustrate the problem:

38) Is findes der mange forretninger der sælger til
børn.

ice cream exist there many stores that sell to
children

(There exist many stores that sell ice cream to
children)

(Subject relativized, direct object extracted)

39) Til børn findes der mange forretninger der sælger is.
to children exist there many stores that sell ice
cream

(There exist many stores that sell ice cream to
children)

(Subject relativized, indirect object extracted)

40)??Børn findes der mange forretninger der sælger
is til.

children exist there many stores that sell ice
cream to

(There exist many stores that sell ice cream to
children)

(Subject relativized, indirect object extracted
without Pied Piping)

41) *Den forretning findes der mange slags is som
sælger til børn.

that store exist there many kinds ice cream that
sell to children

(There exist many kinds of ice cream that that
store sells to children)

(Direct object relativized, subject extracted)

42)??Til børnene findes der mange slags is som forretningen
sælger.

to the children exists there many kinds of ice
cream that the store sells

(There exist many kinds of ice cream that the store
sells to the children)

(Direct object relativized, indirect object extracted)

43) *Forretningen findes der mange børn som sælger is til.

the store exist there many children that sells ice cream to

(There exist many children that the store sells ice cream to)

(Indirect object relativized, subject extracted)

44) *Is findes der mange børn som forretningen sælger til.

ice cream exist there many children that the store sells to

(There exist many children that the store sells ice cream to)

(Indirect object relativized, direct object extracted)

The first three sentences indicate that, when the subject is relativized, either the direct or indirect object can be extracted and that Pied Piping is preferable when possible. The next four sentences show that, of all the other options, the case where the direct object is relativized and the indirect object extracted is the best. I believe that this distribution of facts is related to a whole group of facts which includes the Fixed Subject Constraint (Bresnan, 1972), and that this kind of constraint is different from the one that allows or prevents extraction in general. Therefore, when extraction out of a specific embedded sentence is mentioned, it is intended that at least one NP in that embedded sentence can be extracted. The conditions that bar the other NPs in that clause from being extracted will not be dealt with here, since they involve a discussion of

the differences between the various NPs within the simple sentence; the topic of this dissertation does not necessitate such a discussion.

It is interesting to note that the English equivalents of the Danish knot sentences formed from relative clauses are more acceptable than sentences in which extraction has occurred out of regular relative clauses:

45) *This is the kind of weather that there are many people who like.

45) **This is the kind of weather that I know many people who like.

46) ***This is the kind of weather that he made fun of many people who like.

Sentence 45) does not seem to be quite as bad as 46), which in turn is better than 47). As a matter of fact, the first two are quite comprehensible to most people, but the last is not. I shall return to the comparison of Danish and English in section b) of Chapter III.

In this section I have described the factors involved in extraction out of Danish relative clauses. I have tried to show that they provide a strong case for the analysis of extraction presented here, since only this analysis as opposed to other proposed analyses of extraction, can account correctly for these facts.

B) Knot Sentences Formed Out of Danish Embedded Questions

Danish embedded questions are very similar to English embedded questions. The hv-words -- hvem, hvad, hvor, hvordan and hvilken (hvilket) -- take the place of the English wh-words who(m), what, where, how and which, respectively. Whether is om; this also means if. The differences between Danish and English embedded questions lie in the extent to which extraction is possible and the insertion of der in subject position. The following is an example of an embedded question with der:

48) Jeg ved ikke hvem der kommer.

I know not who there comes

(I don't know who is coming)

I have tried to argue that the relative pronoun der is inserted in subject position. If this der (in addition to the der which means there) is the same der as the one in relative clauses, we have further evidence that it must be inserted in subject position, since the COMP node is filled by the wh-word.⁴

I shall proceed to examine extraction out of Danish embedded questions. The possibility of extraction will again be shown to be defined by the condition on extraction presented in the Introduction. The following are some examples of knot sentences formed from embedded questions:

- 49) Den mand spurgte han hende om hun virkelig troede paa.
that man asked he her whether she really believed in
(He asked her whether she really believed in that man)
- 50) Ham ved jeg ikke hvem der kan lide.
him know I not who there likes
- 51) Ham ved jeg ikke hvem er.
him know I not who is
(I don't know who he is)⁵

In order to define the dominance relations within embedded questions, a context test must be found which applies naturally to them, for the "which is a lie" test and the adverbial test are not appropriate.⁶ For embedded questions, the following quite parallel dominance test will be used:

- 52) Otto: "S"
Francine: a) ~ N
b) ~ P

For example:

- 53) Otto: Bill wonders who he is going to marry.
Francine: a) He does not.
b) He isn't going to marry anyone.

The fact that b) is a possible response is an indication that the embedded question of 50) can be considered to be dominant. This test, like all other dominance tests, correctly shows that simple sentences (in this case direct questions) are clearly dominant:

55) Otto: Bill decided who he was going to marry.

Francine: a) He did not.

b) *He isn't going to marry anyone.

The unacceptability of b) is an indication that the embedded question must be interpreted as being subordinate.⁷

I would like to claim here that it is always true for Danish that extraction is possible out of the complements of those verbs which can be interpreted as being dominant according to the dominance test proposed in this section. The following are some further examples:

- 56) Det brev spurgte hun ham om han havde skrevet.
that letter asked she him whether he had written
(She asked him whether he had written that letter)
- 57) Ham var det en gaade hvem der ville tage sig af.
him was it a mystery who there would take care of
(It was a mystery who would take care of him)
- 58) Det brev har jeg forhørt mig om hvem der har skrevet.
that letter have I inquired about who there has written
(I have inquired who has written that letter)
- 59) Det brev var det uklart hvem der havde skrevet.
that letter was it unclear who there had written
(It was unclear who had written that letter)
- 60) Det brev vidste han ikke hvem der havde skrevet.
that letter knew he not who there had written

The verbs spørge, vaere en gaade, forhøre sig, vaere uklart, and ikke vide all give the same results as wonder in 53), the test example. The Danish equivalent of wonder whether

(limited to first person subjects) is mon:

61) Mon han kan lide mig.

I wonder whether he likes me

62) Hvem mon kan lide mig.

who I wonder likes me

Just as in direct questions, extraction cannot occur out of mon sentences that do not take the form of embedded sentences:

63) *Peter who likes?

64) *Peter hvem mon kan lide.

Peter who I wonder likes

The following sentences illustrate cases where the matrix verb does not take complements that can be interpreted as being dominant (as can decide in example 55). It is not difficult to set up test examples with the various verbs replacing decide in that example. The results will be the same for them all, and I shall omit writing out the tests for the sake of sparing the reader the tedium of reading them.) As expected, extraction is not possible in these cases:

65) *Hende overbevidste Peter sig om hvem der kunne lide.

her convinced Peter himself about who there liked

(Peter convinced himself about who liked her)

66) *Hende bestemte Peter hvem der besøgte.

her decided Peter who there visited

(Peter decided who visited her)

67) *Eksamenen var det klart hvordan Peter havde klaret.

the exam was it clear how Peter had done

(It was clear how Peter had done the exam)

68) *Hende undrede Peter sig over hvem der kunne lide.

her was Peter surprised over who there liked

(Peter was surprised (at) who liked her)

69) *Dem sagde Peter (til hende) hvad han havde givet.

them said Peter (to her) what he had given

A few cases of knot sentences have been found in the literature where the matrix verb is of the sort which takes only subordinate embedded questions; these are, therefore, cases which seem to be counterexamples to the condition on extraction proposed here.

70) Nazisme ved man dog hvad er.

Nazism knows one after all what is

(One knows after all what Nazism is)

71) ...saa tjener de penge, for dem ved de hvad er vaerd.

then earn they money for them know they what is worth

(they earn money for they know what it is worth)

These sentences are rather peculiar. They differ from regular embedded questions in a way somewhat parallel to the difference between rhetorical questions and regular direct questions: the whole sentence has some kind of contextual reference, which makes the matrix in a sense subordinate, as well as the embedded clause. (The presence of dog -- "after all" -- in the matrix of 67), which indicates that what is being said should be obvious, is an

indication that this is the correct analysis.) Such peculiar usages will cause exceptional cases of extraction in some English examples as well, and I will return to a discussion of them in the next chapter.

There is one more factor which plays a role in the extraction out of embedded questions in Danish, and that is which question word is present in the embedded clause. The relevant discussion will be postponed until the next chapter, in which extraction out of English infinitival embedded questions is examined.

I have attempted to show that the condition on extraction proposed here correctly accounts for extraction out of Danish relative clauses and embedded questions. These cases of extraction would be classified as "exceptional" in most of the structural accounts of conditions on extraction. No other Danish complement types will be discussed, since a parallel discussion can be carried out for English. In order to simplify the discussion, this chapter has been limited only to the consideration of those facts from Danish which differ from English.

FOOTNOTES

CHAPTER II

1. In these examples topicalization is the only rule of extraction used. Examples where relativization or questioning had applied could have been constructed as well.

For example:

Hvad er der mange der kan lide?

What are there many that like

(There are many (people) who like X)

or: Jane bor i det hus som jeg kender en mand som har købt

Jane lives in that house that I know a man that

has bought

(Jane lives in that house [I know a man who has

bought that house])

However, it is not the case that all examples lend themselves equally well to both questioning and relativization as well as topicalization. This question will be discussed further on in the chapter.

2. The fact that extraction is not possible in English needs to be explained. I shall return to that issue in Chapter III, G).
3. One other factor was found to play a role in defining this subset of Danish relative clauses. Extraction becomes somewhat worse when the subject of the sentence is a

third-person pronoun:

a) ?Fransk var de en lille skare der studerede ivrigt.

French were they a little group that studied eagerly

b) ?Det hus kender han en mand som har købt.

that house knows he a man who has bought

c) ??Her har hun en onkel der bor.

here has she an uncle who lives.

In an actual conversation only a third-person pronoun is potentially ambiguous with respect to its reference (since first-person pronouns and second-person pronouns refer to the speaker and hearer respectively). It is clear that it is this ambiguity which causes the sentences to be less than acceptable, for neither proper names nor definite noun phrases make the extracted sentences less acceptable. I have no explanation for this fact at the moment.

4. Der insertion would have to be an obligatory rule for embedded questions and could be written as an obligatory rule for relative clauses as well. Som would be the realization of -wh for relative clauses. There would be a rule optionally deleting som when the subject of the clause was relativized. Der-insertion would be written as an obligatory rule inserting der in empty subject positions. This rule would include the regular there-insertion rule. The rule would have to be cyclical to avoid insertions of der in the place of extracted subjects.

5. It is interesting to note that 48) is a counterexample to the fixed subject constraint posited by Bresnan (1972). This constraint does hold in general for Danish, as the following example illustrates:

- a) *Hvem tror du at kommer?
who think you that is coming
- b) Hvem tror du kommer?
Who think you is coming

The following examples strengthen the argument by Chomsky that the constraint must be stated on the surface and cannot be considered to be a condition on the extraction rule:

- c) Hvem tror du der kommer?
who think you there is coming
- d) Hvem tror du at der kommer?
who think you that there is coming

According to the fixed subject constraint, the last sentence should be bad, since the extraction of the subject occurs across the complementizer. However, it is acceptable due to the insertion of der in subject position. Example 51) and the additional examples that follow will still remain counterexamples to the surface formulation of the condition:

- e) Ham ved jeg ikke hvor er.
him know I not where is
- f) Det ved jeg ikke hvad vil sige.
that know I not what means

g) En stemme jeg ikke ved hvor kom fra...

a voice I not know where comes from...

(These examples are taken from the various Danish grammars listed in the bibliography.) This set of examples which violate the fixed subject constraint are characterized by the fact that the verb in the embedded sentence is in most cases to be, to mean, or the like. It is possible that the subjects of such verbs do not have all the properties of semantic subjects and that the fixed subject constraint should be formulated to apply only to those subjects that do.

As with the knot sentences formed out of Danish relative clauses, it is the case with those formed out of embedded questions that in all instances but the ones just mentioned the subject of the embedded clause is the questioned element and the direct object is the one extracted. I would reiterate that this is the kind of phenomenon that I believe to be independent of the general condition on extraction and hence will not deal with here.

6. It does not make sense to comment on an embedded question to the effect that it is a lie, nor is it possible to qualify the embedded question with adverbs of the sort relevant to this test. This is not due to the fact that embedded questions are subordinate in general, but rather because they are questions. Obviously simple sentences

must always be dominant -- and hence direct questions are too -- but the tests are not appropriate to questions:

a) Bill asked: "Who did it?"

* , which is a lie -- someone didn't.

b) *Who certainly did it?

7. The division made by this test between the various verbs that take embedded questions classifies the verbs into two groups quite similar to those groups defined by Permesly (1973). The complements of her nonfactives (ask, wonder, be a mystery, inquire, be unclear) can all be interpreted as being dominant. However, the complements of the wh-factives and the complements of regular factive verbs cannot be thus interpreted, as in the case of decide. Not know as distinct from know is an exception to this parallel:

Otto: Bill doesn't know who he is going to marry.

Francine: a) He does know.

b) He isn't going to marry anyone.

Not know, as well as know, both come under the rubric of "factive" in Permesly's classification. It is therefore not clear that subordination is related to nonfactivity as one would expect; it might also be that the extension of factivity to cover embedded questions made by Permesly is not the one relevant to dominance.

CHAPTER III

EXTRACTION OUT OF ENGLISH COMPLEMENT TYPES

The condition on extraction was stated in the Introduction as follows:

Extraction can occur only out of clauses or phrases which can be considered dominant in some context.

This seems to be an intuitively plausible approach. If a certain embedded sentence is subordinate -- that is, it is not what is being asserted in the sentence -- then it does not make sense to ask a question about that part of it, to make a topic of an item from within it, or to relativize it. What this theory would indicate would be that these transformations are ways of qualifying the dominant part of the sentence, the part of the sentence that conveys the central piece of information. The following more picturesque terms will also be used: A matrix which is subordinate (i.e., where the embedded clause is dominant and allows extraction) will be called a bridge. Extraction out of an island is therefore possible only across a bridge. I will elaborate in the present chapter on what is meant by "dominant in some context."

In this chapter I will systematically examine most types of complements in English and show that this condition accounts for the English facts of extraction as it did the Danish ones. The problem of double embeddings will also

be raised; it will be shown that extraction out of them is also accounted for by means of this condition. Finally, there will be a discussion of the differences between English and Danish and a brief mention of the difference between extraction as such and extraction where a pronoun has been left behind.

A) English That-Complements

i) Verbs of Saying

The following is a list of verbs of saying which take that-complements classified as to whether extraction is either acceptable, questionable, or bad according to a specific informant in the following example:

1) What did you V ((to) them) that he had done?

2) Acceptable: say, tell, report, announce.

Questionable: grunt, holler, murmur, mumble, mutter, roar, scream, shout, sigh, snort, stammer, wail, whine, tell, exclaim.

Bad: purr, snarl, editorialize, eulogize, coo, jeer, rumble, simper, lisp, quip, croak, dictate, transcribe, ululate, animadvert.

Not all the verbs are appropriate in the context of sentence

1). Sentences of the following sort could be added to show that the division of verbs is more or less correct:

3)??What did the paper editorialize that McGovern had done?

- 4)??What good deeds did the priest eulogize that the
dead man had accomplished?
- 5)??What did she purr that Fred had given her?
- 6) *What did she simper that home economics was?
- 7) *What did Abehsera ululate that macrobiotic cooking
would do for you?

For many speakers the declaratives of these sentences vary in acceptability; however, this was not the case for the specific speaker from whom the extraction facts were obtained. If one were to take out all the verbs from 2) for which some speaker could not accept the declaratives, the hierarchy of acceptability would still remain for the rest of the verbs for which that-complements were the norm.

It is not difficult to intuit the trend of acceptability in this table, although it is probably the case that speakers will differ as to the exact placement of a specific verb. Moreover, I would like to repeat that what is meant by acceptability of extraction is that it is not difficult to find a context in which a sentence structured as in 1) would be acceptable. It is therefore somewhat misleading to test all verbs with a specific sentence, but this is the only method by which any comparison can be made. It seems to be true that the verbs which mean only say and do not imply much about manner of saying are best. Questionable are those that describe more or less precisely the manner in which something is being said. When the verb used to

describe the manner of saying is somewhat rare in the context, such as coo and jeer, extraction is worse, as it is for verbs that imply the context of the saying, such as eulogize and editorialize.

As I mentioned in the Introduction, it is not possible at this stage to argue that verbs such as purr and croak are any more complex semantically than grunt and mutter, for example, or that this is the case for the specific speaker for whom the extraction facts of 2) hold. However, it is not at all difficult to argue that the set of verbs which render extraction acceptable (say, tell, announce) are all semantically simpler than the rest of the verbs in 2). Using the Barkai (1972) test, the following results are obtained:

- 8) *The said (told, announced) words were uttered in a fit of anger.
- 9) The muttered (mumbled, grunted, hollered, etc.) words were uttered in a fit of anger.

The verb report would belong in the latter sentence, since it is not at all a semantic primitive. Still, as will be shown below, the dominance test indicates that the embedded sentence of this verb can be interpreted as being dominant. No test is available to discern whether report is more or less semantically complex than the verbs which are listed under the questionable or bad rubrics in 2). However, there is no positive indication that report is

indeed more complex; hence, unless evidence is found to the contrary, it can still be maintained that there exists a correlation between that which is semantically more complex and that which is dominant.

In order to argue for the dominance condition on extraction, it suffices to show that the dominance test will predict the correct dominance relations for the verbs listed. In the Introduction dominance tests were applied to show that the complement of say can be interpreted as being dominant, that the complement of mumble cannot easily be thus interpreted, and that the complement of animadvert must inevitably be interpreted as being subordinate. The following examples indicate dominance relations for some of the other verbs:

- 10) Fred announced that Bess will certainly marry him,
but it is not at all certain.
- 11) Fred told me that Bess will certainly marry him,
but it is not at all certain.
- 12) Fred reported to me that Bess will certainly marry
him, but it is not at all certain.
- 13)??Fred exclaimed that Bess will certainly marry him,
but it is not at all certain.
- 14)??Fred yelled that Bess will certainly marry him,
but it is not at all certain.
- 15) *Fred snarled that Bess will certainly marry him,
but it is not at all certain.
- 16) *Fred lisped that Bess will certainly marry him,
but it is not at all certain.¹

The test can be continued for all the verbs listed in 2), but I will leave this up to the reader, since it does not seem that the tests and the extraction facts will differ for any one speaker. It is therefore clearly the case that when the embedded clause can be interpreted as being dominant (as in 10) and 11), for example), extraction is possible. The fact that this interpretation of dominance depends on the semantic complexity or simplicity of the matrix verb is interesting and makes some intuitive sense: one does not use a complex verb in the matrix, and proceed to ignore it. Interpreting the matrix as being subordinate in these cases would be doing just that. However, the theory of extraction does not depend on a full understanding of the relationship between semantic complexity and dominance. It hinges only on the existence of a correlation between extraction and dominance. That both the extraction facts and the dominance relations of sentences seem to correlate with the facts relevant to semantic complexity indicates that one or the other may be used to test the other. For example, one might propose that, since no cases have been found where a semantically more complex verb allows extraction out of its complement and where a semantically simpler verb does not, the extraction facts could be used to point out hierarchies of semantic complexity.

It was pointed out in the Introduction that another case where the matrix must be interpreted as being dominant is

when emphatic stress is assigned to the matrix verb. It was shown for Danish relative clauses that when the matrix verb was stressed in a case where extraction would normally be acceptable, extraction became bad, for the matrix would then be interpreted as being dominant. This fact also holds for English that-clauses. As elsewhere, when the matrix verb receives emphatic stress and the matrix must consequently be interpreted as being dominant, extraction becomes unacceptable, as follows:

17) You thought that Bill would hit Fred.

18) You [/]thought that Bill would hit Fred

19) Who did you think that Bill would hit?

20) *Who did you [/]think that Bill would hit?²

In the last example, where the matrix is interpreted as being dominant, extraction is bad.

ii) Factive Verbs

According to the analysis of dominance in the Introduction, it should follow that extraction would never be possible out of the complement of a factive verb, since such a complement will always be presupposed and hence subordinate. Although extraction is much more limited out of factives than out of nonfactives (and more limited out of emotive factives than out of nonemotive factives), it is certainly not the case that extraction cannot occur out of these complements. Therefore, something more need be said about these cases, lest they remain obvious counterexamples

to the condition on extraction proposed here. First let me list the judgments of a specific informant with respect to a large number of verbs that take that-complements. (Verbs of saying which were discussed above are now excluded from this discussion.):

21) a) This is the girl that I V that Peter likes

b) it {is adj}
V

a)

[+factive
+emotive]

hope
fear
regret
?resent
*rejoice
*exult
*grieve

[+factive
-emotive]

know
forget
take into
account
?aware
?comprehend
??make clear
??bear in mind

[-factive
+emotive]

subjunctive
(see discussion in
section E))

[-factive
-emotive]

all verbs
tested OK
(verbs of
saying
excluded)

[±factive
-emotive]

anticipate
suspect
report
remember
announce
deduce
?admit
?emphasize
?acknowledge

b)

sad
a tragedy
?alarmed me
?fascinated
me
?nauseated me
?fortunate
?a pleasure
*important
*crazy
*odd
*instructive
*sufficed
*bothered me
*exhilarated me
*surpass belief
*amuses me
*tragic
*exciting
*matters
*counts
*makes sense
*strange
*interesting

well known
clear
goes without
saying
self evident

improbable
unlikely
a pipedream
urgent
*unclear
*questionable
*impossible
*doubtful

appear
happen
possible
likely
seems
imminent

[implicatives]

?turns out
*true
*false

The following discussion concerning the verb regret should be considered as an illustrative case of a factive verb where extraction is possible out of its complement. The discussion carries over to the other verbs which belong to this group. Karttunen (1973) notes that, contrary to the normally held view that all complements of factive verbs are presupposed, many factive verbs can and frequently do take complements that are not presupposed but rather convey new information; in other words, the complements of these verbs may be dominant. The example given by Karttunen is the following (his (44)):

- 22) Jack has children and it is strange that all of them are bald.

Here it is not necessarily presupposed that all of Jack's children are bald, and hence the embedded clause can be interpreted as being dominant. The test in 20) reinforces this fact:

- 23) Bill said: "Jack has children and it is strange that all of them are bald."

- a) , which is a lie -- it isn't.
b) , which is a lie -- they aren't.

Tag b) even seems to be a slightly more natural response in this case, which means that in this context it is more natural to interpret the embedded clause as being dominant. Another such example noticed by Karttunen (person communication) is the following:

- 24) Harvard regrets that children cannot be accommodated.

This sentence can be used, as indeed it was, to inform the reader that children cannot be accommodated (in whatever available rooms during a conference), and again the dominance test shows this:

25) Bill said: "I regret that children cannot be accommodated."

- a) , which is a lie -- he doesn't.
- b) , which is a lie -- they can; special beds have been set up for them.

What this indicates is that, since regret can be used non-factively in such a way that its complement can indeed be interpreted as being dominant, then it is not at all strange that extraction can occur out of this complement. As a matter of fact, this would follow directly from the condition on extraction proposed. However, a complication arises. Consider the following sentence where extraction has occurred out of the complement of regret:

26) We discussed the issue that I regretted that I had ever thought of.

The source sentence from which extraction has occurred is the following:

27) I regretted that I had ever thought of the issue.

In 27) the underlined sentence is presupposed and hence subordinate. According to the principle that extraction is only possible out of a dominant embedded sentence, extraction should be blocked out of the underlined section of 27), and 26) should be unacceptable, which it is not. However,

it is important to note that, as was mentioned above, regret can take complements that are dominant in certain contexts. It is only out of the complements of those factive verbs which can take dominant complements that extraction can occur. In order to take this fact into account, the condition on extraction stipulates that extraction can occur out of a phrase "which can be considered dominant in some context." The condition must therefore apply as follows: extraction out of 27) will be possible according to the condition, since regret can take a dominant complement in some context. The fact that the specific complement in the context in which it occurs is not dominant is not relevant to the constraint. This, of course, is a somewhat weaker condition than one which states that extraction can only occur out of a dominant clause (i.e., the dominance must be determined in the specific context in which the sentence occurs), but due to the fact that sentences such as 26) are abundant, this stronger claim cannot be maintained and the condition proposed here is the weaker one quoted in the beginning of this chapter.

Another fact which must be mentioned is that speakers differ as to their intuitions on extraction out of the complements of these verbs. The lists in 21) were the facts obtained for one specific speaker. In order for the condition on extraction to hold, it must be the case that for that specific speaker all those factive verbs where extraction was possible

out of the complements can also be used nonfactively, and hence they can take dominant complements. It is interesting to note that it is those verbs that are semantically more complex intuitively which can never be used nonfactively by any speaker, and where extraction is therefore blocked for all speakers. An example of a so-called factive verb which can be used nonfactively by most speakers and where extraction can occur is be happy:

28) We discussed the issue that he was happy that you had understood.

29) Jack has children and he is happy that all of them are blond.

As in 22), it is possible to interpret the underlined sentence as being dominant; i.e., be happy can be used nonfactively. The condition on extraction thus predicts the acceptability of 25). Now consider the following examples:

30) *We discussed the issue that he rejoiced that you had understood.

31) *We discussed the issue that he exulted that you had understood.

Rejoice and exult both include the semantic notion be happy and are therefore semantically more complex (exult is probably more complex than rejoice). These verbs cannot be used nonfactively and extraction is blocked. I would like to point out here that, as far as I have been able to discover, it will never be the case that someone will be able to extract with rejoice, for example, and not with be happy.

This again is a further indication that the correlation between semantic complexity and dominance holds.

iii) Negation of the Matrix of That-Clauses and "Questions" that Are Not Questions

It is also interesting to investigate the influence of negation on dominance and, through it, on extraction. I would like to show that a negated matrix must be considered dominant and that therefore extraction cannot occur in such a case. Consider first the difference in the dominance relations of the following two sentences:

32) Bill said: "It is likely that he enjoys eating that stuff."

a) , which is true -- it is.

b) , which is true -- he does.

33) Bill said: "It is unlikely that he enjoys eating that stuff."

a) , which is true -- it is.

b) ? , which is true -- he doesn't.

c) * , which is true -- he does.

In 32) it is possible to interpret the embedded sentence as being dominant. The unacceptability of 33b) shows that it is more or less possible to interpret the embedded sentence as being dominant when the negation is interpreted as being within it. However, since such an interpretation is quite forced for most people, so is the interpretation of

the embedded sentence as being dominant. Example 33c) shows that, when the negation is interpreted as arising from the matrix, the embedded sentence cannot possibly be interpreted as being dominant. The extraction facts predicted by these dominance relations would be that it is generally worse to extract out of the complement of unlikely than it is to extract out of the complement of likely. For those speakers who can interpret the negation of unlikely as arising from the embedded clause, extraction should be possible; the interpretation of the extracted sentence should reflect this. These extraction facts have been found to be true:

34) What is it likely that he enjoys doing?

35) ?What is it unlikely that he enjoys doing?

These examples indicate that a negated adjective in the matrix is best interpreted as being dominant; hence, extraction is not as acceptable as when the adjective is not negated.

The following case -- which is more complicated but more interesting as well -- again leads one to argue that negation in the matrix forces dominance onto it and thus prevents extraction:

Compare the dialogues of 36) and 37):

36) Otto: When we were talking about it before, I believed that I hadn't read that book.

Francine: a) That's a lie -- you did not.

b) That's a lie -- you had so.

37) Otto: When we were talking about it before, I
didn't believe that I had read that book.

Francine: a) That's a lie -- you did.

b) That's a lie -- you had.

c) *That's a lie -- you hadn't.

The fact that the underlined sentence in 37) has two interpretations has been discussed frequently. It must be either that this sentence is synonymous to the underlined sentence in 36), or else that the matrix is negated. In 36), either the matrix or the embedded sentence can be interpreted as being dominant, which is shown by the fact that both a) and b) are appropriate. This is also the case for 37).

However, the fact that c) is inappropriate leads to an interesting point: the embedded clause cannot be interpreted as being dominant where the source of the negation is interpreted in the matrix. It is only b) -- which responds to the interpretation in which the sentence is synonymous to 36) -- where the embedded clause can indeed be interpreted as being dominant.

The following extraction facts are predicted by this analysis of dominance and the condition on extraction: Extraction should be possible both from the underlined sentence of 36) and from the underlined sentence of 37). However, the only interpretation of a sentence such as 37), in which extraction has occurred, is the one which is synonymous with 36); i.e., extraction should not be possible where it is the

matrix that is being negated. Again, the extraction facts bear out the theory:

38) I brought him the book that he believed that he hadn't read before.

39) I brought him the book that he didn't believe that he had read before.

Sentence 39) is indeed only interpretable as being synonymous to 38). It is therefore possible to conclude that extraction is less acceptable in the cases where the matrix is negated and hence dominant. A further indication that this is the correct analysis is that, with verbs where the only interpretation of the negation is on the matrix, extraction is never possible:

40) *I brought him the book that he didn't regret that he had read before.³

However, there are apparent counterexamples to this claim. Consider the following cases of extraction where the negation is interpreted in the matrix:

41) Which book did you not think that Peter had read?

42) Which book didn't you think that Peter had read?

43) Which book didn't you think that Peter had read?

These examples (with the stress as indicated) are surely acceptable. Moreover, they are certainly not perfectly synonymous with the following example, no matter how it is stressed:

44) Which book did you think that Peter hadn't read?

I would like to argue that questions such as 41) through 43) are only acceptable in a very special context. Sentence 41), for example, is appropriate only in a context where the conversants are aware of a list or series that Peter has read and are also aware that there is one specific book in that list about which doubt persists as to whether Peter has read it or not. Similar contexts are necessary to render 42) and 43) acceptable. I shall refer to these special contexts that are necessary to make certain questions appropriate as the "list" interpretations of such questions, since they all imply that the conversants are aware of such a list of facts to which the question refers. I have argued that, although extraction has clearly occurred in examples 41) through 43), extraction does not render a regular question but only a "list" question. A further argument that examples 41) - 43) are not cases of regular extraction as it has been referred to previously is the unacceptability of extraction by means of relativization in these cases:

45) *He mentioned the book which he did not think that
Peter had read.⁴

There are other cases of apparent extraction where the extraction transformation requires special contexts and hence is not considered part of the extraction transformations that adhere to the condition on extraction proposed here. Echo questions are one such case of "questions" that are not questions. Consider the following dialogue:

46) Otto: I rejoiced that he gave the present to the boy who stood in the corner.

Francine: What? Which boy did you rejoice that he gave the present to?

The underlined sentence in 46) is not acceptable unless the answer to the question has already been supplied in previous context, i.e., as an echo question.

Another kind of sentence, obviously distinct from regular questions in that it requires a highly specialized context, is the question where the answer should be obvious:

47) Teacher: Now, students, when we read The Tempest last week -- what did Miranda rejoice that Ferdinand did?

Johnny: Miranda rejoiced that Ferdinand came to the island.

48) What do you think that we've been talking about for the past couple of hours?

Neither the underlined question of 47) nor the question in 48) would be acceptable as regular questions (due to the verb rejoice and the stressed verb think taking dominance). They are acceptable only in situations where the answer should be obvious to all concerned. All extraction cases which require such special, but yet definable, contexts in order to be appropriate will be excluded from the general discussion in this dissertation, and the condition on extraction proposed is not intended to cover these cases.

It is also important to mention sentences with contrastive stress in the matrix. In these cases extraction is possible out of the embedded clause, as follows:

49) Who is it that John [not Mary] said that he saw?

One might intuitively assume that when the matrix is contrasted it must necessarily be interpreted as being dominant, and that this sort of sentence would then form a counterexample to the dominance condition. However, the following dominance test indicates that the embedded sentence of a contrasted matrix can be interpreted as being dominant:

50) Bill said: "John said that Mary saw the president."

a) , which is a lie -- he didn't.

b) , which is a lie -- she didn't.

These cases -- as opposed to sentences such as 41) through 43) -- do follow from the dominance condition proposed here.

iv) That-Deletion⁵

Before leaving English that-clauses it would be appropriate to discuss that-deletion and to examine the extent to which the presence of that makes a difference with respect to extraction and in the sentences themselves. In investigating the contexts in which that can be deleted, it soon becomes clear that deletion is possible in approximately the same contexts in which extraction is possible. However, the correlation is far from precise, as the following examples show:

- 51) *He regretted you did it.
 52) What did he regret that you did?
 53) *It alarmed me she liked it.
 54) What did it alarm you that she liked?

The correlation between that-deletion and extraction is strong enough to warrant an investigation of whether the factors that determine extraction also play a role in triggering the deletion. The following are the facts I obtained from the same informant who supplied me with the facts in 18):

55)	[+factive +emotive]	[+factive -emotive]	[-factive +emotive]	[-factive -emotive]
that → ∅	*	*	OK	OK
except:	sad odd	forget ?well-known ?clear	unlikely	

This chart indicates that that-deletion is much more dependent on factivity than extraction. The exceptions are too few to base a comprehensive discussion on, but they do indicate that the same factors that determine extraction are operative here, although to a much lesser extent. The "exceptions" among the factives (the cases where that-deletion is possible in the complement of factives) are those which are semantically more simple. The fact that that-deletion is not good with unlikely indicates that negation of this sort plays a role here too. The following are examples which bear this out:

- 56) It is likely {^{that}_∅} he did it.
 57) It is unlikely {^{that}_{* ∅}} he did it.

58) It is possible $\left\{ \begin{matrix} \text{that} \\ \emptyset \end{matrix} \right\}$ he did it.

59) It is impossible $\left\{ \begin{matrix} \text{that} \\ * \emptyset \end{matrix} \right\}$ he did it.

The verbs of saying that do not allow extraction do not allow that-deletion either:

60) He said John did it.

61) *He mumbled John did it.

This would indicate that that-deletion and dominance are interdependent to some extent. Following is a further case where this is so:

62) a) I believe right now that he did it.

b) *I believe right now he did it.

63) *This is the book that I believe right now that he read.

These examples indicate that, when the matrix is dominant, that-deletion is blocked. That is, that-deletion depends on dominance as does extraction, but it is probably the case that when that-deletion occurs, the embedded sentence must be universally interpretable as being dominant; it is not sufficient, as it is with extraction, that the embedded clause be interpretable as being dominant in "some" context.⁶

In this section I have discussed some aspects of English that-complements and facts of extraction out of them that illustrate the connection between extraction and dominance relations. I shall proceed to examine extraction out of other complement types in English along the same lines.

B) Extraction Out of For-To Infinitives

Joan Bresnan (1972) has shown that complementizers have meaning. She calls that a "definitizer" and for the "intentional" complementizer. Aijmer (1972) discusses the difference between the various complement types: "The difference between that and for follows from the analysis of cause. What causes an emotional reaction can be a specific antecedent event or an event which may or may not have occurred. The complement which indicates the cause of the emotion is an indicative that-clause or a factive gerund if the agency of cause is a specific event, and is an infinitive if the cause is an indefinite event. The infinitive which contains for in the underlying structure is a potential subjunctive associated with the presupposition that the speaker does not know whether the indicated event is actual or not." (p. 91) If the speaker does not know whether the event is actual or not, it obviously makes no sense to speak of the truth of its occurrence, and hence in our terms there is no presupposition. Even when the matrix verb is in the past tense there is no presupposition:

64) I want John to be there.

65) I wanted John to be there.

In neither sentence is it presupposed that John was there, nor is it the case that it is presupposed that John was not there. With respect to presupposition, infinitives of this sort are like nonfactive that-complements. Therefore,

the embedded part of the sentence is always interpretable as being dominant, and extraction should always be possible. This is indeed true in most cases. Some examples follow:

- 66) Who do you want him to see?
- 67) Who do you believe him to resemble?
- 68) Who did you challenge him to fight?

I have found no dominance test which can apply to these cases. Ross (personal communication) has pointed out to me that the relationship between the embedded infinitives and their matrices differs from the relationship between other embedded sentences and their matrices. In his terms, the embedded clauses can here be considered to be clause-mates of the matrices to a certain extent. (The idea that these are clause-mates may not be applicable throughout.) This is an indication that there are, semantically at least, not two sentences here but rather one. The entire sentence is therefore equally dominant, and no test can distinguish between the dominance of one part as opposed to the other. If this is true of these infinitives, extraction according to the dominance condition should be possible as it is in simple sentences.

There are, however, a few exceptions to the general rule stated for these infinitives. Some speakers can use infinitives in cases where the complement is presupposed:

- 69) It was instructive for her to emulate her teacher.

70) It sufficed for her to be there.

71) It was crazy for her to do that.

In these sentences there is the presupposition that she emulated her teacher, she was there, and she did that, respectively. In these infinitives, in which the for complementizer is present, the embedded clause is apparently not equally a clause-mate of its matrix. Hence, there is a point to analyzing their dominance relations. We would therefore predict that extraction could not occur, since the embedded clause is by definition subordinate, and this is indeed the case (even for the speakers who do get 69) - 71)):

72) *Who was it instructive for her to emulate?

73) *Where did it suffice for her to be?

74) *What was it crazy for her to do?

It seems as though some speakers are strict in their use of infinitives only for cases where the complement is not presupposed, and that, as in the foregoing cases, some speakers can extend the use of the infinitive somewhat beyond that. Consider the following sentences:

75) It would be instructive for her to emulate her teacher.

76) It would suffice for her to be there.

77) It would be crazy for her to do that.

The change of mood in these sentences also changes the presupposition, and the use of the infinitive here is "normal." Extraction is possible here, as it was in examples

66) - 68).

78) Who would it be instructive for her to emulate?

79) Where would it suffice for her to be?

80) What would it be crazy for her to do?

The conclusion to be drawn from this is that, since the mood of the matrix may change the presupposition of the embedded clause, the dominance relations of the sentence on which extraction depends are changed by it as well.⁸

Nothing special need therefore be said about infinitives, since the theory as it has been developed until now predicts the correct results. Extraction is always possible out of infinitives which are clause-mates with their matrices where the complement is not presupposed, and this is so in all but a small set of sentences.⁹

C) Gerunds

In their paper "Fact," Kiparsky and Kiparsky derive gerunds from factive that-clauses. It is indeed true that in most cases gerund complements are presupposed:

81) Paul regretted that John invited us to the party.

82) Paul regretted John's inviting us to the party.

In both 81) and 82) it is presupposed that John invited us to the party. From this alone one would predict that extraction out of gerunds is as highly restricted as it is in factive that-clauses. Some examples follow:

- 83) *Who do you regret her liking?
- 84) *Who do you rejoice about John's giving the book to?
- 85) *Peter talked to the man that John ignored her hitting.

Just as there were some cases where the infinitive was presupposed, so there are cases where the gerund is not presupposed:

- 86) a) He approves of my seeing his friends often.
 b) John disapproves of Stalin's being invited to the meeting.
 c) John anticipated her doing something about the issue.

The following appropriate continuations to these sentences indicate that the embedded gerunds in these cases are not presupposed and can be interpreted as being dominant:

- 87) a) ... but I never see them.
 b) ... and so they won't invite him.
 c) ... but she didn't.

In these cases, as the dominance condition predicts, extraction is possible:

- 88) a) Who do you approve of my seeing?
 b) Paul went to the meeting that he disapproved of Stalin's being invited to.
 c) This is the issue that John anticipated her doing something about.

Again, as changes of tense in the matrix and the embedded

clause change the presupposition, extractability changes as well.

89) a) *Who did you approve of my seeing?

b) Paul went to the meeting that he would have disapproved of Stalin's being invited to.

c) *This is the issue that John anticipated her having done something about.

Sentence 89a) is worse than 88a), since it is presupposed that I saw somebody, and thus this gerund cannot be interpreted as being dominant. Sentence 89b) is an improvement on 88b), for the counterfactual tense makes it obvious that there could be no presupposition and the interpretation of the gerund in 89b) as being dominant is more natural than in 88b). Sentence 89c) is worse than 88c), as it is presupposed that she did something about the issue.

It does not seem to be true that there are factive verbs which take nonpresupposed gerund complements, as was the case with the factive that-complements. Thus, the sentence

90) Harvard regrets children's not being accommodated. cannot be used to inform somebody that children cannot be accommodated, as was the case of the parallel that-clause. This fact accounts for the following distinction in extractability:

91) What did he regret that Paul did?

92) *What did he regret Paul's doing?

The verb regret with a that-complement can be used nonfactively;

with a gerund, it cannot. Hence, the embedded clause in 92) is subordinate in all contexts and extraction is blocked according to the dominance condition.

There are also gerund complements with no overt subject in the complement:

93) Paul regretted inviting us to the party.

This sentence is derived by Equi from

94) Paul_i regretted his_i inviting us to the party.
which is an equally acceptable sentence for some speakers.
Interestingly enough, extraction is much improved in many cases of gerunds without overt subjects:

95) Who did Paul regret inviting to the Party?

96)??Who did Paul_i regret his_i inviting to the party?

97) *Who did Paul regret John's inviting to the party?

For the speakers that get 94) as an acceptable sentence (under the interpretation that the subject of the gerund refers to the subject of the sentence), extraction out of it is much worse than extraction where Equi has occurred, as in 96). Extraction with a non-coreferential subject in the gerund complement (where the gerund is also presupposed) is totally blocked. The Specified Subject Constraint was proposed by Chomsky (1971a) to account, among other phenomena, for the distinction between sentences such as 97) on the one hand, and sentences such as 95) on the other:

98) (Chomsky's (123))

No rule can involve X, Y (X superior to Y) in the structure ...X... [α ...Z... -WYV...]...

where (i) Z is the subject of WYV and is not controlled by a category containing X ...

The relevance of this condition to the gerunds cited above depends on a specific analysis of gerunds proposed by Williams (1971), in which the gerund complement has no complementizer. Extraction out of a gerund would have to occur directly to the COMP node of the matrix and would be blocked in those cases where the subject of the gerund was not controlled by the subject of the matrix, as in 97).

This analysis would presumably also explain the fact that extraction out of some subjectless gerunds is less acceptable than others. For example:

97)??Who do you disapprove of giving presents to?

In the source

100) You approve of someone's giving presents to X.
the subject of the gerund is not controlled by the subject of the matrix as in 95), and extraction is therefore less acceptable. However, several problems arise in this analysis. Sentence 96), in which the same control relationships hold as in 95), should be quite acceptable; yet this is not the case for those speakers who do get 94). Another problem in this analysis involves the question of tense. It is not clear whether gerunds should be considered tensed or tenseless. In one case, the Tensed-S Constraint (cited in Chapter 1), together with the Specified Subject Constraint, would

predict that extraction would be blocked in all instances like 97) and 99) and possible in all instances such as 95) and 96). In the other case, the prediction would be that extraction would be blocked in all cases of gerunds. Neither prediction, as we have seen, reflects the facts.

Similar problems arise from the dominance condition. This condition would predict that extraction in examples 95) to 97) would be equally bad, since the embedded gerund is presupposed and hence subordinate in all three cases.

However, it is only this theory which correctly predicts the facts presented in the examples 83) through 85), 88) and 89). But some additional condition is necessary to account for the acceptability of extraction out of certain subjectless gerunds. It is possible that the Specified Subject Constraint could be amended to cover these facts sufficiently. I shall return to a discussion of the Specified Subject Constraint with respect to a different set of facts in Chapter IV.

In this section it was argued that the dominance condition correctly predicts those cases of full gerunds (those with overt uncontrolled subjects) where extraction is possible. However, it was suggested that an additional condition, possibly an amended version of the Specified Subject Constraint, was necessary to account for the possible extraction in those cases where no overt subject is present in the gerund and where it is controlled by the subject of the matrix. In

Chapter IV, some other cases which under Chomsky's theory would be covered by the Specified Subject Constraint will be analyzed, and an alternative analysis based on dominance relations will be proposed there. It is possible that such an analysis will also be relevant for gerunds.

D) Embedded Questions

In contrast to Danish, extraction out of English embedded questions is generally not acceptable. However, a few examples have been mentioned in the literature. In Kuno and Robinson (1972), the following examples were found (p. 16):

- 101) This book, I am not sure whether or not I should read.
- 102) That book was written by John Anderson. This book, I don't know who has written.
- 103) This is something that I don't know what I should do about.

Many speakers do not find these facts at all acceptable. The reason they are presented here is that it is interesting that, for those speakers who can extract out of some tensed embedded questions, the examples follow the Danish pattern. However, since these are rather marginal cases, I shall not present a detailed discussion of them here.

There is a set of English embedded questions out of which

extraction can occur with somewhat more ease than out of the regular embedded questions. These are the infinitival embedded questions, for which there is no equivalent in Danish. They differ from regular embedded questions in a way similar to that in which infinitives differ from that-clauses: the embedded clause is not presupposed. In this section I shall attempt an analysis of the dominance relations of infinitival embedded questions and of the relevant extraction facts.

The first point to be noticed is that extractability differs depending on what is being questioned in the embedded clause:

- 104) This is the problem that she didn't know how to solve.
- 105) ?This is the thing that he didn't know where to put.
- 106) ?These are the vegetables that he didn't know when to harvest.
- 107) *This is the party that he didn't know whether or not to go to.
- 108) *This is the guy that she didn't know what to give.
- 109) *This is the book that she didn't know who to give (to).

The following test has been devised to define the dominance relationships in these sentences:

- 110) Otto: When Bill asked you how to write the letter, what did you say?

Francis: a) He did not ask me.

b) I didn't know how.

111) Otto: When Bill asked you where to put the treasure,
what did you say?

Francine: a) He did not ask me.

b) ?I didn't know where.

112) Otto: When Bill asked you when to plant the
vegetables, what did you say?

Francine: a) He did not ask me.

b) ?I didn't know when.

113) Otto: When Bill asked you who to invite to the
party, what did you say?

Francine: a) He did not ask me.

b) *I didn't know who.

114) Otto: When Bill asked you what to give him for his
birthday, what did you say?

Francine: a) He did not ask me.

b) *I didn't know what.

Some speakers find 112b) preferable to 111b). The same speakers find 106 preferable to 105). Whether or not the b) sentences in these cases are acceptable depends on the possibility of deleting the latter part of the sentence. In all the b) sentences it is possible to respond with a full sentence. For example, instead of 113b), it is possible to respond: "I didn't know who to invite to the party." It is only when the underlined part of this sentence is deleted that the sentence becomes unacceptable. The point to this test is this: such deletion can only occur under identity with the part of the sentence which is dominant.¹⁰

It is not at all clear why it should be the case that, when the manner of doing something is being questioned, the embedded sentence can be interpreted as being dominant, whereas when the agent of doing something is being questioned, the embedded sentence must be interpreted as being subordinate. However, the test clearly shows that this is the case, and the dominance condition thus predicts the correct facts.

It is also true for infinitival embedded questions in English that extraction is not equally acceptable for all matrix verbs. One speaker found the following distribution of verbs:

115) I showed him the problem that he V how to solve.

asked me
wondered
didn't know
?was unclear

knew
told me
showed me
?had decided
?found out
??taught me
*predicted

These facts show that the distinction between wh-factives and nonfactives, a distinction which played a role in determining the dominance-extraction relation for Danish embedded questions, is neutralized in embedded infinitival questions. The verbs above the line were all classified as being nonfactives, and the verbs below the line are all wh-

factives. Within each group, however, it seems intuitively to be the case that the semantically more simple forms are the ones that allow extraction. Since these verbs do not include each other in a linear fashion, this intuition cannot be proved. The dominance tests will show that the verbs lower down on each list are the ones for which an interpretation of the embedded sentence as dominant is less likely. A few such tests follow:

116) Otto: When Bill asked you how to solve the problem,
what did you say?

Francine: a) He didn't ask me.

b) I didn't know how.

117) Otto: When it was unclear how to solve the problem,
what did you say?

Francine: a) It wasn't unclear.

b) ?I didn't know how.

118) Otto: Bill knows how to solve the problem.

Francine: a) That must be a lie -- he doesn't.

b) That must be a lie -- it has no
solution.

119) Otto: Bill predicted how to solve the problem.

Francine: a) That must be a lie -- he didn't.

??b) That must be a lie -- it has no
solution.

The tests of 117) and 118) indicate that the embedded clause of be unclear is less likely to be interpreted as being dominant than that of ask, which correctly accounts for the

fact that extraction is worse in the former case. Sentence 118) shows that the embedded clause of predict is naturally interpreted as being subordinate, whereas 118) shows that the embedded clause of know can also be interpreted as being dominant. Hence, extraction in the latter case is better.

The discussion of infinitival embedded questions has illustrated once again that a seemingly erratic distribution of extraction facts is connected with the dominance relations in these sentences. Although it is not always explicable why certain embedded sentences can be interpreted as being dominant while others cannot, the dominance tests, indicating at least where dominance can be found, correctly predict the extraction facts.

E) Subjunctive Complements

There are a number of other kinds of embedded sentences which have not been mentioned. Subjunctive complements will be discussed here, and for all other complement types the same explanation for extractability will be assumed to apply.

The subjunctive need not be examined at very great length. Here it is never the case that the embedded clause is pre-supposed, and the embedded clause can be interpreted as being dominant. The interjection test mentioned in the Introduction

shows this to be true for a couple of examples:

120) Ah, it's urgent that he talk to Bill!

121) Ah, he proposes that you be a nurse for a living!

The interpretation of 120) can be that "it's significant that he talk to Bill." Likewise, the interpretation of 121) can be that "it's significant that you be a nurse for a living." The fact that these interpretations are possible indicates that the embedded subjunctives can be interpreted as being dominant. Hence, extraction is generally possible.

122) Who was it urgent that he talk to?

123) I'll introduce you to the man that it is essential that you meet.

124) Where does he require that you be tomorrow?

125) What does he propose that you do for a living?¹¹

F) Chopping versus Copying

One issue which should be mentioned here is that of the difference between extraction as it has been described here and extraction where a pronoun is left behind -- the difference between a chopping and a copying rule in Ross' terms. In English it is frequently the case that a pronoun can be left in place of the extracted NP. For example:

126) ?I read the book that Gladys asked me who had written it.

127) *I read the book that Gladys asked me who had written.
Extraction in 127) is not acceptable, but leaving the

pronoun as in 126) helps. (Let us term extraction with a pronoun left behind "extraction with a trace.") I have not made a thorough investigation of pronoun extraction in either Danish or English, but the following generalizations can be made. When regular extraction is blocked -- that is, when the matrix is not a bridge -- pronoun extraction will be resorted to by speakers, especially if the sentence is of a certain length. Another example follows:

128) I remembered to give Eloise the mattress that I forgot who left it behind in the street.

129) *I remembered to give Eloise the mattress that I forgot who left behind in the street.

Examples from Danish:

130) I er nogle uartige t~~ø~~se at tale saadan om en, I ikke er vaerd{^{*Ø}_{han}} skulde se paa jer.
You are some naughty girls to talk so about one,
you are not worth he should look at you

131) ... den store, straalende og elskede helt, som var uden frygt og dadel i deres øjne, men som jeg kendte og nok vidste om, at{^{*Ø}_{de}} gik med vat i skuldrene.
... the big, shining and beloved hero who was without fear and blame in their eyes but whom I knew and sure knew about that they went with cottonwool in the shoulders.

(Examples from Hansen (1967) I, p. 106)

However, both in Danish and in English pronoun extraction is usually blocked when regular extraction is possible:

English:

132) *What did he regret that you did it?

133) What did he regret that you did?

Danish:

134) *Gustav fortalte hun at ingen mennesker havde hørt et ord fra ham.

Gustav related she that no people had heard a word from him

(She related that nobody had heard a word from Gustav)

135) Gustav fortalte hun at ingen mennesker havde hørt et ord fra.

Gustav related she that no people had heard a word from

136) *Idealet ved jeg at jeg aldrig naar det.

the ideal know I that I never reach it

137) Idealet ved jeg at jeg aldrig naar.

the ideal know I that I never reach

From these sorts of facts I have concluded that, whereas extractability is determinable by means of the factors discussed here, no parallel factors can be listed to account for pronoun extraction. The latter is in the nature of a strategy used by a speaker who is in the midst of uttering a sentence which would (a) be otherwise unacceptable in terms of the condition on extraction, and (b) also difficult to interpret.

This conclusion, if further investigated, could turn out to be the correct generalization to account for pronoun extraction in Danish and English where leaving pronouns behind is a restricted phenomenon, as was illustrated by 132) - 137). However, in Swedish, which is closely related to both these languages, sentences similar to 134) and 136) are perfectly acceptable. Swedish uses pronoun extraction to a greater extent, thus extending the cases where topicalization, questioning, etc., are possible out of certain complements, without using regular extraction in these cases. It seems that in Swedish, pronoun extraction is used in many cases where only regular extraction is possible in Danish. In order to reach a conclusion with respect to pronoun extraction, it might be profitable to make a complete comparison of Danish and Swedish on that point. Such a comparison is beyond the scope of the present work, however.

G) Double Bridges

So far only simple embeddings with one sentence embedded in one matrix have been discussed. An examination of double embedding shows that no new factors need be introduced to account for them.¹² The following sentences were tested:

138) *Who did you regret that the police had forgotten
that John had shot?

139) *Who did you { regret
forget } that the police thought that
John had shot?

140) ?Who did you {believe
think} that the police {had forgotten
regretted}

that John had shot?

141) Who did you believe that the police thought that
John had shot?

The following chart shows the correlations between factive verbs and acceptability:

142)	*	+factive	+factive	(138)
	*	+factive	-factive	(139)
	?	-factive	+factive	(140)
	OK	-factive	-factive	(141)

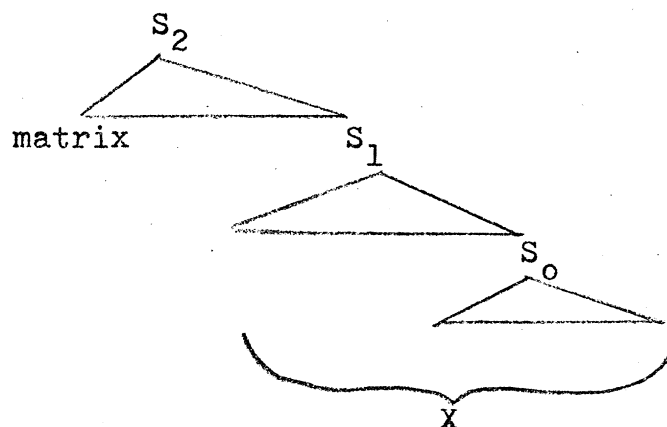
It is not difficult to perceive that, since both complements are presupposed in 138), extraction according to the condition is blocked and that, since neither complement in 141) is presupposed, extraction is permissible. The interesting point is found in the distinction between 139) and 140). Examining 139), one finds that, due to the fact that the upper verb is factive, the whole rest of the sentence is presupposed, in spite of the lower verb's being nonfactive. Thus in 141) it is presupposed that the police thought that John had shot someone. In 140), however, where the non-factive verb comes first, the presupposition is only that John had shot someone.

Consider now the results of the following dominance test mentioned in the Introduction. The examples below are ordered according to the factivity chart of 142), but different examples were tested.

- 143) *Fred knows that Bess probably regrets that he'll marry her, but I am sure he won't.
- 144) *Fred knows that Bess doubtlessly thinks that he will marry her, but I for one have my doubts.
- 145) ??Fred thinks that Bess certainly knows that he will marry her, but it is not at all certain.
- 146) Fred believes that Bess probably thinks that he'll marry her, but I am sure he won't.

According to the results of the test, the facts of 138) - 141) are predicted if the section of the following tree marked X is considered to be "the embedded sentence":

147)



What this implies is that it is not sufficient that S_0 be dominant with respect to S_2 , or that S_1 be interpretable as being dominant with respect to S_2 in order for extraction to be possible. This means that, for purposes of extraction, one cannot look at dominance in a cyclical manner; rather, one must have as input to the dominance condition the dominance relationship between all of S_1 and its matrix. This fact will be used in Chapter V as an argument that the dominance condition must be stated on the surface.

H) Danish versus English

I have demonstrated that the same condition determines the possibility of extraction out of embedded sentences in Danish and English. I shall now try to provide an explanation for the fact that Danish allows extraction out of many more embedded sentences than does English. It becomes clear from testing a very small set of sentences within either of these languages that people differ as to the "extent" of their bridges; bridges must therefore be defined for each idiolect. However, since the grammars of Danish and English are very similar in other respects, it is highly peculiar that extraction should be so free in Danish, while being restricted in English: within the verbs that take that-complements, Danish goes farther down the list for those that allow extraction. Extraction out of embedded questions is quite free in Danish, whereas it is limited to a very small set of infinitival embedded questions in English; and Danish allows extraction out of certain relative clauses, while English does not. This last generalization reveals an interesting point, which was referred to in Chapter II and which I repeat here for convenience:

- 148) a. *This is the kind of weather that there are
many people who like.
- b. **This is the kind of weather that I know many
people who like.
- c. ***This is the kind of weather that he made fun of
many people who like.

Sentence 148a) does not seem to be quite as bad as 148b), which in turn is better than 148c). It was pointed out that the first two are quite comprehensive to most people and that it might make sense to say that there is an incipient bridge here in English. One could say, then, that the set of potential bridges in English and Danish are very similar, but that more of them are used by speakers of Danish than by speakers of English, the set of potential bridges in a language being the set of matrices that have embedded sentences which can be interpreted as being dominant. (However, one Dane might avail himself only very little of the Danish potential, to the extent that his facts are comparable to those of the average English speaker. On the other hand, a given English speaker may fulfill the English potential to a large extent, so that his use of bridges mirrors that of an average Danish speaker.) There is one difference between Danish and English which might explain this. The rule of topicalization in Danish is used quite frequently, while in English it is a very "weak" rule.¹³ Imagine a particular stage in the development of the two languages. People started extracting out of that-complements, for example, in both languages. Extraction occurred by means of relativization, questioning and topicalization, let us say, but in English topicalization was very weak. So for each three opportunities of extraction in Danish, English had only two. To speak figuratively, bridges became more travelled on in Danish than in English, and hence more

bridges were used. The only way to prove this analysis to be true would be to find evidence of such a development in the histories of the two languages or to make the prediction that English, if it develops further in this respect, will follow essentially the Danish path.

The only other difference between Danish and English which might be relevant in explaining the fact that the two languages differ with respect to extraction is the Danish marker der, which is inserted in subject position of relative clauses (alternating with the complementizer som), and inserted also in embedded questions, where it co-occurs with the hv-(wh-)complementizer. The presence of this subject marker limits potential ambiguity. The following sentence can only be interpreted to mean that the object is questioned in the embedded clause and that the subject has been extracted:

149) Sort ved man hvad er.

black knows one what is

This case differs from the following example, where the subject has been questioned in the embedded clause and the object is extracted:

150) Den bog ved han ikke hvad der staar i.

that book knows he not what there stands in.

(He does not know what is written in that book)

The morphological fact that the subject marker der exists in Danish but not in English is a possible source of the

extensive possibility of extraction in Danish. However, this fact cannot entirely be the cause of the difference between the two languages, for extraction is possible in Danish out of relative clauses with the relative pronoun som:

151) Her har jeg en onkel som bor.

Here have I an uncle who lives

(I have an uncle who lives here)

Moreover, a morphological distinction does exist in English as well which indicates whether a subject or object, as the case may be, has been relativized or questioned: this is the distinction between who and whom. If the presence of der were a determining factor for extraction, one would expect that those speakers of English who make the distinction between who and whom would be able to extract consistently out of more clauses than those that do not distinguish between these pronouns. This, however, is not at all the case. Probably it is both this factor and the fact that topicalization is such a prevalent rule in Danish which play a role in determining the extent to which a language fulfills its extraction potential.

One serious problem with this explanation is that such explanations should be true of other similar languages which differ with respect to extraction. German is such a language. According to an extremely rough investigation, it seems to be the case that topicalization is a strong rule in German, which also has a case distinction between the various rela-

tive pronouns. Extraction, however, is more severely limited in that language than in Danish, and perhaps more limited than English as well. Yet it is possible that there are other factors in German which account for the fact that extraction is not as prevalent as in Danish and English. Until a thorough investigation of German is made, it will remain unclear what the factors are that determine the extent to which a language fulfills its extraction potential, and only the following tentative claim can therefore be made here: In every language there is a set of embedded sentences which can be interpreted as being dominant. Extraction in each language will occur only out of a subset of this set. The size of the subset may depend on factors such as, for example, the prevalence of rules of extraction in the language under investigation.

* * *

In this chapter, English complement types have been the chief topic of discussion. It has been argued that certain complement types are easily interpreted as being dominant, whereas others cannot be thus interpreted. Within the various complement types, cases have been cited where the embedded sentence could only be interpreted as being subordinate and where extraction could therefore not occur, according to the dominance condition. Other cases have been cited where the embedded sentence could be interpreted as

being dominant, and it has been shown that extraction was indeed possible there. Also examined were: (1) the frequent connection between negation and dominance; (2) the fact that certain extraction transformations lay beyond the reach of the dominance condition, since these differed systematically from the extraction transformations for which the condition was intended to account; (3) double embeddings; and (4) a clarification of the differences between Danish and English with respect to extraction.

FOOTNOTES

CHAPTER III

1. It was pointed out to me by Liberman that, in a sentence such as 16), if it is common knowledge that Fred has a lisp then the test in 16) is much improved. In this sense the verb lisp is used merely to mean say -- or rather, to say in Fred's normal manner. One might therefore conclude that the verb lisp is here stripped of much of its meaning and it is almost as semantically simple in this context as say. This fact is also apparent for the evidence of extraction. In the following sentence extraction is more acceptable than in 2), since it is common knowledge that Truman Capote has a lisp:

?What did Truman Capote lisp that he'd do?

It is therefore the case that both the dominance tests and the extraction facts distinguish in the same way between the usual uses of these verbs and the uses in which it is accepted by speaker and hearer that this is the individual's normal way of speaking.

2. There is one sense in which 20) is perfectly acceptable. In this sense the request for information implicates that Bill has hit somebody. This kind of interpretation will be called a 'list' interpretation and will be further discussed in III a) iii).

3. There are instances like 40) which are quite acceptable, as was pointed out to me by Liberman. For example, consider the following sentence:

This is the book that I don't regret having read twice.

In this case the outside negation coalesces with the verb and is interpreted with a positive force. Thus not regret here means something like be happy.

4. Some speakers do get an interpretation for 45). However, this sentence is often only appropriate for those speakers in a context where the speakers are aware that a list of books that Peter has read exists, and where there is one book he has not read. This means that, for some speakers, relativization as well as questioning can render "list" interpretations.
5. I do not take a stand as to whether that is deleted or inserted in these cases. For the sake of simplicity, I shall term "that-deletion" all instances where that is not present on the surface.
6. Kiparsky pointed out the following point to me: Unlike extraction, that-deletion is a governed rule which does not operate across variables. It seems to have been "grammaticalized" to some extent. This is, incidentally, quite similar to what happens in sound change.

7. Joan Bresnan distinguishes between the structures of these three examples. I have found no difference between the for-to complement and the bare-S infinitives with respect to presupposition, except for the fact that all cases where extraction is blocked out of infinitives arise from the former kind.
8. There are speakers who do approve of at least a subset of sentences such as 75) through 77), where the embedded sentence is presupposed, who can also extract out of these sentences. It is not quite clear whether these same speakers can or cannot interpret these embedded clauses as being dominant. If they cannot, these speakers would provide a dialect which stands in contrast to the theory proposed here. It is interesting to note that this dialect is in line with a structural analysis of extraction, whereas the dialect analyzed in the text is not and is the one which provides evidence for the dominance condition on extraction.
9. I might venture an explanation for the fact that some speakers can use the infinitive with complements that are presupposed as in 69) - 71): All speakers get the sentences 75) - 77), in which the use of the infinitive is usual -- that is, where the complement is not presupposed. It takes some linguistic insight to discern that the two sets of sentences are different and hence the use of the

infinitive carries over from one set to the other. This explanation would indicate that recognition of presupposition is not an inherent part of the competence of all speakers, or else that the expression of presupposition in actual terms (such as use of complement types) is not that precise.

10. This test correctly determines that a direct question is dominant:

Otto: Who is coming?

Francine: I don't know who.

It would be worthwhile to investigate further the idea that deletion transformations might be dependent on dominance relations as well.

11. It is interesting to note that, contrary to one's expectations, the complementizer that is obligatory in these cases. In the regular tensed that-clauses, that was generally deletable in nonfactives; in other words, more or less in those cases where extraction was also possible. Here extraction is possible, but that-deletion is not. No explanation has been found for this fact.

12. Triple embeddings cannot be examined with any real results, since nobody has any intuitions about them. Consider, for example: Who did he know that Peter regretted that John believed that Mary liked? Compare this sentence

to: Who did he believe that John knew that Peter regretted that Mary liked?

13. This is not meant in Ross' hierarchical sense, since I do not think that rules can be put in a fixed hierarchy of strength. In spite of the fact that topicalization is a weak rule in English, there may be cases where it is possible to topicalize out of a specific embedded sentence, where questioning, for example, fails. What I mean, then, is that speakers of English do not frequently avail themselves of the rule of topicalization, whereas speakers of Danish do.

CHAPTER IV

EMBEDDED NOUN PHRASES

A) Picture Nouns

Consider the following data:

- 1) Who did you see pictures of?
- 2) Who did you see a picture of?
- 3) ?Who did you see the pictures of?
- 4) *Who did you see John's pictures of?

These facts are by no means new, and have been mentioned among other places in Chomsky (1971a). The following account of the distribution of facts was given: Sentence 4) was blocked by the Specified Subject Condition (quoted in Chapter III C); John is the specified subject in this case).¹ Chomsky adds in a note that sentences such as 3) are intermediate in acceptability to 1) and 4). Chomsky proposes to include [+definite] in the Specified Subject Condition. This inclusion would predict that 4) would be less acceptable than 3), since the former involves a double violation of the constraint.

In this chapter I will elaborate on this latter point and try to show that the distinction of definiteness is relevant to extraction out of these "picture noun phrases" in the same way that presupposition was relevant to extraction out of embedded sentences. As was mentioned in the Introduction,

both presupposed embedded sentences and definite noun phrases are subordinate, according to the definition of dominance. In addition, the dominance relations of the sources of such sentences as 4) will be examined; it will be argued that the dominance condition will correctly block extraction in this case, and that it will also account for cases for which the Specified Subject Condition is inadequate.

For the sake of convenience, let me repeat the dominance test for the source sentences of 1) through 3):

5) Tom said: "You saw pictures of Otto."

- a) , which is a lie -- I didn't.
- b) , which is a lie -- such pictures don't exist.

6) Tom said: "You saw a picture of Otto."

- a) , which is a lie -- I didn't.
- b) , which is a lie -- such a picture doesn't exist.

7) Tom said: "You saw the picture of Otto."

- a) , which is a lie -- I didn't.
- b) * , which is a lie -- such a picture doesn't exist.

The test clearly shows that the phrase "picture of Otto" can be considered dominant in 5) and 6), but not as easily in 7). The facts of 1) through 3) are therefore correctly accounted for by the dominance condition.

Some speakers find 2) highly preferable to 1). The reason for this seems to be quite simple, namely that they find the source sentence of 1) -- which is sentence 5) -- implausible in itself, it being harder to find a relevant context for it than for 2).

It remains to analyze the dominance relations of the source of 4). Consider the results of the following test:

- 8) Bill said: "Peter saw a picture of Mary's husband."
It's a lie -- a) he didn't see it.
b) Mary isn't married.
c) No such picture exists.
- 9) Bill said: "Peter saw the picture of Mary's husband."
It's a lie -- a) he didn't see it.
b) *Mary isn't married.
c) *no such picture exists.
- 10) Bill said: "Peter saw Picasso's picture of Mary's husband."
It's a lie -- a) he didn't see it.
b) *Mary isn't married.
c) no such picture exists.

I would like to argue that the unacceptability of denying the existence of Mary's husband is an indication that "picture of Mary's husband" cannot be interpreted as being dominant in 10) (as well as in 9)) as it can in 8). What is dominant in 10) is that the picture is by Picasso; "who" the picture "is of" must be interpreted as being subordinate. In other

words, the phrase out of which extraction is to occur is subordinate, and thus according to the dominance condition, extraction must be blocked.

Since the Specified Subject Condition can account for the unacceptability of 4) equally well, and since some form of this condition was found to pertain for gerund complements, it must be shown that there are cases of extraction out of picture-noun phrases which can be accounted for by the dominance condition and which cannot be readily accounted for by the structural condition. Notice the following paraphrases of 11):

- 11) John saw Picasso's drawing of Apollinaire.
- 12) John saw a drawing by Picasso of Apollinaire.
- 13) John saw a drawing of Apollinaire by Picasso.
- 14) John saw a Picasso of Apollinaire.²
- 15) John saw a drawing that Picasso has of Apollinaire.
- 16) John saw a drawing of Apollinaire that Picasso has.

Extraction is equally bad out of all the paraphrases:

- 17) *Who did John see Picasso's drawing of?
- 18) *Who did John see a drawing by Picasso of?
- 19) *Who did John see a a drawing of by Picasso?
- 20) *Who did John see a Picasso of?
- 21) *Who did John see a drawing that Picasso has of?
- 22) *Who did John see a drawing of that Picasso has?

The Specified Subject Condition as it stands would exclude only the first of these. But Chomsky notes, with respect

to some completely different facts, that it may be that the condition should be formulated as a "specified agent" condition rather than one which involves the formal subject (Chomsky 1971a), p. 33). Such a rewriting of the condition would be a rather natural way of accounting for 18) through 20) (in addition to 17)); however, it would not be sufficient to account for 21) and 22), nor could it account for 17) under the interpretation that Picasso is the possessor.

It remains to be shown that it is indeed true that the dominance relations of sentences such as 12) through 16) (the dominance relations for a case like 11) were examined in 10)) are such that the phrase "picture of X" is not dominant in any of the examples, and hence that the dominance condition applies correctly where the Specified Subject Condition fails. The following test (the same as used in 10)) shows that the dominance relations of 12) through 16) are the same as those of 11):

- 23) Bill said: "John saw a drawing by Picasso of Mary's husband."

It's a lie -- a) he didn't see it.

b) *Mary isn't married.

- 24) Bill said: "John saw a drawing of Mary's husband by Picasso."

It's a lie -- a) he didn't see it.

b) *Mary isn't married.

25) Bill said: "John saw a Picasso of Mary's husband."

It's a lie -- a) he didn't see it.

b) *Mary isn't married.

26) Bill said: "John saw a drawing that Picasso has of Mary's husband."

It's a lie -- a) he didn't see it.

b) *Mary isn't married.

27) Bill said: "John saw a drawing of Mary's husband that Picasso has."

It's a lie -- a) he didn't see it.

b) *Mary isn't married.

Notice, moreover, that the following quite erratic facts can also be accounted for in the same manner:

28) ?Who did you see a picture of yesterday?

29) *Who did you see a picture of at midnight?

30) ??Who did you find a picture of near the river?

31) ?Who did you see a picture of?

32) Who did you see?

33) *Who did you find a picture of to be for sale?

34) *Who did you give a book about to John?

35) *Who did you give John a book about?³

The relevant tests for 28) through 31) follow:

36) Bill said: "John saw a picture of Mary's husband yesterday."⁴

??It's a lie -- Mary isn't married.

37) Bill said: "John saw a picture of Mary's husband at midnight.

*It's a lie -- Mary isn't married.

38) Bill said: "John found a picture of Mary's husband near the river."

*It's a lie -- Mary isn't married.

39) Bill said: "John saw a picture of Mary's husband."

It's a lie -- Mary isn't married.

40) Bill said: "John saw Mary's husband."

It's a lie -- Mary isn't married.

The test works slightly better for 40) than for 39), which is why 31) seems to be a slightly more natural question than 30). In 29) and 30) the specific time and place adverbials, respectively, take dominance; the picture noun phrase in that case cannot be interpreted as being dominant at all, as 37) and 38) show. (This is true to a lesser extent of the second example.) The same can be said for 28), but to a lesser extent, due to the less specific time adverbial. The following test shows that the picture noun phrase of 33) cannot be interpreted as being dominant either:

41) Bill said: "John found a picture of Mary's husband to be for sale."

*It's a lie: Mary isn't married.

Again, the final clause of the sentence takes dominance (witness the possible correct response: It's a lie -- it isn't for sale), and the picture noun phrase cannot itself take dominance. This explains the unacceptability of 33). It seems to be true, then, that the end of the sentence is very likely to take dominance; therefore, when the picture noun phrase is not sentence-final, it is not dominant and

extraction according to the dominance condition is blocked.

The relevant tests for 34) and 35) follow:

42) Bill said: "Tom gave a book about Mary's husband to John."

*It's a lie -- Mary isn't married.

43) Bill said: "Tom gave John a book about Mary's husband."

*It's a lie -- Mary isn't married.

In neither of these cases is the picture noun phrase dominant, and in neither case is extraction possible. This is an indication that it is not sufficient to posit some constraint to the effect that the picture noun phrase must be sentence-final in order for extraction to occur. The dominance relations of these sentences are not simple enough for such a rule to account for the facts.

So far in this section, I have argued the following points:

(1) that, with a correct analysis of the dominance relations in picture noun phrases, the dominance condition correctly predicts the distinction in extractability between indefinite and definite cases; (2) that the condition accounts for all the facts which could be accounted for by a Specified Subject Condition; and (3) that it accounts for a number of seemingly erratic facts for which no other systematic account has to my knowledge been found.⁵

Another indication that it is dominance relations which determine facts relevant to picture noun phrases is that semantic complexity plays a role here as well. The following facts were provided by a native speaker of English:

44) Who did John paint pictures of?

draw
see
find
like
begin
?comment on
*destroy
*tear up

45) Who did John read a book about?

illustrate
comment on
see
like
publish
begin
outline
dictate
?type
?make a cover for
?copy-edit
*destroy
*tear up

I will give a pair of dominance tests to show that, once again, it is dominance relations which determine extraction. Similar tests could be set up for all the examples in 44) and 45).

46) Bill said: "John painted a picture of Mary's husband."

It's a lie -- Mary isn't married.

47) Bill said: "John tore up pictures of Mary's husband."

*It's a lie -- Mary isn't married.

A proof that all the verbs for which extraction is less acceptable are more complex than those verbs for which extraction is good will not be attempted. In order to

conclude that the dominance condition is correct, it is sufficient to show that, where extraction is unacceptable, the picture noun phrase cannot be interpreted as being dominant. However, since it is interesting that certain verbs do not allow the interpretation in which the picture noun phrase is dominant, some discussion of this point might be worthwhile. The following two cases are a clear indication that it is semantic complexity which is at stake.

48) a) Who did you give John a picture of?

b) ??Who did you hand John a picture of?

49) a) Who did you see a picture of?

b) *Who did you glimpse a picture of?

In each instance it is not difficult to argue that the verb in the a) sentence is more simple than the verb of the b) sentence (to hand is to give, but *to give is to hand; to glimpse is to see, but *to see is to glimpse). The notion of semantic complexity is here put to an interesting use. In considering the verbs of 44) and 45) which allow extraction, one finds that in these cases there is an intrinsic connection between the main verb and its object. If the object is picture, for example, the main verb must have something to do with the creation of the picture (such as paint, draw, etc.), or else the verb describes a simple connection between the subject and the picture, such as see it or like it. This action must be immediately relevant to pictures; e.g., you normally see and like pictures, just as you normally read or like books, whereas you don't

normally tear either of them up.⁶ So the way semantic complexity can be examined here may be as follows: ask the question -- what does one do to (or with) pictures? The simplest verbs describing the answer to this question will allow for the picture noun phrase to be dominant, and hence allow extraction, which the more complex ones will not.⁷

After having shown that the condition on extraction correctly accounts for extraction out of picture noun phrases which have indefinite articles or definite articles, which have specified subjects or which are followed by material which is interpreted as being dominant, it was also demonstrated that the nature of the verb determines the possibility of interpreting the picture noun phrase as being dominant, and thus also determines extraction according to the dominance condition.

B) Complex That-Clauses

In the discussion of that-clauses in Chapter III a treatment of that-clauses with head nouns was omitted. In this section an attempt will be made to account for the following hierarchy of acceptability of extraction out of such complex noun phrases.

50) What did she claim that he had done?

51) ?What did she make the claim that he had done?

52) *What did she discuss the claim that he had done?

53) *What did she discuss the fact that he had done?
 The unacceptability of sentences such as 52) and 53) would be adequately accounted for by the Complex Noun Phrase Constraint or by the set of conditions set up in Chomsky (1971a). These conditions were found to be lacking in several respects, and the dominance condition was proposed instead. A tentative attempt to explain the questionability of 51) was made in Ross (1967).⁸ I would like to argue here that, just as the dominance condition on extraction predicts the extraction facts out of relative clauses, it also correctly predicts the facts of 50) through 53).

To begin with, I would like to discuss the difference between the following sentences:

54) I regret that she will be present at the meeting.

55) I regret the fact that she will be present at the meeting.

It will be argued that, whereas the complement of regret can be interpreted as being dominant in sentences such as 54), it can only be subordinate in sentences such as 55). One indication that this is so is the following pair of sentences:

56) I regret the fact that the U.S. is in Southeast Asia, and I am not happy about it.

57) ?I regret that the U.S. is in Southeast Asia, and I am not happy about it.

In these sentences, the context and the stress on the main

verb are intended to force the interpretation where the matrix is dominant. Under this interpretation, the presence of the fact in the matrix is more natural than its absence. Consider now the dominance tests for the following two sentences:

58) Bill said: "I regret that I'm not surprised."

, which is a lie -- he is surprised.

59) Bill said: "I regret the fact that I'm not surprised."

* , which is a lie -- he is surprised.

While regret can have a complement that is interpreted as being dominant, regret the fact cannot. One can therefore say that the fact disambiguates this sentence to the effect that only the matrix can be interpreted as being dominant. The noun phrase the fact occurs optionally with some factives and obligatorily with others.⁹ In those cases where the fact is optional one can say that its presence guarantees the interpretation where the embedded sentence is subordinate and hence, according to the dominance condition, extraction will always be blocked out of these complex noun phrases.

An additional point in favor of this analysis was brought to my attention by Dick Oehrle. According to him, the following sentence is ambiguous:

60) If I regret that I lied to you today, I'll confess it.

It is not necessarily the case that the underlined embedded sentence is presupposed, and this is the source of the

ambiguity. (Under one interpretation, it must be true that the speaker admits to having lied; under the other, this is not so.) However, according to Oehrle, there are two ways of disambiguating the sentence. In both the following sentences the embedded sentence is presupposed:

61) If I regret that I lied to you today, I'll confess it.

62) If I regret the fact that I lied to you today,
I'll confess it.

Both stressing the matrix verb and inserting the fact after it have the same effect of forcing the interpretation of dominance on the matrix.

Having accounted for the unacceptability of 53), I shall now turn to a similar account of the differences in acceptability between 50) through 52). The following three tests show that the embedded sentence of claim can be interpreted as being dominant; that the embedded that-clause of make the claim is somewhat more difficult to interpret in that manner; and that the that-clause embedded to discuss the claim must be interpreted as being subordinate.

63) She claimed that John would certainly marry her,
but it is not at all certain.

64) ?She made the claim that John would certainly marry
her, but it is not at all certain.

65) *She discussed the claim that John would certainly
marry her, but it is not at all certain.

The test thus predicts the extraction facts of 50) through

52).¹⁰

It is interesting to investigate the lack of parallels between the matrices of 51) and 52). The matrix verbs of sentences such as 51), where the embedded clause cannot easily be interpreted as being dominant and where extraction is not quite acceptable, form a definable set. The following are some further examples:

66) He made the claim that the president was crazy.

67) He put forth the idea that the country was messed up.

68) He had the feeling that he wasn't liked.

In these examples the verbs are "creation" verbs in a similar way that the verbs in the picture noun phrases were. Complex that-clauses of this sort always consist of such a verb and an abstract noun; combinations of the following are possible:

69)	<u>V</u>	<u>N</u>
	make	claim
	lodge	complaint
	advance	hypothesis
	put forth	motion
		belief

In each case, there is a derivative verb which expresses the same thing. Thus, make the claim = claim, advance a hypothesis = hypothesize, put forth the motion = move, etc. Thus these verbs differ from combinations such as discuss the claim in that they are semantic units for which paraphrases exist, as it was discussed in relation to the picture noun phrases in the previous section. Again, semantic complexity is involved: make the claim, which

means claim, is semantically more simple than discuss the claim, which does not have such a paraphrase. This is, therefore, yet another example where a semantically more complex matrix verb forces the matrix to be dominant and thus blocks extraction according to the dominance condition.

In this section, the dominance relations of complex that-clauses have been analyzed. It was found that the embedded clause with the head noun the fact cannot be interpreted as being dominant. Similarly, other that-clauses with head nouns were discovered to be subordinate, and extraction in these two cases was correctly blocked. A subset of that-clauses with head nouns was found to differ both with respect to dominance and extraction. This set was defined as differing from the other cases in that single-verb synonyms existed for the matrices and thus that these matrices were found to be semantically simpler than the rest. The notion that semantic complexity determines dominance was thereby reinforced. Independent of this notion, the dominance condition on extraction was found to be adequate for these complex noun phrases as well as for the picture noun phrases discussed in the previous section.

FOOTNOTES

CHAPTER IV

1. The notion "subject of" is defined not only in S but also in such NPs as (27), where "John" in all cases is the "subject," in an extended sense of this term:

- (27) (a) John's refusal to leave
(b) John's picture of Bill
(c) John's strategy for victory

2. Not all speakers readily get 14). An appropriate context for such a sentence might be: A guide tells some tourists in Amsterdam: "You saw a Rembrandt of that bridge in the Rijksmuseum yesterday." The extraction facts with respect to 14) are of course relevant only for those speakers who can get it.

3. Mark Liberman alerted me to the following acceptable sentence:

- a) Who should I give John a book about?

Liberman also noted the difference in presupposition between this sentence and 35). In 35) it is presupposed that "you gave John a book about somebody," and a specific book is presupposed to exist. However, although a) presupposes that "I should give John a book about somebody," it does not presuppose that a specific book exists. This distinction should be incorporated into the definition

of dominance in order for the extraction condition to apply correctly to both 35) and a).

4. Since the 'matrix' can always be considered to be dominant, only the b) part of the test will be listed.
5. In Chapter III, C), it was found that some amended version of the specified subject condition is necessary to account for the extraction facts out of gerunds. The specified subject condition is relevant to structures not discussed here and, moreover, is relevant to all transformations and not merely extraction transformations. Unless problems similar to the ones raised with respect to extraction out of picture noun phrases are found with the application of the condition elsewhere, the condition must be maintained in some form or other.

It is also important to note that the dominance condition on extraction would predict that 3) is as bad as 4), which does not seem to be the case. Hence, it is possible that since both the dominance condition and the specified subject condition would rule out 4), it is less acceptable than 3), which is ruled out only by the former condition.

6. Bolinger (1972) elaborates on this kind of connection.
7. Kiparsky has pointed out to me that these simple verbs and

their objects are in a sense semantic units. One can imagine possible verbal paraphrases for them: paint a picture of X = depict X; draw a picture of X = draw X; write a book about X = write about X, etc. However, such paraphrases are never possible for the complex verbs: tear up a picture of X \neq V X; and so on. This point is quite relevant to the second half of this chapter, in which the notion of semantic units will be brought up again to account for dominance relations in another kind of complex noun phrase.

8. The problem presented there is that both 51) and 52) are examples of extraction out of complex NPs and should therefore be equally bad. However, 51) is in fact preferable to 52). An attempt at solving this problem appears in the thesis, but as I argued in Chapter I, it does not seem as though the constraint could be applied in such a way that the three-way distinction could be achieved.
9. The verbs for which the fact is obligatory are generally the semantically more complex ones, which must take dominance anyway. Thus deplore, discuss and others cannot occur in the context NP V that S, but only in the context NP V the fact that S.
10. For some informants 64) was quite acceptable, but for

most of those speakers extraction from the complement of make the claim was as good as from the complement of claim.

For those speakers where 64) is acceptable but sentences such as 51) are not, one can say that they do not fulfill the potential of extraction, as this notion was explained in the discussion of the difference between Danish and English (Chapter III, Section H)).

CHAPTER V

INCORPORATION OF THE PROPOSAL INTO THE THEORY
AND THEORETICAL IMPLICATIONS

It remains to be investigated how the approach to extraction presented here can be incorporated into the theory of generative grammar as it stands.¹ In this chapter, I shall present arguments to determine at what level of derivation the dominance relations of a sentence and the dominance condition on extraction should be stated. In order to present these arguments, a discussion of Ross' Sentential Subject Constraint is necessary. It will be shown that this constraint follows automatically from the theory of extraction presented here. The chapter will conclude by pointing to other possible areas of the grammar to which dominance might be relevant.

A) The Sentential Subject Constraint

Ross (1967) states the Sentential Subject Constraint as follows (his 4.254):

No element dominated by an S may be moved out of that S if that node S is dominated by an NP which itself is immediately dominated by S.

Chomsky's conditions also incorporate this constraint (see Chomsky (1971a, p. 110)). I would suggest that no such separate constraint is needed in the theory of extraction proposed here. The dominance condition will correctly

block extraction out of all sentential subjects, since sentential subjects must always be interpreted as being subordinate and extraction can occur only out of dominant embedded sentences. It must therefore first be argued that sentential subjects can never be interpreted as being dominant. The following "lie" tests show that the embedded sentence which can be interpreted as being dominant in object position cannot be thus interpreted in subject position:

- 1) Bill said: "It's likely that Sheila knew all along."
 - a) , which is a lie -- it isn't.
 - b) , which is a lie -- she didn't.
- 2) Bill said: "That Sheila knew all along is likely."
 - a) , which is a lie -- it isn't.
 - b) * , which is a lie -- she didn't.

The fact that 2b) is unacceptable shows that this sentential subject must be interpreted as being subordinate. Since 1b) is acceptable, the same sentential complement can be interpreted as being dominant in 1), and one might therefore conclude that it is the subject position of the complement which causes its subordinate interpretation.

It must be demonstrated that all embedded sentences which can be interpreted as being dominant in object position must be interpreted as being subordinate in subject position. The following sentences exemplify this point:

- 3) For Mary to arrive on time is unlikely.
- 4) Her doing something about the issue was anticipated.

In Chapter III, it was shown that when embedded clauses in sentences similar to these were in object position, they could be interpreted as being dominant. The following dominance tests indicate that when the clauses are in subject position this no longer is the case:

- 5) Ah, for Mary to arrive on time is unlikely!
- 6) Ah, her doing something about the issue was anticipated!

Sentence 5) can only mean "I have just discovered that, and it is significant that, for Mary to arrive on time is unlikely." It cannot mean, "I have just found out that, and it is significant that, for Mary to arrive on time is unlikely." Similarly, 6) can only mean, "I have just discovered that, and it is significant that, her doing something about the issue was anticipated."

Since, as far as I can see, there is no situation in English where a sentential subject could be interpreted as being dominant, the dominance condition on extraction correctly predicts that extraction out of sentential subjects can never occur. There is therefore no reason, within the framework proposed here, to posit a separate condition of extraction for sentential subjects.

It has been suggested (George Horn, 1972) that the Sentential Subject Constraint be extended to what was called picture noun phrases in the previous chapter, in order to preclude

extraction out of such phrases when they are in subject position:

7) *Who was a picture of painted by Picasso?

8) Who did Picasso paint a picture of?²

The difference between 7) and 8) is caused by the difference in the dominance relations of the source sentences:

9) A picture of Mary's husband was painted before he died.

10) Picasso painted a picture of Mary's husband.

The following tests reflect the fact that a picture noun phrase cannot be considered dominant in subject position:

11) Bill said: "A picture of Mary's husband was painted before he died."

It's a lie -- a) it wasn't.

b) *Mary isn't married.

c) no such picture exists.

12) Bill said: "Picasso painted a picture of Mary's husband."

It's a lie -- a) he didn't.

b) Mary isn't married.

c) no such picture exists.

Again, no extension of the condition on extraction proposed here is necessary to account for these facts.

I have shown that the Sentential Subject Constraint follows from the dominance condition. Before proceeding to investigate on what level of derivation the condition must be

stated, I would like to bring up another constraint which it is possible that the dominance condition on extraction can subsume. The constraint is the Coordinate Structure Constraint, also proposed by Ross (1967). (his 4.84)

The Coordinate Structure Constraint

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

Not all the cases that this constraint is meant to cover have been examined, but the following tests indicate that it is possible that the dominance condition is relevant here as well. The first example tested is from Ross (1967):

- 13) Bill said: "The nurse polished her trombone and the plumber computed my tax."

It's a lie -- a) *she didn't.

b) *he didn't.

c) they didn't.

- 14) Otto: Tom and Susan hate their kids.

Francine: That's a lie -- a) *she doesn't.

b) *he doesn't.

c) they don't.

These tests show that one conjunct cannot take dominance over another. Since the subject of this dissertation was the analysis of the condition on extraction in embedded sentences and complex noun phrases, and since the extraction condition was formulated to account for these cases, it is interesting that this condition can possibly be extended to block extraction out of coordinate structures as

well. Because the tests show that one conjunct cannot take dominance over another, the extraction condition can be formulated to predict that one conjunct cannot be extracted by itself.

B) The Level of Derivation

I will now argue that dominance relations cannot be defined on deep structure (and hence that the dominance condition cannot be stated on that level either). The remaining options of stating the condition either as a surface filter or as a condition on the rules of extraction will then be examined.

Having shown that the dominance condition correctly predicts that all extraction would be blocked out of sentential subjects, since these are always interpreted as being subordinate, it is not difficult to show that the definition of dominance relations must follow the transformation which related the following two sentences:

15) It's likely that Sheila knew all along.

16) That Sheila knew all along is likely.

It was shown in 1) and 2) that the sentential complement in 15) can be interpreted as being dominant, while the sentential complement in 16) cannot. And, if 15) is derived from 16), the dominance facts of 15) could not be defined before this step in the derivation occurred. The same is

true if one believes that 16) is derived from 15). In either case the dominance relations can only be defined after the transformation has occurred, since the dominance relation of an embedded sentence to its matrix depends on the position in the tree of the embedded sentence.

The same argument can be used for any other transformation that moves sentential complements. For example, in some dialects (notably Ross'), sentential complements can be topicalized. The following two sentences are thus related by the transformation of topicalization:

17) He didn't know that he ate six cans of mustard.

18) That he ate six cans of mustard he didn't know.

It is only in 17) that the embedded sentence can be interpreted as being dominant and extraction out of it can occur. Thus, if the dominance relations were defined in the deep structure of 17), it would result that the embedded sentence could be interpreted as being dominant. Now if topicalization occurs, the embedded sentence would still remain defined as possibly dominant, and extraction would not be blocked, as it should be. It is therefore clear that the dominance relations must be defined after the transformations apply which change them.

Two options remain. Either the dominance relations are defined at the point where extraction rules apply, or else they are defined on the surface.³ The only way to distin-

guish between these options is to examine the transformations which occur after the extraction rules. If rules exist which change the dominance relations and hence also extractability, then this would imply that the condition must apply on the surface. However, if no such rules can be found, no decision can be made as to whether the condition should be stated as a condition on extraction rules or as a surface condition. Since the rules which do change the dominance relations of sentences are those which move the embedded sentences, such as extraposition and topicalization of the embedded clause, and since these rules apply to the embedded sentence on the cycle preceding extraction out of it, these transformations cannot be used to distinguish between the two theories under discussion here.

A possible means of distinguishing between these theories is the transformation of sluicing, proposed by Ross (1969). This transformations relates sentences such as the following two by deleting the underlined material in 19):

19) Somebody just left -- guess who just left.

20) Somebody just left -- guess who.

Ross presents several arguments for such a deletion theory and goes on to point out an interesting consequence of the existence of sluicing: that it affects the unacceptability of cases of extraction which have occurred in violation of such constraints as the Coordinate Structure Constraint, the Complex Noun Phrase Constraint, etc. The

following is an example Ross presents to show that this is the case (his 73b):

- 21) That he'll hire someone is possible, but I won't divulge {^{*who} that he'll hire is possible}_{??who}.

Extraction out of the sentential subject in 21) is unacceptable, but in the second instance, where the material out of which extraction has occurred has been sluiced, the sentence is somewhat improved. Ross concludes that his previously formulated constraints (1967) must be restated as follows (his 75):

- 22) If a node is moved out of its island, an ungrammatical sentence will result. If the island-forming node does not appear in surface structure, violations of lesser severity will (in general) ensue.

These extraction facts must, of course, also be accounted for within the theory proposed here. Consider the implication of Ross' facts for deciding between stating the dominance condition on the surface or as a condition on the rule. It is possible to demonstrate that these facts cannot be reflected if the dominance condition is stated as a condition on the rules. The derivation of 21) would then be as follows:

- 23) ... I won't divulge [_{S₂} [_{S₁} that he'll fire X]_{S₁} is possible]_{S₂}.

Assignment of dominance relations: S₁ is subordinate.

Extraction + condition on extraction: Blocks extraction out of S₁.

Therefore, if the condition on extraction is stated as a

condition on the rule, the derivation cannot continue and the rule of sluicing will have no opportunity to "improve the acceptability of the sentence" by deleting the material out of which extraction has occurred.

Now consider how a theory in which the dominance condition is stated as a surface filter would apply:

24) a) ... I won't divulge [_{S₂} [_{S₁} that he'll fire X]_{S₁} is possible]_{S₂}

Extraction: ... I won't divulge [who [that he'll hire trace] is possible]

Surface: Dominance relations: S₁ is subordinate.

Dominance condition: Sentence is *.

b) ... I won't divulge [_{S₂} [_{S₁} that he'll hire X]_{S₁} is possible]_{S₂}

Extraction: ... I won't divulge [who [that he'll hire trace] is possible]

Sluicing: ... I won't divulge [_{S₂} who [_{S₁} trace]_{S₁} trace]_{S₂}

Surface: Dominance relations: S₁ is subordinate.

Some equivalent of 22): which must state how acceptable the sentence is.

Dominance condition: Does not apply when 33) applies.

Since 22) cannot precede sluicing, neither can the dominance condition on extraction do so; the condition fails to apply only in those cases where 22) is applicable. Thus the

dominance condition must be stated after a very late rule, and it makes sense to assume that it should apply as a surface filter.

I have tried to show that the means for distinguishing between the two theories discussed are not many; that sluicing is such a means; and that the facts presented by Ross in connection with sluicing indicate that the dominance condition on extraction must be stated as a surface filter. I do not find the situation in which a condition such as 22) is necessary an attractive one. Stating this constraint depends either on an extensive system of traces (note the structure rendered by sluicing in 24b)) or else on an equivalent theory of grammar which includes derivational constraints (Ross' proposal to account for his facts in a theory in which traces are not used).⁴

C) Toward a Conclusion

The validity of the present approach would be much strengthened if it were to be found that there are other phenomena in addition to extraction which depend on the dominance relations in the sentence. One such case for which this is true is the interpretation of the interjection "ah" as analyzed by Deborah James (1972). Another similar case was pointed out to me by Kiparsky. Consider the following examples:

25) Oddly enough, here is the man who likes Peter.

≠ Here is the man who, oddly enough, likes Peter.

26) Oddly enough, there are people who like Peter.

= There are people who, oddly enough, like Peter.

In 25) oddly enough qualifies the statement made by the matrix, since it is dominant, and it can only qualify the embedded clause if it is inserted into it. In 26), however, the embedded clause is dominant; oddly enough qualifies it, therefore, even if it is stated initially in the sentence.

It is possible that many more such phenomena can be found; if so, the theory of extraction based on the notion of dominance will take on more importance. The dominance condition on extraction for which I have argued here is an example of a condition which is based on semantic rather than syntactic phenomena. I have tried to show that this condition accounts for the facts of extraction in English and Danish better than do the various syntactic conditions and constraints which have been proposed for this purpose. For example, it was found that Chomsky's conditions (1971) were inadequate in many respects to account for the extraction facts presented here. However, these conditions apply to the outputs of all transformations, not merely extraction transformations. Hence the dominance condition on extraction cannot replace these conditions.

It was pointed out to me by Chomsky that his set of structural conditions (1971a) is amenable to having incorporated into

it the ideas about bridges presented here. For example, it is not difficult to add the condition that the matrix must be a bridge to the Tensed-S Constraint. The Tensed-S Constraint clearly incorporates the notion that tensed sentences are generally considered to be islands. The only "escape" is the condition that extraction may occur if the extracted item is first moved into COMP position of the relevant tensed sentence. To this condition can easily be added the statement that "the matrix must be a bridge." This of course would leave the cases where extraction is blocked out of nontensed sentences still unaccounted for. However, since Chomsky's conditions are not limited in their application to rules of extraction, they are independently motivated by rules other than extraction and must be stated in the grammar nonetheless.

I have just brought up two examples of cases for which the dominance condition could be used, although these are not cases of extraction. These conditions can only be replaced if it turns out that all transformations have to do with semantic notions such as dominance, rather than with purely syntactic factors.

FOOTNOTES

CHAPTER V

1. The theory assumed here is the Extended Standard Theory described by Chomsky (1971). Although the approach here is a "semantic" one, it does not pertain to the argument between this theory and generative semantics.

2. The following sentence is quite acceptable:

About whom was a book written by Otto?

The source of this sentence could be either of the following two:

a) A book about X was written by Otto.

b) A book was written by Otto about X.

If it is assumed that the above sentence is derived from b), then one could say that subject NPs with embedded PPs behave like sentential subjects, and that extraction out of them is not acceptable. The above sentence is therefore not a case of extraction out of a subject NP; it is rather the postposed PP which is questioned. According to Roger Higgins (personal communication), a condition is necessary elsewhere which prevents the splitting up of a phrase by a transformation if it has already been moved once. This would indicate that X in the underlined PP of b) cannot be extracted, as it is part of a phrase which has already been moved in its entirety.

3. The latter approach is possible in a theory in which traces are left behind in the position from which extraction has occurred.

4. The interesting alternative to sluicing might be worth investigating, in which 20) would be derived from:

Someone just left -- guess who it was.

Instead of sluicing, a transformation deleting it + be (tensed) would be necessary. If such a theory could be maintained, the consequences of sluicing that warrant the condition 22) do not hold. This is shown by a comparison of the following two sentences:

- i. That he'll hire someone is possible, but I won't divulge who it will be.
- ii. ?That he'll hire someone is possible, but I won't divulge who.

The source of the "sluiced" sentence i) does not violate any constraints and is consequently acceptable. The transformation deleting it + be cannot occur equally well in all environments, and an investigation of the conditions on this deletion transformation is necessary. The following examples show, similarly, that the other sources of sluiced sentences presented by Ross (his (71) and (72)) are not unacceptable either under this new proposal:

- iii) She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends it was.

iv) I believe the claim that he bit someone, but I
don't know who it is.

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