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QUESTIONS AND ANSWERS IN ENGLISH

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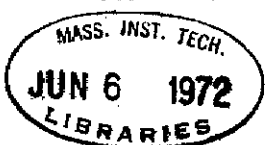
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DEDICATION

To W.R.P., V.L.N., and P.P.C.

without which naught

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Emily Norwood Pope

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ABSTRACT

In this study, I have attempted to refine and extend the transformational analysis of questions in English presented in Katz and Postal (1964). Many of the revisions I suggest were motivated by a closer examination of the interaction between questions and their answers. In the case of rhetorical questions, I have postulated a deep structure source different from that for non-rhetorical questions. This alternative source is designed to reflect the fact that rhetorical questions presuppose their answers.

In the case of non-rhetorical questions (where I have focused mainly on yes-no questions), I show that non-rhetorical questions do not presuppose, but rather are more or less strongly biased toward one of their possible answers. I give arguments, based on an analysis of rising and falling intonation, that yes-no questions are syntactically, as well as semantically, related to disjunctions. Finally, I show that direct answers vary in acceptability, depending on the form of the question and the function of the answer.

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I would also like to thank my parents, for making me happily uppity, and my husband Bill, for keeping me that way.

Having nobody but myself to thank for typing this thing, I hereby do so.

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CHAPTER I: TH

This first chapter does not deal directly with questions and answers. However, the characterization of definiteness and the explication of the relationship between S's and NP's with respect to definiteness given here are relevant to several arguments about questions and answers which appear in later chapters. The notions developed in this chapter will be especially relevant to the discussion of WH rhetorical questions in Chapter II, and to the discussion of Jackendoff's (forthcoming) observations about intonation in Chapter IV.

The purpose of this chapter is to prove that generic NP's, definite NP's, and factive S's share a common property, which I will call definiteness, and will represent in terms of a TH marker.¹ In section I.1, I will argue that the three categories (generics, definites, and factives) share semantic properties, such as the fact that they are appropriate only when anaphoric and the fact that they seem to introduce certain positive presuppositions. In section I.2, I will show that the three categories pattern alike syntactically. In section I.3, in an analysis based on Klima's (1964) work on negation, I will propose some syntactic rules to relate the definiteness of S's to the definiteness of NP's.

I.1 The Semantic Properties of Definiteness Let us begin by

redefining the word "anaphoric". Usually, an NP is considered anaphoric only if it has been introduced in the (fairly immediately) preceding discourse. But I (following Kuno (1971)) also consider anaphoric any NP which uniquely refers, even if for the first time in that discourse, to something known or familiar to both speaker and hearer.

Definite NP's, in order to be appropriate, must be anaphoric in either the narrow or this wider sense.² Kuno says, of a sentence with the definite NP "John" as its subject, that it "is grammatical because John has presumably appeared in previous discourse, and is thus anaphoric, or it has a unique reference in the real world, as would be the case when it refers to, say, the speaker's brother, and therefore, is in the permanent registry of dramatis personae," in which case it again may be anaphoric.

The statement that definite NP's must be anaphoric is compatible with Kuroda's (1969b) observation that when a specific NP is anaphoric, it is also definite, as in (1).

- (1) A man and three boys are standing on the corner,
and $\left\{ \begin{array}{l} *a \text{ man}_i \\ \text{the man}_i \end{array} \right\}$ is scratching his head.

It is also compatible, I believe, with Perlmutter's (1971) observation that definiteness may be a concomitant of relativization, depending on the meaning of the relative clause.

He points out examples like (2)-(4), where articles occur if and only if there is a relative clause or other modifier.

- (2) Sam greeted me with (^{*a }{*the}) warmth.
- (3) Sam greeted me with a warmth that was surprising.
- (4) Sam greeted me with the warmth that I was accustomed to.

At least part of the difference between (3) and (4) may be explained in terms of anaphoricity. Notice the following paradigm. The strangenesses arise because it would be hard for something I have never mentioned to you to have established itself as anaphoric between us, even in the wider sense. On the other hand, it would be hard for something I have frequently mentioned to you not to have established itself as anaphoric.

- (5) Sam greeted me with a warmth that I have ^{*frequently}{never} mentioned to you.
- (6) Sam greeted me with the warmth that I have ^{*never}{frequently} mentioned to you.

Only the relative clause (with "frequently") that is compatible with the situation where the warmth of Sam's greeting is anaphoric may take a definite head, and vice versa.

A further illustration of the inappropriateness of definite

NP's used non-anaphorically is provided by the following discourse. In the first sentence, A uses a definite NP, "Walt", that is not anaphoric. B feels obliged to point out that the presupposition that Walt is known to him has failed.

(7) A. Oh, you just missed Walt!

B. Walt who?

A. Walt Sunley.

B. Walt Sunley? Never heard of him. What makes you think I know him?

Generic NP's, even those which are indefinite in form, also must be anaphoric in order to be appropriate. It is not hard to see why this is so, when "anaphoric" is understood in the wider sense, for generics uniquely refer to classes, which are usually large and common enough for the speaker to be able safely to assume that his audience has some acquaintance with them.³ Using a generic for which this assumption is false has exactly the same disturbing effect as using a definite NP when it is not, in fact, anaphoric. This situation is illustrated in (8).

(8) A. Penguins don't bite.

B. That's nice. What are penguins?

A. They're those black and white Antarctic birds that

can't fly.

B. Oh, yeah! I have heard of those. I just never knew what they were called.

Factive S's are like definite and generic NP's in that they, too, must be anaphoric in order to be appropriate. Thus, if I were to be introduced to Margaret Mead, whom I have never met, I might open the conversation with (9) or (10), but not (11).

(9) It is significant that human fatherhood is a social invention.

(10) It is likely that you went to school with my aunt.

(11) It is significant that you went to school with my aunt.

(10) is a good opener because "likely" is non-factive. Its complement need not be anaphoric, so it does not matter if the idea is news to Mead. (9) is a good opener, because, even though "significant" is factive, and must take an anaphoric complement, I know that Mead has herself argued that human fatherhood is a social invention. Hence this complement is anaphoric. (11) is a bad opener, because I have no reason to believe that Mead has ever entertained or even heard of the idea that she went to school with my aunt. Thus, in the given

situation, this complement is not anaphoric, and so it is inappropriate as a complement to a factive predicate like "significant".

If I were to open the conversation with (10), and give some arguments supporting my contention, I might then use (11). For even if I had failed to convince Mead of the truth of the complement, it would now be anaphoric, and so the sentence would be appropriate.

We have seen that definite NP's and generic NP's share the property of anaphoricity with factive S's. I propose to express this shared property by associating it with TH, which may be attached to either NP's or to S's.⁴

In the second half of this section, I will examine the relationship linking existence, truth, and anaphoricity. Let us entertain the ideas that to use a definite NP, one must presuppose the existence of the individual or individuals named; to use a generic NP, one must presuppose the existence of the class named (without necessarily presupposing that the class has members); and to use a factive S, one must presuppose the truth of the proposition advanced.

I think it is possible to reduce these three generalizations to one. That is, I think truth is for propositions what existence is for objects (individuals and classes are all objects, however else they may differ). This becomes clearer if we

regard S's as referring to situations that may or may not exist in some possible world, in the same way that NP's refer to objects that may or may not exist in some possible world. S's are true in a given world just in case the situation they refer to exists in that world.

Thus, if we class definites, generics, and factives together as TH categories, existence and truth together as existence, and individuals, classes, and situations together as objects, the three generalizations reduce to the following: to use a TH category, one must presuppose the existence of the object referred to.

Unfortunately, the three ideas we have been entertaining, and the generalization they reduce to, are all false. The object referred to need not exist. (12) provides a definite counterexample; (13) a generic counterexample, and (14) a factive counterexample.

(12) The fountain of youth doesn't exist.

(13) The unicorn is a mythical beast.

(14) If I have offended you, I regret that I have done so.

In these three examples, the TH categories do not presuppose that the object they refer to exists. However, they are all anaphoric. That is, they all presuppose that the object they

refer to either has been mentioned or is for some other reason uniquely identifiable by the hearer.

The presuppositions that usually seem to accompany TH categories are probably only conversationally implied by the fact that TH categories are presupposed anaphoric. The reasoning seems to be something like this: it would be hard for an object to be uniquely identifiable (i.e., anaphoric) unless it existed. In the case of sentences, if a proposition is known to both of us, or all of us, it must be true. This reasoning obviously involves a bit of a leap.

All I would want to say, then, is 1) categories which have the property of definiteness must be anaphoric in order to be appropriate; 2) if something is anaphoric, it is much more likely (probabilistically) that it exists than that it does not,⁵ 3) the relationship between truth and S's is the same as that between existence and NP's.

In this section we have seen that definite NP's, generic NP's, and factive S's form a semantic class, characterized by the presupposition of anaphoricity its members carry, and by the presupposition of existence they usually seem to carry.

I.2 The Syntactic Patterning of Definiteness In this section,

I will show that definites, generics, and factives form a syntactic class. First, I will show that generics and definites pattern alike. Second, I will show that factives and

generics pattern alike. Third, I will show that definites and factives pattern alike. Before beginning these demonstrations, however, I must make clear the distinction between generics and non-specifics.

There are three types of indefinite NP⁶: specifics, non-specifics, and generics. "A doctor" is specific in (15), non-specific in (16), and generic in (17).

(15) I want to meet a doctor, but Randy doesn't want to meet her.

(16) I want to meet a doctor, but Randy doesn't want to meet one.

(17) A doctor generally has about three children.

Generics are a sort of subclass of non-specifics. That is, generics and plain non-specifics are in complementary distribution. Thus, in a given context, a NP may be ambiguous as between specific and non-specific, or between specific and generic, but it is very difficult to find contexts where there is a three-way ambiguity between specific, non-specific, and generic. The underlined NP's in the following examples are ambiguous as indicated.

(18) A man is standing on the corner. [specific, non-specific]

- (19) A unicorn has a three-chambered heart. [specific, generic]
- (20) The girl who John will marry is expected to appear soon. [specific, non-specific]
- (21) The man who smokes a pipe looks distinguished. [specific, generic]

In (22), there is a three-way ambiguity, brought out by (23)-(25), among specific, non-specific, and generic, but this is only because "would" is ambiguous. On one reading of "would"--the past tense usitative reading, "a doctor" is ambiguous between specific and non-specific. On the other reading of "would"--the irrealis reading, "a doctor" is ambiguous between specific and generic.

- (22) A doctor would always greet me at the door.
- (23) A doctor would always greet me at the door, but this guy wasn't the one. [specific doctor, usitative would]
- (24) A doctor would always greet me at the door, but this guy wasn't one of them. [non-specific doctor, usitative would]
- (25) A doctor would always greet me at the door, so this guy wasn't {^{?one} a doctor}. [generic doctor, irrealis would]

The fourth reading is brought out in (26).

- (26) $\left. \begin{array}{l} \{ \text{This doctor I told you about} \\ \text{A (certain) doctor} \end{array} \right\}$ would always greet
me at the door, so this guy wasn't the one.
[specific doctor, irrealis would]

Because of my failure to find any context in which, independently of other ambiguities, there is a three-way distinction among specific, non-specific, and generic readings for a NP, I propose that the basic, intrinsic distinction is between specific and non-specific. A non-specific NP is interpreted as plain non-specific or generic, but not both, depending on context. The generic reading can always be forced by adding a relative clause containing "any" without any conditioning negative. Thus the fact that a generic reading for "a doctor" is impossible in (27) becomes clear when such a relative clause is added in (28).

- (27) I want to meet a doctor. [specific, non-specific,
*generic]
- (28) *I want to meet a doctor who has any brains.

Now that the distinction between generics and plain non-specifics (which I will henceforth call simply non-specifics) is clear, we can proceed to show that definites and generics pattern alike. I will give three arguments. The first argument

is based on Bolinger's (1967) observation that predicates like "tall" require definite subjects. Indefinites, except for generics, are excluded. Here generics pattern with definites as opposed to the indefinites they seemingly resemble.

(29) Bill is tall.

(30) A giraffe is tall. [*specific, *non-specific,
generic]

The second argument is based on Kuroda's (1970) observation that "the subject of a sentence with the sentential adverbial 'cleverly' seems to have to be definite, while the subject of a sentence with the manner adverbial 'cleverly' may be either definite or indefinite."

(31) Cleverly, { ?*a boy
the boy } is loading a Honda on the
top of a Volkswagen.

However, the sentential adverbial is also good with a sentence with a generic subject.

(32) Cleverly, a beaver builds dams.

Here again, a generalization about definites must be extended to include indefinite generics.

The third example is one where both definites and generics are excluded. There-Insertion applies to sentences with

indefinite subjects, except when generic, and it doesn't apply to sentences with definite subjects.

- (33) *There lived the man at court who had no talent.
 (34) The man who had no talent lived at court.
 (35) There lived a certain man at court who had no talent.
 (36) A certain man who had no talent lived at court.
 [specific, *generic]
 (37) *There lived a man at court who had any talent.
 (38) A man who had any talent lived at court. [*specific,
 generic]

These three arguments show that where definites but not indefinites are allowed (or excluded), "indefinite" generics pattern with the definites, rather than with the indefinites. This fact can be easily captured by subcategorization rules if generics as well as definites have, in deep structure, a TH in their determiners.

Now we need to demonstrate the second similarity of patterning--that between generics and factives. The heart of the argument is this: where complement S's must be factive, complement NP's must be generic rather than non-specific. That is, in those cases where a predicate may take as an argument either a simple NP or a complement S, the arguments that may be factive complements occur in the same environments

that allow generic but not non-specific readings for NP arguments. The arguments that may be non-factive complements occur in the same environments that allow non-specific but not generic readings for NP arguments.

- (39) That Val did that is exciting. [factive, *non-factive]
- (40) A platypus is exciting. [??specific, generic, *non-specific]
- (41) I regret that I don't understand stratificational grammar. [factive, *non-factive]
- (42) I regret a harsh word. [??specific, generic, *non-specific]
- (43) It is possible that Mindy stood on her head. [non-factive, *factive]
- (44) A disaster is possible. [specific, non-specific, *generic]
- (45) I predicted that Mindy would stand on her head. [non-factive, *factive]
- (46) I predicted a disaster. [specific, non-specific, *generic]

The generic readings or lack of same in the above examples are brought out unambiguously in the examples on the next page.

- (47) A platypus with any sex appeal is exciting.
- (48) I regret a harsh word which has any adverse consequences.
- (49) *A disaster with any consequences is possible.
- (50) *I predicted a disaster which affected any miners.

These examples, along with those on page 20, show that where non-factives are ungrammatical, non-specific readings are ungrammatical, and where factives are ungrammatical, generic readings are ungrammatical.⁷

I have marked all the specific indefinites in factive contexts (cf. (40) and (42)) with double question marks. I think they are in fact ungrammatical for most people. If this is so, so much the better. This argument has shown that generics pattern like factives in some ways. I would like to say that this is because predicates may be subcategorized as taking only TH subjects or objects. This means they will take definites, generics, and factives, and nothing else. If specific indefinites were also allowed in these contexts, my observations about generic readings in factive contexts would still hold, but this claim about subcategorization would have to be watered down somewhat. To my prejudiced ear, however, those specific indefinites sound pretty bad.

The third set of arguments completes the triangle by linking definites and factives as opposed to indefinites and non-factives. I will propose an explanation for Zwicky's

(1970) observation that "unusually" in (51) is a degree adverbial, while "usually" in (52) cannot be.

(51) The children are unusually noisy.

(52) The children are usually noisy.

The argument goes as follows: "noisy" and all other such Adj's are to be considered non-factive; "usually" is to be considered definite, as opposed to "unusually", which is indefinite; thus the reason "usually" cannot be a degree adverbial in (52) is that there is a sort of "definiteness agreement rule" operative in modifier-head constructions.

First, we will see that "noisy" patterns like a non-factive, since "so" may substitute for it. "So" is a pro-form for non-factive anaphoric sentences, (non-factives may be anaphoric, while factives must be anaphoric). Saying "so" is anaphoric is simply another way of saying it is a pro-form, for pro-forms must have referents, usually in the immediate linguistic context, in order to be interpreted. The fact that "so" substitutes only for non-factive sentences was pointed out by Kiparsky and Kiparsky (1971). This selectivity is demonstrated, for object clauses, by (53) and (54).

(53) Herman thinks that Pete is tall, and I think so too.

(54) *Herman regrets that Pete is tall, and I regret so too.

Of course, not all non-factives may be replaced by "so". I find "I prefer so", for example, ungrammatical.

We can show that the Kiparskys' generalization also holds for subject clauses if we assume that S-modifying adverbs as in "certainly, S" are derived from "S is certain". Thus (55B), derived from (55A), can become (55C), since "probable" takes non-factives, but (56C) is out, because "significant" takes factives.

(55) Q. John is tall, isn't he.

A. It is probable that John is tall. [non-factive]

B. Probably, John is tall.

C. Probably so.

(56) Q. John is tall, isn't he.

A. It is significant that John is tall. [factive]

B. Significantly, John is tall.

C. *Significantly so.

From these facts, and from the fact that "so" substitutes for adjectives alone, as in (57), as well as for non-factive sentences, we may surmise that adjectives are like non-factives in lacking definiteness. That is, they are not a TH category.

(57) Barbara was relatively noisy, but Susan is extremely so.

Returning to adverbials, we are surprised to find that

the situation for degree adverbs is the opposite of that for sentential adverbs. That is, instead of non-factives being in and factives being out with "so", as before, we find that factives are in and non-factives are out.

(58) Q. John is tall, isn't he.

A1. Significantly so.

A2. *Probably so.

This situation can be explained if we derive these adverbs not from topmost S predicate adjectives, as in the (A) examples below, but rather from adjectives embedded in relative clauses, as in the (B) examples below.

(59) A. The extent to which John is tall is significant.

B. John is tall to an extent that is significant.

(60) A. *The extent to which John is tall is probable.

B. John is tall to the extent that is probable.

The difference between (59B) and (60B) is the same as that between (61) and (62), and the difference between (58A1) and (58A2) is the same as that between (63A) and (63B).

(61) His greeting was warm to $\left\{ \begin{array}{l} *the \\ an \end{array} \right\}$ extent that was unusual.

(62) His greeting was warm to $\left\{ \begin{array}{l} the \\ *an \end{array} \right\}$ extent that was usual.

(63) Q. Was his greeting warm?

A. Unusually so.

B. *Usually so.

The relevant factor, then, for whether an adverb can be a degree adverb is not whether the corresponding adjective is factive in other contexts, but rather whether the corresponding adjective induces a definite or indefinite article on the head noun when it appears in a relative clause. In this sense, degree adverbs of the sort we are considering must be indefinite. That is, they are not TH categories.

We have seen that only indefinite adverbs may modify adjectives which are non-factive. This is not too surprising if we regard definites and factives as both having TH in their specifiers. There seems to be a filtering rule which rejects modifier-head constructions whose specifiers are not compatible in definiteness.

A second argument that groups indefinites and non-factives as opposed to definites and factives is based on negation. Negation may attach only to indefinite NP's--never definites.

- (64) A. Bonnie doesn't hate anybody.
 B. Bonnie hates nobody.
- (65) A. Bonnie doesn't hate Doug.
 B. *Bonnie hates not Doug.

In the case of sentences, negation may appear in the specifiers only of non-factives--never in the specifiers of factives.

(However, the negation stays in the specifier only when the

rest of the sentence has been deleted.)

(66) Q. Does Bonnie hate Doug?

A. I believe ^{so}(not) [non-factive]

(67) A. I did it, and I regret it. [factive]

B. *I didn't do it, and I regret not.

If the specifiers of definites and factives are as comparable as I have suggested, these two facts are reducible to one, namely, TH and N (negation) may not co-exist in one specifier.

Pizzini (1970) argues on syntactic and semantic grounds other than those I have adduced here that "so" is indefinite and "it" is definite.

This completes our triangle of similarities among the three reflexes of definiteness. We have seen that definites, generics, and factives form a syntactic class, as well as a semantic one. Many subcategorization facts can be more easily and compactly expressed in terms of TH than in terms of the three categories separately.

I.3 TH-Placement In this section, I will present a syntactic analysis designed to explain the relationship between the definiteness of S's and the definiteness of NP's. This analysis is based on Klima's (1964) analysis of negation. Before beginning, I must acknowledge the fact that few people now accept Klima's analysis completely. Many reject it entirely.

I have myself had to revise it slightly in order to use it here. I assume, for instance, that N is generated in complementizer position, rather than in pre-S position. (See Lasnik (forthcoming) for discussion of the idea that negation is a complementizer.)

I have based this analysis on Klima's because, in spite of its problems, Klima's analysis is still elegant, comprehensive, and familiar. More important, I believe definiteness and negation are parallel phenomena, and I am more interested in emphasizing this parallelism than in the mechanical details of the analysis. However Klima's analysis is to be revised, the analysis of definiteness must be revised in the same way.

The essence of Klima's analysis, for our purposes, is as follows: negation may be generated in the specifiers (the determiners) of NP's and in the specifiers (the complementizers) of S's. That generated in complementizer position has a set of syntactic characteristics that identify it as sentential negation, and it retains these characteristics even when it is moved out of complementizer position. Since there is only one complementizer per S, there can only be one instance of sentential negation per S, but there can be more than one non-sentential negation, and there can be both sentential and non-sentential negations in one S. Sentential negation moves out of complementizer position onto the subject

NP (or whatever constituent is left-most after all movement rules have applied) if it is indefinite. If it is not indefinite, the sentential negation is attached elsewhere within its S. Klima's negatives do not cover the whole of the morphologically obvious domain of negatives, and furthermore, Klima postulates negatives in places where they are not morphologically justified.

Now I will sketch the essence of the syntactic analysis of definiteness, going into detail and offering justification later. Definiteness may be generated in the specifiers of NP's and in the specifiers of S's. That generated in determiner position is represented by *th*. These are ordinary definites, and occur rather freely. That generated in complementizer position is represented by *TH*. This identifies the sentence as a categorical judgement⁸, and it remains categorical even when *TH* is moved out of complementizer position onto the subject or left-most constituent of the sentence. This movement takes place only when the subject is already definite (has *th* in its determiner), and by virtue of this *TH*-placement, the NP onto which it moves becomes the theme of the sentence.⁹ *TH* does not cover the whole of its morphologically obvious domain, since "that" is definite as a factive complementizer, but not as a non-factive complementizer. Furthermore, *TH* must be postulated in places where it is not morphologically justified,

as in proper nouns and "indefinite" generics.

I will develop this last point first. Let us compare the domain of TH to the domains of N and WH. In Klima's analysis, not all negative elements are derived from sentential negation. In (68), we have both a sentential and an NP negation.

(68) I don't like nobody!

Such double negatives are, after all, grammatical if emphatic stress and protest intonation (see Chapter IV) are used. (Cf. "He likes nobody, doesn't he.") Since there can be only one sentential negation per sentence, the second one in (68) must be otherwise derived. However, some negatives are neither S nor NP negatives. This applies in particular to negatives that are incorporated into lexical items as prefixes ("dis-", "un-", etc.).

Similarly, there are WH-words which are not subject to the usual rules. The WH-words of echo-questions, as in (69), can violate all the otherwise valid generalizations.

(69) Did Hank do what to Steve?

On the other hand, there are instances of sentential negation and interrogation which are not realized in the form of morphologically obvious N or WH words. For instance, "seldom" may arise from sentential negation, as shown by

(70) and (71), but it has no "n" in it.

(70) Seldom have I seen anything like this, and
neither has Bill.

(71) It seldom rains, does it?

Of course, "seldom" does not always arise from sentential negation. The negative tag in (72) shows that the first half of the sentence is positive.

(72) It rains seldom, doesn't it?

(73A) is an example of a question that does not seem to involve a WH-word. The closest paraphrase is (74), but this question has falling intonation, while (73A) has rising intonation.

(73) B. Martha, I'm going to throw down the back stairs.

A. And John?

(74) And what are you going to do to John?

In the case of both negatives and interrogatives, instances of N and WH words not derived from sentential N and WH are much more obvious and common than instances of sentential N and WH not realized in N and WH words. This is also the case for TH. Regular definites, i.e., th-words, occur rather freely in non-categorical judgements. But the only categorical judgement subjects, i.e. themes, that do not

have TH-words are proper nouns, where a TH-deletion rule seems plausible, and generic indefinites, which are often paraphrased by the corresponding definites ("^AThe} beaver builds dams.").

What we need now are some rules; first, a rule deleting TH (and th) before proper nouns.

$$(75) \left[\begin{array}{cc} \text{TH} & \text{N} \\ & +\text{proper} \end{array} \right]_{\text{NP}} \Rightarrow \emptyset \begin{array}{c} 2 \\ 2 \end{array}$$

This rule is ordered after appositive relative formation but before restrictive relative formation, since proper nouns take appositive but not restrictive relative clauses. The following rule is ordered after restrictive relatives are formed.

$$(76) \left[\begin{array}{cc} \text{TH X} & \text{N} \\ & +\text{generic} \end{array} \right]_{\text{NP}} \Rightarrow \emptyset \begin{array}{c} 2 \ 3 \\ 3 \end{array}$$

This rule is optional in some contexts, or at least needs further refinement.

Next, I will give the TH-movement rule and the complementizer deletion rule.

$$(77) \left[\begin{array}{cc} \text{TH X} \\ 1 \ 2 \end{array} \right]_{\text{COMP}} \left[\left[\begin{array}{cc} \text{th X} \\ 3 \ 4 \end{array} \right]_{\text{DET}} \left[\begin{array}{c} \text{NP} \\ 5 \end{array} \right]_{\text{NP}} \left[\begin{array}{c} \text{X} \\ 6 \end{array} \right]_{\text{S}} \right] \Rightarrow \emptyset \ 2 \ 1 \ 4 \ 5 \ 6$$

$$(78) \text{COMP} \Rightarrow \emptyset \text{ in certain environments}$$

Condition: COMP does not contain TH or N or WH

(77) makes a theme of a definite NP subject or other S-initial NP. It is similar to the rule attaching sentential negation to an indefinite initial NP. Like that rule, it must follow the NP movement rules. (78), which follows (77), says that only empty complementizers may delete. These rules interact as follows: (78) may apply without (77) only to complementizers which contain no markers, e.g., to non-factive "that". The deletion of this complementizer is always possible (in the environments left unspecified in (78). For example, no complementizer may delete if something intervenes between it and the verb or adjective whose complement it introduces.).

However, if a complementizer contains TH or N or WH, these markers must be moved out of the complementizer by (77) or the corresponding rules for N and WH before (78) can apply.

Let us examine a simple case first. It is well-known that the complementizer "that" may sometimes optionally delete when it immediately follows the verb. However, this may occur in factive complements only when the subject is definite. This is because, in factives, (78) cannot apply unless (77) has applied, and (77) cannot apply unless the subject is definite.

- (79) I think (that) $\left\{ \begin{array}{l} \text{John} \\ \text{a man} \end{array} \right\}$ died. [non-factive]
- (80) I regret (that) John died. [factive]
- (81) I regret that a man died.

(82) *I regret a man died.

The facts are the same for extraposed subject complements.

(83) It turns out (that) { John } died. [non-factive]

(84) It's odd (that) John died. [factive]

(85) It's odd that a man died.

(86) It's odd a man died.

Now let us examine a more complicated example. Williams (1971) has noted that there is a certain difficulty in getting gerunds with indefinite subjects. Thus he assigns a star to (87).

(87) *A man's coming in here...

Williams' observation is correct for factive contexts, but not for non-factive ones.

(88) *A man's coming in here bothered me. [factive]

(89) A man's coming in here would bother me. [non-factive]

The ungrammaticality of (89) seems strange, since (90) is grammatical.

(90) It bothered me that a man came in here.

The explanation for these examples is as follows: "bother" (but not "would bother") must take TH complements. That is,

its sentential subjects must have TH in their complementizers. Now (90), with its embedded indefinite subject, is grammatical because (77) has not applied, and the TH is still in the complementizer. Gerunds, however, as Williams points out, have no complementizers. In factive environments, then, (77) and (78), among other rules, must both apply in order to produce a gerund. Unfortunately, (77) cannot apply if the subject is indefinite. Hence (88) cannot be generated. In (89), the complementizer of the sentential subject does not contain TH, so (78) can apply without (77), giving a gerund.

Negatives have more placement possibilities than TH. If the subject is definite, a sentential negative may move onto the auxiliary instead. I am assuming that this possibility does not exist for TH.¹⁰

To conclude this section, I would like to suggest that various well-known transformations have as part of their *raison d'être* the fact that they "feed" TH-movement and hence complementizer deletion. I think the obligatory rule which deletes the complementizers of topmost sentences, like the one deleting embedded complementizers, requires them to be empty of such elements as TH, N, and WH. This means that (77) must always be able to apply to root sentences with factive "that" complementizers, or a bad sentence will result. That is why categorical judgements must always have definite or generic

subjects (or initial NP's).

This situation would seem to imply that non-factive predicates with non-anaphoric subject complements could never occur in root sentences, since such complements do not have TH or even th in their complementizers. This is not the case, however. There are rules to get us out of this bind. Subject-Raising, for instance, seems almost explicitly designed to alleviate this situation. First of all, it applies only to non-factive complements (factive subject complements feed TH-movement by virtue of the TH's in their complementizers). Second, it seems, if not actually restricted to raising definite subjects, at least to work much better with definite subjects than with indefinite, thus feeding TH-movement.¹¹ After it applies to a subject complement, raising a definite subject, the subject of the root sentence is definite, and, if necessary, may receive the TH of the root sentence's complementizer, which may then delete. (91) and (92) show that Subject-Raising applies much better to definites than to indefinites. (93)-(96) show the saving of a sentence. (Underlining indicates †def.)

(91) This man seems to be bothering you.

(92) ?†A man seems to be bothering you.

(93) $\overbrace{\text{(That)}_{\text{SPEC}} \text{(((}}_{\text{SPEC}} \text{(((that)}_{\text{SPEC}} \text{(man))}_{\text{NP}} \text{to be bothering}}^*$
 you))_S NP seems)_S

- (94) (THat)_{SPEC}(((that)_{SPEC}(man))_{NP} seems to be bothering you)_S [by Subject-Raising]
- (95) (that)_{SPEC}(((THat)_{SPEC}(man))_{NP} seems to be bothering you)_S [by (77)]
- (96) \emptyset ((THat)_{SPEC}(man))_{NP} seems to be bothering you [by (78)]

Now, what about (92)? Can we save this sentence, or must we give up on underlying structures with non-anaphoric non-factive subject complements with indefinite embedded subjects? Here another rule comes to the rescue: There-Insertion creates a dummy theme in sentences which would otherwise have none. "There" is treated as a definite by all rules that prefer to operate on definites, and can undergo Subject-Raising with no difficulty. These facts reinforce the suspicion raised by the "th" that appears morphologically in "there", and lead us to conclude that "there" is definite, and There-Insertion is designed to change sentences that will not feed TH-Movement into sentences that will. (97)-(101) illustrate the salvation of (92).

- (97) (THat)_{SPEC}(((^{*})_{SPEC}(((a)_{SPEC}(man))_{NP} to be bothering you)_S)_{NP} seems)_S
- (98) (THat)_{SPEC}((()_{SPEC}(((there)_{SPEC} to be a man bothering you)_S)_{NP} seems)_S [by There-Insertion]
- (99) (THat)_{SPEC}(((there)_{SPEC} seems to be a man bothering you)_S [by Subject Raising]

(100) (that)_{SPEC} ((There)_{SPEC} seems to be a man bothering
you)_S [by (77)]

(101) \emptyset (There)_{SPEC} seems to be a man bothering you [by (78)]

Most other movement rules, such as Topicalization, Passive, and Tough-Movement, also seem at least partially designed to create themes when needed, i.e., to feed TH-Movement.¹¹

I must acknowledge that the constraint against indefinites in theme position is rather weak, but I think it is nevertheless real. Undoubtedly, the situation is far more complicated than I have been able to indicate here. But even this brief survey shows us that TH is relevant to many syntactic rules.

In this chapter, we have seen that the properties of definite NP's, such as obligatory anaphoricity and restrictions on occurrence, also apply to factive sentences. Definites, generics, and factives all share the property of definiteness. The fact that S's and NP's can share properties, i.e. are in some respects the same kinds of things, is explained semantically in terms of the fact that S's and NP's both refer to objects (situations) which may or may not exist. The similarity of S's and NP's is explained syntactically in terms of the fact that determiners and complementizers can be classed together as specifiers. The two sorts of specifiers have the same restrictions and realizations, and are related by rule.

Footnotes to Chapter I

1. This marker is quite analogous to the widely recognized markers WH (the "undeterminer", cf. Bresnan (forthcoming)) and N (negative), which have some constant syntactic and semantic characteristics, whether they be attached to S or to any of various diverse sorts of NP's. These three markers are generated in specifiers, i.e., the determiners of NP's and the complementizers of S's.
2. Even in the narrow sense, a definite NP may be anaphoric either by virtue of the fact that it was explicitly mentioned in previous discourse, or by virtue of the fact that it was presupposed in previous discourse. This may explain the definiteness of superlatives following comparatives, as in the following example (pointed out to me by John Ross): "There was a big pillow on the first bed, and a bigger one on the second bed, but the biggest one was on the third."
3. Kripke (1972) argued that the problems of reference and existence raised by definite descriptions apply equally to generics.
4. It may be objected that the fact that factive complements are semantically similar to definite NP's is merely a result of factive complements' having a definite head noun "the fact", which is sometimes deleted. This derivation of factive complements is proposed by the Kiparskys (1968). One of the reasons I reject this derivation is as follows. I propose that TH may be attached not just to complement S's, but also to topmost S's. In this case, the truth of the sentence is not presupposed but asserted. The sentence must, however, still be anaphoric. There are several situations in which this will be the case. One is positive answers to yes-no questions. Since the question is derived from a disjunction of S and not S (see Chapter IV), the positive answer S will always be anaphoric. It is coreferential with the S in the question.
 Bresnan (1970) gives several arguments for the postulation of complementizers on topmost sentences. I can think of no arguments for the postulation of a head noun "the fact" on any topmost sentence. Even if one accepts the performative analysis, which makes topmost sentences underlying complements, it is unfortunately the case that very few performative predicates are factive. "Inform"

is a possible factive performative for question answers like (iA), and "acknowledge" is a possible factive predicate for S tag answers like (iiiA).

(i) Q. Is John tall?

A. Yes, John is tall.

(ii) I { *answer you
*reply to you
*say to you
*declare to you
*tell you
inform you of } the fact that John is tall.

(iii) S. John is tall, isn't he.

A. Yes, John is tall.

(iv) I { *acquiesce to you
*agree with you on
acknowledge to you } the fact that John is tall.

"Inform" and "acknowledge" are not necessarily the most defensible performative predicates for the two answers. But even if they were, the fact that both answers are anaphoric would be syntactically explained, under the performative analysis, as only an accidental consequence of both answers' being complements of predicates that happened to be factive. The similarity of function within discourse of the two (both are answers to yes-no questions, and hence anaphoric) would not be explained.

If, however, anaphoricity is a concomitant of TH, the notion of anaphoricity will be expressed simply in the complementizers of the sentences, and one need not stretch his imagination to find an appropriate factive performative predicate for every sort of anaphoric sentence.

5. By redefining "factive predicate" as meaning not "one which presupposes that its complement is true", but rather "one which presupposes that its complement is anaphoric", I admit into the class of factives some predicates that did not belong, under the old definition. "Deny" is such a predicate. "Deny" does not presuppose that its complement is true, but does presuppose that its complement is anaphoric. Support for my redefinition is provided by the fact that "deny" behaves syntactically exactly like a factive. It allows gerunds, but not Subject-Raising or "so".

(i) I deny having done it.

(ii) *I deny Mike to have done it.

(iii) *I deny so.

6. Kuno (to appear) distinguishes four types of NP's. They

are: specific, non-specific, generic, and qualitative. The last are also called property NP's or predicative NP's. Examples are "a doctor" in (i) and "doctors" in (iii).

- (i) Kim is a doctor.
- (ii) *A doctor is Kim.
- (iii) Kim and Pat are doctors.
- (iv) *Doctors are Kim and Pat.

I think, however, that the basic distinction, for syntactic purposes, is specific vs. non-specific, with qualitative and generic NP's being subclasses of the non-specific. For our purposes, however, the difference between qualitative and non-specific is not an important one, and I will have no more to say about it.

7. I have shown (p. 17) that generics and plain non-specifics are in complementary distribution. However, there are some predicates that may take both factive and non-factive complements. The question, then, is whether indefinite NP's as arguments of these predicates will be two, three, or four-ways ambiguous. The following examples explore this problem.

- (i) They reported that a cruel miscarriage of justice had taken place. [factive, non-factive]
- (ii) They reported that a cruel miscarriage of justice had taken place, but that was a patent lie. [non-factive, *factive]
- (iii) They reported that a cruel miscarriage of justice had taken place, but only long after it was irrevocable. [factive, *non-factive]
- (iv) They reported a cruel miscarriage of justice. [?specific factive, specific non-factive, non-specific non-factive, generic factive]
- (v) They reported a cruel miscarriage of justice, whenever they felt like it, whether one had occurred or not. [non-specific non-factive]
- (vi) They reported a cruel miscarriage of justice whenever one occurred. [generic factive]
- (vii) They reported a cruel miscarriage of justice, namely, the conviction of Mrs. Rogers, but of course it was a lie. [specific non-factive]
- (viii) ?They reported a cruel miscarriage of justice, namely, the conviction of Mrs. Rogers, but only long after it had happened. [specific factive]

These examples show that indefinite NP's as arguments of factive/non-factive predicates are four ways ambiguous, as I would predict.

8. In my speculations as to the constant semantic characteristics of TH, I have been especially interested in the work Yuki Kuroda (1965 and 1971) has done on the meaning of the particles "wa" and "ga" in Japanese syntax. He makes a distinction between categorical andthetic judgements and shows that "wa" attaches to the subject of categorical judgements, while "ga" attaches to the subject ofthetic judgements. However, Japanese makes no automatic distinction between definite and indefinite, specific and non-specific.

I think that the distinction between categorical andthetic judgements is operative in English syntax as well, and that part of the function of TH is to mark this distinction. Of this distinction, Kuroda (1971, p.2) says: "Of these [categorical andthetic], only the former conforms to the traditional paradigm of subject-predicate, while the latter represents simply recognition or rejection of material of judgement. Moreover, the categorical judgement is assumed to consist of two separate acts, one, the act of recognition of that which is to be made the subject, and the other, the act of affirming or denying what is expressed by the predicate about the subject. With this analysis in mind, thethetic and the categorical judgements are also called the simple and the double judgements."

He argues that all generic sentences are categorical judgements, and he defines generic more broadly than usual. He says (1971, p. 13), "I call a sentence generic if the statement made by it is a statement about a general, habitual, or constant state of affairs of some sort, and [non-generic] if the statement made by it refers to a particular occurrence of an event or state of affairs." In this sense, (i)-(iv) are generic, (v) and (vi) are non-generic, and (vii) has both a generic and a non-generic reading (Kuroda's examples).

- (i) Men are animals.
- (ii) John is an American.
- (iii) Men walk.
- (iv) John reads.
- (v) A man is walking there.
- (vi) John is reading a book.
- (vii) John walked in the garden.

Kuroda also says that all sentences with generic subjects are categorical judgements, and that the subject of a non-generic categorical judgement must be definite. Thus (viii)-(x) can be (but are not necessarily) categorical judgements, but (xi) cannot.

- (viii) The man is standing on the corner.

- (ix) John is standing on the corner.
- (x) John's friend is standing on the corner.
- (xi) A man is standing on the corner.

All of the above sentences can be thetic judgements, for thetic judgements may have definite as well as indefinite subjects. The distinction between the categorical and thetic readings lies in the speaker's intention. In the categorical judgements, "the speaker's interest is directed towards the entity corresponding to [the grammatical subject], not just as a participant of these events. Rather, his interest is primarily directed toward this entity, and the reason why he wants to give an expression to the fact that he recognizes the happening of the event ... is precisely that he wants to relate the occurrence of the event to this entity. On the other hand, [in thetic judgements], the speaker's intention is directed toward [the grammatical subject] just insofar as it is a constituent of an event." (Kuroda, 1971, p. 18).

The only unambiguous situations so far are as follows: sentences with generic subjects may not be thetic judgements, and sentences with non-generic indefinite subjects may not be categorical judgements. However, since a categorical judgement is an assertion, a sort of taking of responsibility for a sentence, the former restriction may be suspended. That is, certain grammatical constructions, such as conditionals and disjunctions, allow one to avoid taking responsibility for the truth of a sentence. Consequently, these constructions may not contain categorical judgements, and sentences which would otherwise be categorical judgements, such as generics, are not categorical judgements in these contexts. Thus "men are animals" is not a categorical judgement in the following two examples.

- (xii) If men are animals, God is too.
- (xiii) Either men are animals or animals are men.

In my analysis, categorical judgements are topmost sentences generated with TH in their complementizers. Since topmost complementizers must delete, TH-movement must be able to apply. Hence categorical judgements must have definite or generic subjects. Thetic judgements are topmost sentences with semantically empty complementizers.

9. Kuno (1971) has also studied "wa" and "ga" in Japanese, and related his findings to English. He, however, has approached the problem from the point of view not of the S, but rather of the NP. That is, he focuses on the functions performed by the NP's "wa" and "ga" are attached to, rather than on the types of sentences of which they

are the subjects. He finds very useful, as do I, the traditional notion of functional sentence perspective-- a notion with a long history in linguistics, especially well developed in the Prague School.

Kuno is particularly interested in the concept of theme. He shows that, in Japanese, "wa" always marks "either the theme or the contrasted element of the sentence. The theme must be either anaphoric or generic, while there is no such constraint for the contrasted element. Ga as subject case marker is either for neutral description or for exhaustive listing." I am most interested here in his notion of theme. I believe TH may also have a contrastive function in English, but I will not have much to say about this aspect of its use.

A connection has long been felt to exist among the notions of theme, topic, old information, and left-most position, as opposed to focus, comment, new information, and right-most position. Part of the purpose of my analysis of TH is to make the connections among the first four more explicit and to express them formally.

10. Paul Kiparsky has suggested to me that this may not be correct, at least not in all languages. It is possible that the presence or absence of a definitizer on the auxiliary marks the distinction between partitive (without TH) and non-partitive (with TH) and/or the distinction between perfective (with TH) and imperfective (without TH). These distinctions are illustrated by the following examples in English.

- (i) I drank coffee. [partitive]
- (ii) I drank the coffee. [non-partitive]
- (iii) I was lifting the piano. [imperfective]
- (iv) I lifted the piano. [perfective]

If these distinctions were reflexes of TH, we would expect the members with TH to show signs of anaphoricity. And indeed, the partitive vs. non-partitive distinction is marked, in English, by the absence vs. presence of the definite article. Furthermore, in "after" adverbials, which require anaphoric arguments (this includes generics) (cf. (v)-(vii)), non-partitives and perfectives may occur, but not partitives and imperfectives.

- (v) After a play, people come pouring out of the theater. [generic]
- (vi) After the play, people came pouring out of the theater. [anaphoric]
- (vii) *After a play, people came pouring out of the theater. [non-anaphoric (ignore past generic reading)]

- (viii) After I drank the coffee, I left. non-partitive
- (ix) *After I drank coffee, I left. partitive
- (x) After I lifted the piano, I left. perfective
- (xi) *After I was lifting the piano, I left. imperfective

These examples give some plausibility to the idea that TH can attach to the auxiliary, but, as the matter needs much further study, I will not at this time adopt the position that it can.

11. For some reason, indefinites with quantifiers undergo Subject-Raising much more easily than indefinites in "a" or simple plural indefinites. Any quantifier at all seems to improve the situation vastly. However, I think this fact says more about quantifiers than about indefinites.
12. An example of the interaction of Passive and TH-Movement is provided by the following examples, where both the underlying subject and the underlying object can have generic readings (brought out by the relative clauses with "any") when and only when they are in subject position on the surface.
 - (i) Beavers (with any brains) build dams (*with any structural integrity).
 - (ii) Dams (with any structural integrity) are built by beavers (*with any brains).

CHAPTER II: RHETORICAL QUESTIONS

In this chapter, I will investigate rhetorical questions to see what makes them special and to see what they can tell us about questions and answers in general. In section II.1, I explore yes-no rhetorical questions and suggest a tag-sentence source for them. In section II.2, I explore WH rhetorical questions and suggest a similar source for them. In section II.3, I offer arguments justifying the existence of the tag-sentence source for WH rhetorical questions.

Answers to rhetorical questions are supposed to be obvious to both speaker and hearer and hence do not need to be expressed. Before beginning, I would like to exclude from consideration some types of questions which might be considered rhetorical, but are not, in my sense.

One type I wish to exclude is the class of self-rhetorical questions. These are often used in speeches. The speaker acts as both speaker and hearer. The answer is obvious to him, as speaker and hearer, but not necessarily to anyone else. This special situation allows the breaking of many rules otherwise valid for rhetorical questions. An example of this usage is "Who do I support for President? Why, Ralph Nader, of course!"

The other type I wish to exclude is the class of rhetor-

ical questions used as answers to other questions. These, too, break some otherwise valid rules. The question "Does Sam like pizza?" might receive the rhetorical response "Do horses like grass?", which suggests that the relationship between Sam and pizza is the same as the relationship between horses and grass. This does not necessarily mean that the answer is obviously "yes"--for all we know, horses hate grass--but it obviously is their natural food. Thus we may assume that pizza is Sam's staff of life, whether he truly enjoys it or not. A sub-type here is represented by "Who doesn't like him?" in response to "Who likes him?"

There are probably other types I should exclude, but, with at least these caveats, let us look at rhetorical questions.

II.1 Yes-No Rhetorical Questions In yes-no rhetorical questions, the form of the question always reveals which one of the two possible answers it is that is supposed to be the obvious answer. The way it works out grammatically is that negative rhetorical questions expect positive answers and positive rhetorical questions expect negative answers.

- (1) Q. Don't you want to grow up big and strong?
 (A. Yes, of course I do.)
- (2) Q. Do you want people to think we live in a pigsty?
 (A. No, of course I don't.)

(3) Q. Don't I work my fingers to the bone for you?

A. Yes, of course you do.

(4) Q. Is it necessary to shout like that?

A. No, of course it isn't.

Thus if the underlying structure of the question is, very roughly, $\{\emptyset\}$ NP VP, the meaning is "speaker believes that $\{\text{neg}\}$ ¹ ² ³ and that hearer will agree that $\{\text{neg}\}$ ² ³" (switching "I" and "you" if they occur).

Now, it is curious that the expected answer always has negativity opposite to that of the question. It is not the case that all negative questions expect positive answers and all positive questions expect negative answers. For instance, positive and negative polarity items can bias the expectation the other way by making one answer more grammatical than the other.

(5) Q. Didn't you get very much?

Expected A. No, I didn't.

(6) Q. Has it already started?

Expected A. Yes, it has.

Even in the general case, negative questions "expect" negative answers in a certain sense. Chafe (1968, p. 24) expresses it as follows: "The speaker is communicating that recent evidence (often, though not necessarily, something

the hearer just said) suggests that the question will elicit a negative answer, although previously the speaker would have expected it to elicit an affirmative one." This sort of situation is acknowledged explicitly by the answer in (7).

(7) Q. Aren't you going?

A. Well, I was going to but I've changed my mind.

Positive questions are even more complicated. They may be truly neutral, or, using intonation and emphatic stress, may be biased toward either a positive or a negative answer.

(8) Q. Can you stand on your head? (neutral)

(9) Q. Did he say that? (sounding doubtful) (biased toward negative)

A. Well, no, but he implied it.

(10) Q. Oh, is that what he said. (biased toward positive)

A. Yes.

Given this complex situation in the expected answers to regular yes-no questions, the simplicity of the rule for the expectations in rhetorical yes-no questions is all the more surprising. To achieve this simplicity, the types of yes-no questions which are biased the wrong way--toward

answers of matching negativity--either are ruled out as rhetorical questions or change their bias. Thus (5) and (10) are out as rhetorical questions, (7) loses its component of surprise and doubt, leaving the original positive expectation, and (6) and (8) become negatively biased with the addition of emphatic stress on the final word of the question. This emphatic stress is part of the outraged intonation which is characteristic of rhetorical questions.

To rephrase this a bit, positively-phrased rhetorical questions containing positive-polarity items are acceptable only to the degree that the corresponding statement, with negative inserted, is acceptable. (11Q) is OK as a regular question, but out as a rhetorical question, because (11A) is ungrammatical.

(11) Q. Does it rarely rain?

A. *No, it doesn't rarely rain.

Similarly, negatively phrased questions containing negative-polarity items are acceptable only to the degree that the corresponding statement, minus the negative, is acceptable. (12Q) and (13Q) are OK as regular questions, but unacceptable as rhetorical questions, because (12A) and (13A) are out.

(12) Q. Didn't he arrive until 5:00?

A. *Yes, he arrived until 5:00.

(13) Q. Didn't he give a damn about her?

A. *Yes, he gave a damn about her.

However, we have here a double-edged sword. Rhetorical questions can be out because the question itself is ill-formed, even if the rhetorically expected answer is acceptable.

(14) Q. *Did he arrive until 5:00?

A. No, he didn't arrive until 5:00.

(15) Q. *Doesn't it never rain?

A. Yes, it never rains.

Again, these are matters of degree. (16Q), as a rhetorical question, is not as bad as (15Q) or (11Q); and (17Q), as a rhetorical question, is not as bad as (14Q) or (12Q) are.

(16) Q. ?Doesn't it rarely rain?

A. Yes, it rarely rains.

(17) Q. ?Did you have very much fun?

A. No, I didn't have very much fun.

The reason this sword is double-edged is that rhetorical questions have syntactically a negativity opposite to that which they have semantically. This means that they must meet

both the constraints on normal questions and those on the corresponding statements with the opposite negativity.

However, the dual nature of rhetorical questions seems to hold strictly only with respect to negation. We would expect rhetorical questions to obey both constraints on questions and constraints on statements. Now, they certainly obey constraints on questions. For instance, like questions, and unlike statements, they do not allow sentential adverbs.

(18) Q. *Certainly, shouldn't we treat them at least as well as the animals?

A. Yes, certainly, we should treat them at least as well as the animals.

But rhetorical questions don't always obey constraints on statements. That is, they allow things questions allow and statements do not allow. For instance, "shall" has a usage in questions which is impossible to get in statements.

(19) Q. Shall I just forget about it?

A. No, you shall not just forget about it.

"Shall" in (19A) does not mean the same as "shall" in (19Q), and (19A) is not a good answer to (19Q). However, (19Q) is a pretty good rhetorical question, to which the expected answer is "No, of course not!", even though (19A), the fuller

answer, is not a good answer. (Notice that (20) is good. This would be something of a problem for those who derive tag questions by copying the subject and auxiliary of a declarative.)

(20) I'll just forget about it, shall I?

On the other hand, questions that are interpreted as requests or imperatives, like (21)-(23), are no good as rhetorical questions. They also have no corresponding statements.

(21) Would you (please) leave me alone?

(22) Will someone (please) turn off the lights?

(23) May I (please) have it?

In summary, we may say that yes-no rhetorical questions must obey the negativity constraints of both the question itself and of the expected answer. The same holds, though not as strictly, for constraints on use and meaning of modals.

Now let us examine the relationship between replies to rhetorical questions and the presuppositions of those questions. As pointed out previously, the expected answer to a positive yes-no rhetorical question is negative, and the expected answer to a negative yes-no rhetorical question is positive.

Let us consider the latter case first. When used as normal questions, sentences like (24) are used when the speaker had been supposing the corresponding positive statement (25) to be true, but for some reason has come to be unsure enough to need to check with someone else. Only in this special sense can (24), as a normal question, be said to presuppose (25).

(24) Isn't it time for lunch?

(25) It is time for lunch.

However, when (24) is used as a rhetorical question, this element of doubt is not present. The speaker firmly believes (25) to be true, and thinks the hearer does too. He uses the question form only as a rhetorical device to involve the hearer, even if reluctantly, in the affirmation of (25). Since there is no element of doubt in (24) when it is used as a rhetorical question, we can safely say that (25) is the presupposition of (24). (25) is also the expected answer.

Now let us consider positively phrased yes-no questions. When used as normal questions, sentences like (26) can be quite free of assumptions or expectations such as that expressed in (27).

(26) Is it time for lunch?

(27) It isn't time for lunch.

However, when (26) is produced with a certain "surprise" intonation (on the last stress peak, pitch starts below normal, falls, then rises higher than the final rise of normal questions), it does presuppose (27), except for the same element of doubt as before. Now, the intonation of a rhetorical question is the same as this "surprise" intonation, except that the final rise does not go as high. The element of doubt disappears, and (26) presupposes (27) and expects (27), i.e., the corresponding negative statement, as its answer. This is demonstrated by an excerpt from a recent Maxwell House television commercial:

(28) Does this look like instant coffee? But it is!

Here the fact that the expected answer is negative is shown by the fact that the contradiction-introducer "but" precedes the positive rejoinder. For yes-no rhetorical questions, then, we can say that the presupposition and the expected answer are identical.

I have shown that rhetorical questions must meet both the constraints on questions and the constraints on statements of opposite negativity, and that the questions in fact presuppose the corresponding statements of opposite negativity. This situation is reminiscent of one class of

tag sentences, which are composed of a statement plus the auxiliary and subject pronoun of the corresponding question with opposite negativity. This similarity and the near synonymy of these tag sentences (under one intonation) and rhetorical questions suggest that the two may share a common source. (29) illustrate this synonymy. (The intonation starts lower than normal on "is", falls slightly, then rises to about normal.)

(29) T. That's no way to act, is it?

Q. Is that any way to act?

(30) is the source that suggests itself for both.

(30) That is no way to act, is that any way to act?

Rhetorical questions would be derived by deleting the entire statement, tag sentences by deleting all but the auxiliary and subject of the question, and pronominalizing the subject.

These transformations work smoothly enough when both the statement and the question are grammatical, but interesting differences appear when the deleted portion is ungrammatical. If the statement is ungrammatical, deleting it leaves the rhetorical question still ungrammatical, as (31) illustrates.

(31) John had very much fun, didn't John have very

much fun?

Q. Didn't John have very much fun?

(31Q) is acceptable as a regular question, but not as a rhetorical question.

However, in the derivation of tag sentences, if the ungrammatical part of the question is deleted, the tag sentence is still good. Thus the effect of the transformation is like that of Ross' Sluicing, which makes grammatical sentences out of ungrammatical ones. This is illustrated in (32).

(32) John didn't arrive until 6:30. did John arrive
until 6:30?

T. John didn't arrive until 6:30, did he?

Why should one transformation be able to wipe out ungrammaticality, while the other, otherwise so similar, cannot? One possible explanation lies in the expected answers. In both cases the expected answer is essentially identical to the statement half of the underlying structure. In (32) the statement half is grammatical, but in (31) it is not. Thus in (32) the statement half is doubly important, since it is both the half that remains in surface structure and the expected answer, and the question half is of less importance. In (31), on the other hand, the two halves are

about equally important, and both influence the grammaticality of the rhetorical question. This is a very tentative suggestion, and the difficulty of expressing it formally is one of the principal drawbacks of this derivation of yes-no rhetorical questions.

A second drawback for relating yes-no rhetorical questions to tag sentences is that rhetorical questions allow parenthetical expressions that the corresponding tag sentences do not allow.

- (33) RQ. Is he here, I ^{*wonder} ask you ?
 T. He isn't here, is he, I ^{*wonder} ask you ?

The fact that "I ask you" is not acceptable with tag sentences is perhaps not too surprising or serious a drawback, for "I'm telling you" may not occur with tag sentences either. Furthermore, "after all" occurs with both tags and rhetorical questions.

- (34) $\left\{ \begin{array}{l} \text{After all,} \\ \emptyset \end{array} \right\}$ is this such a bad deal, $\left\{ \begin{array}{l} \emptyset \\ \text{after all} \end{array} \right\}$?
 (35) A. After all, this isn't such a bad deal, is it?
 B. This isn't such a bad deal, after all, is it?
 C. This isn't such a bad deal, is it, after all?

"After all" also occurs with WH rhetorical questions. "Anyway", however, is good with WH but not yes-no rhetorical questions.

(36) A. Who brought you up, after all?

B. Who wants to be fat, after all?

(37) WHQ. What kind of deal is this, anyway?

YNQ. *Is he here, anyway?

T. *He's here, isn't he, anyway?

Parentheticals, it appears, are not going to provide strong arguments one way or the other on the relationship between tag sentences and rhetorical questions.

The principal drawback for this derivation of yes-no rhetorical questions is that it apparently does not generalize to include WH rhetorical questions. WH questions have no corresponding tag sentences, and, in fact, no corresponding grammatical statements at all. Normal WH and yes-no questions are usually derived by the same set of rules (WH-Preposing, Subject-Aux Inversion, etc.) from very similar sources. But there seems to be no statement-question source for WH questions, and hence no parallelism between yes-no rhetorical questions and WH rhetorical questions, if yes-no rhetorical questions are indeed derived from a statement-question source. I will return to this problem after a discussion of WH rhetorical questions.

II.2 WH Rhetorical Questions The expected answers to WH rhetorical questions are much more difficult to characterize

than the expected answers to yes-no rhetorical questions. Here again the answer is supposed to be obvious to both speaker and hearer. Generally, there is either an obvious specific positive answer, or the answer is a negative NP-- a null set.

(38) Q. Who brought you into this world, anyway? Who taught you everything you know, took care of you, worked her fingers to the bone for you?

(A. You, Mama.)

(39) Q. Who wants yesterday's paper?

(A. Nobody.)

(40) Q. Why do people climb mountains?

(A. Because they're there.)

(41) Q. Why bother to tell him?

(A. Yeah, I guess there's no reason to.)

(42) Q. You threw him into the briar patch? Where do you think rabbits live?

(A. In the briar patch?)

(43) Q. Where are we going to get another 1949 Chevy muffler at 11:00 on Sunday?

(A. Nowhere.)

(44) Q. What does every man want?

(A. Everything he can get.)

(45) Q. What can you do with an idiot like that?

(A. Nothing.)

It is not always obvious from the syntax of the question which type of answer is expected. (46Q) might be expecting either the null set (46A1) or a positive answer something like (46A2).

(46) Q. Why should we fight Communism?

A1. No reason, obviously.

A2. Because it is the greatest evil imaginable,
obviously.

However, sometimes the syntax of the question does tip us off as to which sort of answer is expected. If the question contains a negative-polarity item, we know that the answer is supposed to be negative. Certain other items behave in the same way. (Here asterisks indicate impossibility as expected answer only.)

(47) Q. Why should anybody fight Communism?

A1. There is no reason for anybody to fight
Communism.

A2. *(Anybody should fight Communism) because
it is the greatest evil imaginable.

(48) Q. Wherever are we going to find such a thing?

A1. Nowhere.

A2. *In the attic.

(49) Q. Who else would treat us so well?

A1. Nobody else.

A2. *Somebody else/*Richard Nixon else.

(50) Q. When have you ever had very much fun around here?

A1. Never (have I had very much fun around here).

A2. *We always do (have very much fun around here).

Of course, some negative polarity items require a conditioning negative even in questions, and so (51) is out both as a normal and as a rhetorical question expecting a negative answer.

(51) *Who arrived until 5:00?

If, on the other hand, the question contains a positive polarity item, we know that what is expected is a specific positive answer.

(52) Q. Who is far more powerful than this fiend?

A1. Spiderman (is far more powerful than this fiend).

A2. *Nobody (is far more powerful than this fiend).

(53) Q. Where does it rarely rain?

A1. Right here (it rarely rains).

A2. *Nowhere (does it rarely rain).

(54) Q. What is going to happen sometime soon?

A1. The people will revolt (sometime soon).

A2. *Nothing (will happen sometime soon).

Those positive polarity items which are not necessarily out in certain negative contexts correspondingly do not necessarily rule out the expectation of a negative answer when they occur in a rhetorical question.

(55) Q. Who still believes that?

A1. Fanny still believes that.

A2. Nobody still believes that.

Sometimes negative answers are ruled out because they simply wouldn't make sense.

(56) Q. What time do you think it is?

A. *No time.

Now let us leave the subject of syntactic clues in the question as to which of the two sorts of answers is expected, and consider the constraints on the answers. Robin Lakoff (1970) makes a useful distinction between direct and indirect answers. Direct answers are those which supply all and only the information requested. Rhetorical questions require direct answers. The second class of questions which I excluded from consideration in the introduction to this

chapter provides a pseudo-exception to this generalization. It is a pseudo-exception because these questions are not true rhetorical questions. They are questions asked in response to another question, suggesting that the answer is the same for both. This answer may be indirect. Thus the expected answer to the question "Why does God make little green apples?", used in this way, is not "No reason", which is a direct answer, but rather "Nobody knows", which is indirect.

True rhetorical questions require direct answers. (57) shows some unacceptable indirect answers. (Here again, asterisks indicate only impossibility as the question's expected answer.)

(57) Q. Who is going to be the next President?

A1. *I don't know.

A2. *Well, it won't be Nixon.

A3. *Wallace will carry the South.

A4. *Stassen will win if we support him.

A5. *Stassen, who will win by three electoral votes, will be the next President.

These answers are all acceptable if the questioner asks the question and then immediately supplies the indirect answer himself. This is the other type of question I excluded in

the introduction.

The fact that answers to rhetorical questions must be direct does not mean that they must be exact or specific, however. For instance, specific indefinites are out, except, again, in the type of case just mentioned, where they are supplied by the questioner.

(58) Q. Who will be the next President, after all?

A. *A man with a Scotch name.

Most rhetorical questions about measurable quantities are not requests for exact measurements, but rather for measurements relative to other factors in the discourse.

To illustrate:

(59) S. I wish he would paint the ceiling, too.

Q. How tall do you think he is?

A. Not tall enough to paint the ceiling.

(60) S. I guess I'll be getting up.

Q. What the hell time do you think it is?

A. Way too {^{late}_{early}} for me to be getting up.

Non-specific indefinites are sometimes acceptable answers, but only when they have a generic interpretation.

(61) Q. What kind of animals builds dams, after all?

A. Beavers.

Quantifiers as answers may be partial instead of universal if there is a partial quantifier in the questioned constituent.

(62) Q. How many people are going to fall for that kind of crap?

A. $\left. \begin{array}{l} \text{Not many.} \\ \text{A lot.} \end{array} \right\}$

Later I will attempt to subsume these restrictions and possibilities in a general characterization of possible positive answers.

First, however, we must discuss the presuppositions of WH rhetorical questions. Let us begin by trying to be more specific about what presupposition is. A good working definition for declaratives is that if both S and its negation imply P, P is presupposed by S, and either agreeing or disagreeing with S involves accepting P. In the case of questions, if Q presupposes P, any direct answer to Q involves accepting P. (63) presupposes (64), and (65), as an answer to (63), obviously accepts (64).

(63) Why does Mike beat his wife?

(64) Mike beats his wife.

(65) Because he loves her.

One might think that (66), as an answer to (63), allows

the answerer to be noncommittal about (64), since (67) is as consistent with (68) as it is with (64). However, the meaning of (66) is better represented by (69), which involves accepting (64), than by (67), which does not necessarily accept (64).

(66) No reason.

(67) There is no reason why Mike beats his wife.

(68) Mike does not beat his wife.

(69) Mike beats his wife for no reason.

This is shown by the fact that (70), while not impossible as an answer to (63), is strange in the same way that (71) is strange.

(70) No reason--in fact, Mike doesn't beat his wife.

(71) The present King of France isn't bald--in fact, there is no present King of France.

The usual way to object to a presupposition is either to directly deny it, or to say "What do you mean?" followed by a denial.

(72) What do you mean? Mike doesn't beat his wife.

So we may say that (63) presupposes (64), since the positive and negative direct answers (65) and (66) both involve accepting

(64) as true.

A special problem arises with question words like "where", "when", and "how". For while Mike can beat his wife and still do it for no reason, he cannot beat his wife and still do it at no time, place, or in no way (although he can do it at no special time, etc.). This makes it difficult to say that (73) presupposes (74), since the negative answer (75) does not involve accepting (74), even though a positive answer like (76) does.

(73) When does Mike beat his wife?

(74) Mike beats his wife.

(75) Never.

(76) On Fridays.

(Note that these are also the question words which may not be used to respond to a deleted performative.)

(77) Q. What is your opinion?

A. $\left. \begin{array}{l} *Where \\ Why \\ *When \\ *How \end{array} \right\} \text{ (do you ask)?}$

The fact that (75), as an answer to (73), is inconsistent with (74) is an accidental semantic fact. It must be written into the rules determining presuppositions, in something like the following manner, but it need not concern us further.

WH PRESUPPOSITION: ((WH X) Y) presupposes $\lambda X[X Y]$ is well-formed. ((WH Adv) S) presupposes S except that if ((N Adv) S) is considered incompatible with S, S is not presupposed.

Now, Katz and Postal (1964) say that questions like (63) ("Why does Mike beat his wife?") presuppose not only (64) but also (78).

(78) Mike beats his wife for some reason.

If this were true, our present understanding of presupposition would require that answering (66) ("No reason") would involve accepting (78). Instead, (66) constitutes an explicit denial of (78). This suggests that the connection between (63) and (78) is not quite the same thing as presupposition. Rather, it has to do with what I will call the supposition (see Chapter III), i.e., the speaker's belief, just prior to asking the question, as to whether $\lambda X[X Y]$ (read "the class of X such that X Y, cf. Jackendoff (forthcoming)) is null or non-null. In either case, the class is well-formed. Obviously, the speaker cannot believe both that the class is null and that it is non-null, but of course he can simply have no opinion on the matter. Sometimes the supposition affects the form of the question, so that the other supposition is not possible for that question: sometimes the

question is ambiguous or neutral. For instance, (63), as a normal question, may be supposing either (78) or (69).

This analysis contradicts Katz and Postal (*ibid.*) in two ways. Katz and Postal claim (p. 116) that (79) presupposes not just (80), but also (81).

(79) Why did Harry go home?

(80) Harry went home.

(81) Harry went home for some reason.

I claim that not only is (81) not a presupposition (when (79) is a normal question) but rather a supposition, but also that it is not the supposition of the question but rather one of two possible suppositions, the other one being (82).

(82) Harry went home for no reason.

The idea that questions have suppositions is supported by rhetorical questions. Here the supposition is specifically exploited and, in fact, raised to the level of presupposition. Giving the wrong answer (83A1) has exactly the same effect as the denial of any other presupposition (cf. (83A2)), may be preceded by "What do you mean?", etc.

(83) Q. Why are we fighting, after all? [used as a rhetorical question with negative presupposition]

A1. What do you mean? We have a damn good reason
for fighting!

A2. What do you mean? We aren't fighting!

Let us now look again at the problem with "when", "where", and "how". It seems that with these words, in normal questions, supposition and presupposition are intimately connected. Or rather, the presupposition is reduced to the level of supposition and is dependent on the main supposition of the question, as follows:

CONDITIONAL SUPPOSITION: If ((N Adv) S) is considered incompatible with S, ((WH Adv) S) $\left\{ \begin{array}{l} \text{supposes} \\ \text{presupposes} \end{array} \right\} \underline{S}$ when it $\left\{ \begin{array}{l} \text{supposes} \\ \text{presupposes} \end{array} \right\} ((\text{TH Adv}) S)$, and not \underline{S} when it $\left\{ \begin{array}{l} \text{supposes} \\ \text{presupposes} \end{array} \right\} ((\text{N Adv}) S)$.

For the question "When does Mike beat his wife?", if (84) is supposed, so is (85), and if (86) is supposed, so is (87).

(84) Mike beats his wife at some time.

(85) Mike beats his wife.

(86) Mike beats his wife at no time.

(87) Mike doesn't beat his wife.

Similarly, when "When does Mike beat his wife?" is a rhetorical question, if (84) is presupposed, so is (85), and if (86) is presupposed, so is (87).

As mentioned previously, some questions have only one possible supposition. Thus (88) has only a positive supposition.

(88) Who did pretty well in the finals?

When (88) is used as a rhetorical question, the expected answer is a definite person, i.e., a person who did pretty well in the finals, and who the speaker believes he and the hearer agree is the person. Whenever a question may have a positive supposition--when it may suppose that the corresponding statement, with a positive indefinite replacement for the WH-word, is true--the corresponding rhetorical question, making this supposition a presupposition, may expect this sort of definite answer. For (88), this is the only sort of answer that is possible.

Similarly, (89) may only have the negative supposition (91).

(89) When have you ever said very much?

(90) *At some time have you ever said very much.

(91) At no time have you ever said very much.

When (89) is used as a rhetorical question, the expected answer is negative. Whenever a question may have a supposition with a negative replacement for the WH-word, the

corresponding rhetorical question may expect a null set answer. For (89), this is the only sort of answer that is possible.

Notice that the negative must be in the WH-word replacement. (92) presupposes (93), which is negative, but its supposition may still be either positive, as in (94), or negative, as in (95).

(92) Why didn't anybody come?

(93) Nobody came.

(94) There is some reason why nobody came.

(95) There is no reason why nobody came.

Most WH questions, like (96), are ambiguous in a certain sense.

(96) Who likes peanuts?

It would be wrong to say that (96) supposes both (97) and (98). Rather, it may suppose, with each usage, either one or the other.

(97) Somebody likes peanuts.

(98) Nobody likes peanuts.

Katz and Postal recognized only the possibility of positive substitutes for WH-words in such suppositions. The

existence of the second possibility is borne out by the fact that the following two exchanges are equally natural discourses.

(99) A. Who likes peanuts?

B. I don't know anybody who does.

A. But somebody must!

(100) A. Who likes peanuts?

B. I don't know anybody who does.

A. Aha! See what I mean?

Not all WH questions are ambiguous in this way, but a great many are. And each ambiguous WH question, as a rhetorical question, is ambiguous as to whether it is presupposing a positive or a negative answer.

The relationship between presupposition and answer is as direct as for yes-no rhetorical questions in the case of null set presuppositions for WH rhetorical questions. That is, the presupposition and the expected answer are identical. Thus if "Who likes peanuts?" is used as a rhetorical question with the negative presupposition "Nobody likes peanuts", this is also the (presupposed) expected answer.

But in the case of positive existence presuppositions, an extra step is required. This is what makes WH questions

more complicated than yes-no questions. The expected positive answer to a WH rhetorical question is never merely that the set is non-empty; rather, the membership of the set must actually be given. Perhaps one factor that is involved is Grice's (1968) rule of conversational implicature which requires that one must not tell less than he knows. Presumably, if one has direct knowledge that a set is non-empty, he knows of a member. Hence he is expected to answer not just that the set is non-empty, but rather to name the member. More specifically, he is expected to name the foremost member or the one that is suggested by the context. Here are four illustrative exchanges:

- (101) A. Who understands Aspects, after all?
 (with negative presupposition)
 B. Why, I know of at least three people who do!
 What makes you think nobody does?
 (B refuses to acquiesce to expected answer)
- (102) A. Who understands Aspects, after all?
 (with positive presupposition)
 B. Why, nobody even reads it! What makes you think
 anybody understands it?
 (B refuses to acquiesce to expected answer)
- (103) A. Who understands Aspects, after all?
 (with positive presupposition)

B. Why, I know of at least three people who do?
 Who are you thinking of? (B does not know
which positive answer is expected)

(104) A. Who understands Aspects, after all?
 (with positive presupposition)

B. I suppose you mean Noam Chomsky. (B is still
 not sure which positive answer is expected,
 names the most obvious member he can think of)

(105) shows that what is presupposed is not just the fact
 that the set is non-empty, but the more specific expected
 answer itself.

(105) A. Noam Chomsky must be a great intellect. Who
 understands Aspects, after all?

B. What do you mean? Noam Chomsky may have
written the book, but his wife understands
 it much better than he does.

Any answer to (105) except "Noam Chomsky" is a denial of a
 presupposition. This certainly seems like a strange thing
 to say, since this presupposition is in no way recoverable
 from the form of the question or predictable in isolation.
 This presupposition seems to be a fact not about language
 but about the discourse situation and the real world. But

the facts that the presupposed answer is either negative or positive and that the positive answers are restricted in a certain way--these are facts about language, and we need a way of expressing them formally in the structure of questions.

At the end of section II.1, I suggested a tag source for yes-no rhetorical questions. I pointed out that the major drawback of such a suggestion was that it did not seem likely to be able to generalize to the case of WH rhetorical questions. Let us now examine this problem more closely.

The answers to WH rhetorical questions are supposed to be obvious to both speaker and hearer. A particular answer may be either a null set or a definite NP. Now examine this argument by Bach (1971) that question words are indefinite.

The first thing to point out is the composition of the question word itself, embodied in the feature specification -Definite...For after all the function of a question is to obtain a specification of the value of x in an open sentence of the form $P(x)$. But it is of the nature of definite noun phrases that they embody a presupposition that the identity of the referent is known to both speaker and hearer, a condition that would seem to rule out a question-word question.

All this suggests that the fundamental property of WH rhetorical questions is that they use the definite-indefinite

distinction in a special and intrinsic way.

We have already seen that yes-no rhetorical questions use the positive-negative distinction in a special and intrinsic way. That is, the expected answer to a yes-no rhetorical question is always of negativity opposite to that of the question, and "maybe", etc. is impossible. The parallel that suggests itself is that the expected answer to a WH rhetorical question is always of definiteness opposite to that of the question. This means, since the question word is always indefinite, that the expected answer would always be definite. However, this is not true in the case of expected negative answers. Null sets are not definite. They do not meet any of Bach's tests for definiteness (Bach, 1971):

- (106) *Fuck nobody!
- (107) *I hereby christen nobody John Smith.
- (108) *As big as nothing was it didn't scare me.
- (109) Nobody else was at the party.

We see that the definite-indefinite distinction is used in WH rhetorical questions not instead of the positive-negative distinction, but rather in addition to it. Positive answers are definite; negative answers are indefinite. In the next section we will explore the consequences of this alignment and suggest a structure that incorporates it.

II.3 A Tag Sentence Source for WH Rhetorical Questions In this section, I will argue that the source for WH rhetorical questions is quite parallel to the tag sentence source for yes-no rhetorical questions. In the case of WH questions, this source does not have the independent justification, provided by the existence of tag questions derived from the same source, that it has in the case of yes-no questions. However, the existence of the tag sentence source for WH rhetorical questions is still independently justified, since this source has two realizations that do not exist in the case of the source for yes-no questions. These two realizations are pseudo-cleft sentences, and certain sentences containing relative clauses. I will argue that these two constructions have essentially the same source as WH rhetorical questions, and that therefore the postulation of the existence of this source is not simply an ad hoc attempt to unify the description of yes-no rhetorical questions and the description of WH rhetorical questions.

The difference between yes-no rhetorical questions and WH rhetorical questions is that in the former case WH is attached to a S^1 , while in the latter, WH is attached to a NP. Negative expected answers to yes-no rhetorical questions are S 's with N in their complementizers; negative expected answers to WH rhetorical questions are NP's with N in their determiners. Similarly, the positive expected answers to

rhetorical questions are best expressed in terms of the TH marker I argued for in Chapter I. The positive expected answers to yes-no rhetorical questions are S's with TH in their complementizers; the positive expected answers to WH rhetorical questions are NP's with TH in their determiners. In both cases, the answer must be anaphoric. This is more or less true by definition. After all, if the association between question and answer is neither presumably shared knowledge, in which case the answer must be generic or otherwise familiar to both speaker and hearer, nor a topic of present conversation, how can the speaker presuppose that the hearer will perform the association? [rhetorical question, negative presupposition]

This use of the TH marker allows a more unified description of rhetorical questions. It bridges what appears to be a large gulf between yes-no rhetorical questions and WH rhetorical questions. The two sources can now be represented as follows (at some level, perhaps not the deepest):

- (110) $\left[\left[\left[\left\{ \begin{array}{c} N \\ \text{TH} \end{array} \right\} X \right]_{\text{COMP}} S \right]_{S'} \left[\left[\text{WH } X \right]_{\text{COMP}} S \right]_{S'} S \right]_S$ (for yes-no)²
- (111) $\left[\left[\left[\left\{ \begin{array}{c} N \\ \text{TH} \end{array} \right\} Y \right]_{\text{DET}} NP \right]_{NP'} Z \right]_{S'} \left[\left[\left[\text{WH } Y \right]_{\text{DET}} NP \right]_{NP'} Z \right]_{S'} S \right]_S$
 (for WH rhetorical questions)

I pointed out in section II.1 that a tag sentence source seems quite plausible for yes-no rhetorical questions. Thus

both (112) and (113) would be derived from (114), and both (115) and (116) would, similarly, be derived from (117).

- (112) It's raining, isn't it?
- (113) Isn't it raining? (rhetorical question)
- (114) It's raining, isn't it raining?
- (115) It isn't raining, is it?
- (116) Is it raining? (rhetorical question)
- (117) It isn't raining, is it raining?

Now, given that WH rhetorical questions are ambiguous in the way I have described, we might derive (118) from either (119) or (120), while (121) would be unambiguously derived from (122), the first half of (123) being ungrammatical. Similarly, (124) would be unambiguously derived from (125), the first half of (126) being ungrammatical.

- (118) Where are such things found? (rhetorical question)
- (119) Such things are found There, such things are found WHere?
- (120) Such things are found Nowhere, such things are found WHere?
- (121) When have you ever done anything nice? (rhetorical question)
- (122) You have Never done anything nice, WWhen have you ever done anything nice?

- (123) *You have (THen) ever done anything nice, WHen have you ever done anything nice?
- (124) When were we far happier? (rhetorical question)
- (125) We were far happier THen, we were far happier WHen?
- (126) *We were Never far happier, we were WHen far happier?

Here the NP's in the first half of the tag sentence which correspond to the WH word in the second half may have either an N or a TH attached to them, corresponding to or indicating the presupposition of the rhetorical question. The rhetorical question is formed by deleting the first of the two juxtaposed sentences, just as for yes-no rhetorical questions. The same rule applies to both.

Unfortunately, the rule which forms tag questions from such juxtaposed sentences in the case of yes-no-type structures does not apply to the other type of case. There are no sentences like the following.

- (127) *Such things are found there, where?
- (128) *Such things are found nowhere, where?
- (129) *You have never done anything nice, when?
- (130) *We were far happier then, when?

On the other hand, there may be rules which apply to the latter type of structure, but not to the former. Thompson (1971) argues that relative clauses are derived from juxta-

posed sentences similar to the ones I have postulated as underlying WH rhetorical questions, except that she leaves the NP's determiner-less. Also, of course, the only identical part shared by the two juxtaposed sentences is the NP, while for rhetorical questions, the two sentences are identical except for the determiners of the NP's. The structures underlying WH rhetorical questions, if relativized, would give either contradictions or tautologies. As relative clauses, these are rather anomalous, but their meanings, as far as they make sense, are not far different from those of the corresponding rhetorical questions. Compare (131) with (132) and (133) with (134).

(131) Who am I, after all? (positive presupposition)

(132) I am (the one) who I am.

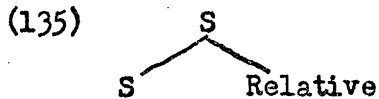
(133) Who has seen a unicorn, after all? (negative presupposition)

(134) Nobody who has seen a unicorn has seen a unicorn.

I believe that some relative clauses in English are derived from the same sort of structure as WH rhetorical questions. To see this, let us first examine the base rules which generate relative clauses.

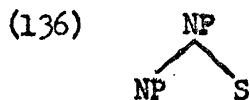
Ken Hale (1971) has argued that the universal base must include two different rules which generate relative clauses.

The first rule adjoins relative clauses to sentences, as in (135).



This rule limits the number of relative clauses to one per S node. That is, although the relative clause may itself contain a relative clause, a single sentence may not have a relative clause modifying its subject and another relative clause modifying its object.

The second rule embeds relative clauses under NP's, as in (136) (the order of NP and S is language-particular).



This rule may apply to any and every NP in a sentence.

Hale contends that languages start out with adjoined relatives, then develop an attraction rule which moves the relative clause next to the NP it modifies, at first optionally, then obligatorily. Finally, the relative clauses are reanalyzed as embedded structures.

Hale also contends that some languages have only the first base rule, with or without an attraction rule, some languages have only the second base rule, and some languages

have both. I think that English is one of the languages that has both rules. This means that some relative clauses in English will be ambiguous as to whether they are derived from embedded or adjoined structures, just as some negative NP's are ambiguous as to whether the negative was generated on the NP or derived from sentential negation (of which there may only be one per S node).

The structure which underlies adjoined relative clauses is also the structure underlying rhetorical questions. This structure is also similar to the structures underlying conditional sentences (under this category Hale includes both temporal conditionals with "when...then" and consequential conditionals with "if...then", calling both T-relatives), and probably also cleft and pseudo-cleft sentences. Of course, one cannot get all these sentence types from any one particular adjoined relative base structure. The transformations which realize such a structure all have differing conditions on them.

For certain pairs, however, the paraphrase relationships are rather close. Thompson (1971), among others, has pointed out the similarity between restrictive relative clauses on generic subjects, and conditional clauses. For instance, (137) is paraphraseable not by (138), (139), or (140), but only by (141).

- (137) No giraffe who has any brains will try to eat spaghetti.
- (138) No giraffe will try to eat spaghetti and
 { no giraffe }^{he} has any brains.
- (139) A giraffe won't try to eat spaghetti and a giraffe has brains.
- (140) If no giraffe has any brains, he will try to eat spaghetti.
- (141) If a giraffe has any brains, he won't try to eat spaghetti.

(137) and (141) are close paraphrases, if not completely equivalent. Deriving sentences like (137) from sentences similar to (141) explains some otherwise anomalous facts. For instance, NP's which seem to presuppose existence do not allow negative polarity items in their relative clauses. This includes generic NP's with appositive relative clauses. Generic NP's with restrictive relative clauses and the protases of conditionals do not seem to presuppose existence, and both allow negative polarity items. These facts are illustrated in the following examples.

- (142) *A giraffe, who has any brains, won't try to eat spaghetti.
- (143) *A giraffe who has any brains didn't try to eat spaghetti.

(144) A giraffe who has any brains won't try to eat spaghetti.

(145) = (141) If a giraffe has any brains, he won't try to eat spaghetti.

(146) *If a giraffe has any brains, he didn't try to eat spaghetti.

If (144) is derived from something like (145), there is only one generalization to be made here: "any" may not occur without a conditioning negative in relative clauses which are not generated in adjoined position. Also, the tense restrictions which are evident in (146) explain why a generic reading is impossible for (143). Protases of conditionals (and hence restrictive relative clauses on generics) must share "sequence of tenses" with their main verbs. Thus, if we replace "has" in (143) with "had", the sentence becomes grammatical, with a past generic reading. This restriction on tenses does not hold for relative clauses in general, as (147) shows.

(147) A giraffe who has no brains didn't try to eat spaghetti.

The following examples provide an even more convincing demonstration (for those that get (149)) that the restrictions on tense and mood in the protases of conditionals carry over also and only into restrictive relative clauses on generics.

- (148) If a man were to speak thus, he would be stoned.
 (149) A man who were to speak thus would be stoned.
 (150) *A man who were to speak thus was stoned.
 (151) *If a man were to speak thus, he was stoned.
 (152) *A man, who were to speak thus, would be stoned.
 (153) A man who was to speak thus failed to do so.

(149) is derived from (148). None of the other sentences is related to a grammatical conditional. The "be" in (153) doesn't mean the same as (and comes from a source different from that for) the "be" in (148) and (149). Cf. (154).

- (154) *A man who were to speak thus failed to do so.

One further argument that restrictive relatives on generics are derived from conditionals was pointed out to me by John Ross. "Vice versa" usually stands for a sentence obtained by interchanging two elements of another sentence. The interchange is not unconditioned, however. In particular, the VP's of a relative clause and a main sentence may not be interchanged. Thus, even though we can construct (155), and it is perfectly grammatical, (156) has no interpretation.

- (155) The boy who is snoring gets good grades, and
 the boy who gets good grades is snoring.

- (156) *The boy who is snoring gets good grades, and
vice versa.

There is usually no problem in interchanging the clauses
of a conditional.

- (157) Around here, if it's rainy, it's humid, and if
it's humid, it's rainy.

- (158) Around here, if it's rainy, it's humid, and vice
versa.

Strangely enough, (160), unlike (156) is grammatical
and synonymous with (159).

- (159) Any student who snores gets good grades and any
student who gets good grades snores.

- (160) Any student who snores gets good grades and
vice versa.

(The above examples are all due to Ross.) We must postulate
that (160) is not derived from (159), but rather that (160)
and (159) are both derived from (161). (The pronominalization
of "any student" is a complicating factor, but can presumably
be easily handled in a number of ways.)

- (161) If a student snores, he gets good grades, and if
a student gets good grades, he snores.

As we have seen, the "vice versa" rule can apply to structures like (161), but not to structures like (159). Thus (160) must arise from (161), with which it is also synonymous.

The point of this discussion of restrictive relative clauses on generics is the following: the underlying structure of, say, (149) ("A man who were to speak thus would be stoned") must be something like (162).^{3,4} This is exactly the same sort of structure as that underlying WH rhetorical questions (cf. (111)), except that in the case of these questions, the two S's are identical save for the WH in the relative sentence as opposed to the TH or N in the main sentence. The need for a structure like (162) thus supports the need for a structure like (111).⁵

(162) $\left[\left[\text{COMP} \left[\left[\text{TH a} \right]_{\text{DET}} \text{man} \right]_{\text{NP}}, \text{ would be stoned} \right]_{\text{S}} : \left[\text{COMP} \left[\left[\text{WH a} \right]_{\text{DET}} \text{man} \right]_{\text{NP}}, \text{ were to speak thus} \right]_{\text{S}} \right]_{\text{S}}$

Pseudo-clefts might also be derived from structures which are similar, at some stage, to the structures which I have postulated as underlying rhetorical questions. Thus compare (163) with (164) and (165) with (166).

(163) Where is he, after all? (positive presupposition)

(164) There is where he is.

(165) What has he done, after all? (negative presupposition)

(166) Nothing is what he has done.

Faraci (1970) has several arguments that pseudo-clefts come from questions. The following arguments show that this must be further restricted to rhetorical questions.

There is a great difference between questions like (167) and (168), and questions like (169) and (170). The former are, at least when in embedded position, what Ross (1970) calls conjunctive questions. The latter can only be what he calls disjunctive questions.

(167) Why did he do that?

(168) Who did this?

(169) Why in the world did he do that?

(170) Who the hell did this?

(167) and (168) can be rhetorical questions, presupposing either positive or negative (TH or N) answers. But (169) and (170) cannot be rhetorical questions. If they can be said to be rhetorical, it is not in the sense I have been discussing, for they cannot be used when an answer is presupposed, either positive or negative. Notice that both "nobody the hell" and "somebody the hell" are impossible NP's.

Ross has pointed out to me (personal communication) that disjunctive questions cannot be the containing⁶ arguments of pseudo-cleft sentences.⁷ (171) and (172)

illustrate Ross' generalization.

(171) *Why in the world he did it was to please me.

(172) *Who the hell did it was John.

Now, it seems to me significant that disjunctive questions can occur as regular but not rhetorical questions, and as clefted but not containing arguments in pseudo-clefts. If pseudo-clefts and rhetorical questions are derived from similar structures there is only one generalization here. There certainly is a strong semantic similarity between the two constructions. Rhetorical questions presuppose their answer; pseudo-cleft sentences supply their answer.

Furthermore, the clefted arguments of pseudo-clefts, like the expected answers to rhetorical questions, must, when positive, be TH NP's. That is, they may not be non-generic indefinites. Cf. (173) and (174).

(173) *A man is who I spoke to.

(174) *What I bought was something.

They also, like the expected answers to rhetorical questions, must be direct answers. "Nobody knows" is a good, though indirect, answer to the normal question "Who did he speak to?", but when the question is rhetorical, "nobody knows" cannot be the expected answer, and the pseudo-cleft (175) is impossible.

Similarly for (176).

(175) *Nobody knows is who he spoke to.

(176) *What Sal bought is maybe this dress.

Another example which demonstrates the similarity between pseudo-clefts and rhetorical questions is the following:

(177Q) and (177A) are a fine question-answer pair. But (177Q) can never be a rhetorical question--it cannot presuppose an answer. It also cannot be the containing argument of a pseudo-cleft sentence. Thus (178) is not grammatical.

(177) Q. What about John?

A. Throw him in the ditch.

(178) P1. *What about John is throw him in the ditch.

P2. *Throw him in the ditch is what about John.

The next argument shows that some questions which Ross calls disjunctive do occur as rhetorical questions, but they also occur as the containing arguments of pseudo-clefts, in violation of Ross' generalization. The fact that they are an exception to both his generalization (disjunctive questions may not be containing arguments of pseudo-clefts) and to the one I say follows from his (rhetorical questions may not be disjunctive) provides another argument for the similarity of the two constructions. The questions I am referring to

are those which can obviously expect only negative answers, e.g., those which contain negative polarity items. Such questions do occur as rhetorical questions, as in (179). However, they also occur as the containing arguments of pseudo-clefts, as in (180).⁸

(179) When has anybody ever done anything nice for her?

(180) Never is when anybody's done anything nice for her.

As a final example of the similarity between pseudo-clefts and rhetorical questions, I will argue that "whether" questions cannot be the containing⁹ arguments of pseudo-clefts, nor may they be rhetorical questions. Ross treats all "whether" questions as disjunctive questions, and, indeed, they fail to form pseudo-clefts. "Whether" forms pseudo-clefts neither with the words related to it (neither, either, both)¹⁰ nor with the specifiers it dominates.

(181) * $\left\{ \begin{array}{l} \text{Neither} \\ \text{Either} \\ \text{Both} \end{array} \right\}$ is whether he is coming or not.

(182) * $\left\{ \begin{array}{l} \text{That} \\ \text{Not} \\ \text{Yes} \\ \text{No} \end{array} \right\}$ is whether he is coming or not.

However, true disjunctive "whether" questions may not occur as rhetorical questions, either. It would be very strange

to use (183) as a rhetorical question presupposing one or the other of its possible answers.

(183) Are you coming or not, after all?

Notice that the question half of a tag question cannot be a disjunction, as in (184). We can't even get close to (184) by breaking up the disjunction; (185) is in, while the expected (186) is out.

(184) *You aren't coming, are you or aren't you?

(185) You aren't coming, are you? Or ARE you?

(186) *You aren't coming, are you? Or AREN'T you?

According to my analysis, the fact that (183) is a strange rhetorical question is a consequence of the fact that (184) is out,¹¹ Both of these facts are, in turn, related to the fact that sentences like (182) are out. All three constructions are derived from the same source, and that source does not allow disjunctive questions.

The arguments I have given present evidence that pseudo-cleft sentences are derived not just from question-answer pairs, but from rhetorical question-answer pairs. Again, of course, the structures underlying the two sentence types are not always identical. I pointed out previously that rhetorical questions linguistically presuppose no more than

that their answer has TH or N in its determiner. In the positive case, rhetorical questions also presuppose a particular answer, such as "to the store", but this presupposition is not linguistic. If it were, its deletion would not be recoverable.

The clefted arguments of pseudo-clefts, on the other hand, may either provide a particular answer, such as "to the store", or one which supplies no more information than TH or N.

(187) To the store is where I went.

(188) There is where I went.

(189) Nowhere is where I went.

The structures underlying (188) and (189) could also have been realized as rhetorical questions. The existence of the further possibility represented by (187) simply means that it is not necessary to restrict the TH or N NP's in the first clauses of the structures I have postulated (cf. (111)) to semantically empty NP's. When these NP's convey semantic information, the structure can still be realized--not as a rhetorical question, but as a pseudo-cleft sentence.¹² The underlying structure (190) can be realized either as (191) or as (192), but (193) can only be realized as (194).

(190) She is there; she is where.

- (191) There is where she is.
(192) Where is she? (rhetorical; positive presupposition)
(193) She is in her office; she is where.
(194) In her office is where she is.

In summary, I have shown in this chapter that yes-no and WH rhetorical questions are both derived from tag sentence sources. The first half of the structures contains TH or N, attached either to the entire S or to an NP, and represent the presupposed answer to the rhetorical question, which is deleted during the derivation of the question. The second half of the structures contains WH, again attached either to the entire S or to an NP. This is the half that appears on the surface. Such structures are independently justified in that they may also be realized as tag questions, in the case where TH or N and WH are attached to S's. In the case where TH or N and WH are attached to NP's, the structures may also be realized as pseudo-cleft sentences or sentences containing relative clauses.

Footnotes to Chapter II

1. On page 94, I give some arguments that WH is attached to a single S, rather than a conjunction or disjunction of S's.
2. This source does not express the fact that the S' containing WH is of negativity opposite to the S' containing TH or N. I have left it unexpressed partly because I am not sure how to represent this fact correctly, and partly because I have failed to convince some of my advisors that it is a fact. John Ross does not believe that positive yes-no rhetorical questions can only presuppose negative answers. He says rhetorical questions like "Do we need this raise, after all?" may presuppose positive answers. If he is right, the source in (110) will still accommodate such sentences: in such cases, both halves will be positive.
3. There are four details to be mentioned here. First, the TH in the determiner of the generic NP "a man" will, of course, be deleted. Second, I do not really wish to take a position as to the underlying order of the protasis and the apodosis of the conditional--I am not sure which comes first. Third, I am not sure whether the relative clause and the protasis of the conditional have exactly the same underlying structure--perhaps the structure realized as a conditional does not contain WH. Fourth, one reason the attraction or embedding rule for conditionals remains optional in English, in the case of generics, is that, in the case of specifics, it may not apply at all. And part of the reason for this may be that no restrictive relatives at all may be formed on proper nouns--a subset of specifics. Thus (i) cannot be transformed into (ii) by conditional embedding.
 - (i) If John were to make any objection, he would be fired.
 - (ii) *John who were to make any objection would be fired.
4. One prediction that we might make as a consequence of our hypothesis that restrictive relative clauses on generic NP's are derived from conditional clauses is that, since there can be only one conditional clause adjoined to an S, there may also be only one restrictive relative clause on a generic NP per S. At any rate, (i) and (ii) should be equally acceptable, or equally unacceptable.
 - (i) If a goat had any imagination, he would eat it, if anybody were to leave any laundry out on the line.
 - (ii) A goat who had any imagination would eat any laundry anybody were to leave out on the line.

Actually, most speakers do not find either of these sentences very bad. It is possible that the reason we can more or less get two conditionals in these sentences is that there are in fact two S's to attach them to. If one accepts Ross' contentions (1969 and forthcoming) that modals are main verbs and that in underlying structure there is a verb "do" dominating predicates like "eat", this is a plausible solution. For it is true that, with about the same acceptability as for the sentences under discussion, a conditional may be attached to an S embedded in an S that already has a conditional attached to it, as (iii) shows.

- (iii) If I can get up the courage, I will ask Bob to give me a cookie if he has any left.

It is an unfortunate consequence of Ross' hypotheses that there will seldom be more than one new NP per S. A sentence like "John eats beans" will have (amidst other structure) a higher sentence with "John" subject, "do" verb, and sentential object, and a lower sentence with a repeated "John" subject, "eat" verb, and "beans" object. A conditional on "John" would be attached to the higher S, and one on "beans" would be attached to the lower. This reduces to near vacuity our claim that there may not be more than one generic NP per S.

There are, however, at least two situations where the claim still has teeth. One is in sentences that have both direct and indirect objects, which would presumably both be introduced, for the first time, in the same S. The other is in predicate nominal sentences like "John is a doctor". Here, even if tense is an extra verb, it has no simple NP arguments, but only a sentential subject dominating "John be a doctor". (It is possible that these two constructions, too, can be analyzed as involving extra S's that remove the two virgin NP's from their indecent proximity. And indeed, the constraint seems to hold much better for the second construction than for the first. The following examples illustrate.)

- (iv) *If it has any raisins in it, I generally give a cookie to a child, if he has any desire for one.
 (v) ?*I generally give a cookie, if it has any raisins in it, to a child, if he has any desire for one.
 (vi) ?*I generally give a cookie that has any raisins in it to a child that has any desire for one.
 (vii) Anyone who has any real estate on the San Andreas fault is a fool.
 (viii) A fool is anyone who has any real estate on the San Andreas fault.
 (ix) *If anyone sold any property on the fault, he is a man, if he has any brains.
 (x) *If a man has any brains, he is $\left. \begin{array}{l} \text{someone} \\ \text{anyone} \\ \text{one} \end{array} \right\}$, if $\left. \begin{array}{l} \emptyset \\ \text{he} \\ \text{anyone} \end{array} \right\}$

sold any property on the fault.

(xi) *Anyone who sold any property on the fault is a man who has any brains.

(xii) *A man who has any brains is anyone who sold any property on the fault.

Here we see that the constraint holds absolutely for predicate nominal sentences, and a little more strongly than for subject and object in direct object-indirect object sentences. In (vii) and (viii), which at first appear to contain two generics, "a fool" is actually only a plain non-specific.

5. "Which" is unique among WH-words in that its expected answers are specifiable not as either TH or N, as for the other WH-words, but rather only as TH (usually subdivided into proximate and distal). Thus (i), where the negative polarity item "ever" rules out a positive presupposition, is ungrammatical. This is because "which" questions can only expect positive answers.

(i) *Which thing have you ever wanted, after all?

For the same reason, relative clauses, like (ii), which have negative heads and the relative pronoun "which", are ungrammatical.

(ii) *Nothing which you wanted...

One of the virtues of my analysis is that it explains these two ungrammaticalities in the same way. Their common source, two juxtaposed sentences containing two coreferent NP's, one of which has the determiner "which", the other of which has an N in its determiner, is always going to be ungrammatical. Consequently, any sentence derived from such a source, whether it be rhetorical question or relative clause, will also be ungrammatical.

(iii) * $[X [N X]_{DET} NP_i X]_S [X [which]_{DET} NP_i X]_S$

"Which" can be an S specifier, as well as an NP specifier. Thompson (1971, p. 88) argues that (iv) is derived from the same sort of structure as (v).

(iv) Joe debated in high school, which Chuck did too.

(v) Joe debated in high school, and Chuck debated in high school, too.

However, even though (vi) is perfectly grammatical, (vii) is not.

(vi) Joe didn't debate in high school, and Chuck didn't debate in high school, either.

(vii) *Joe didn't debate in high school, which Chuck didn't either.

Similarly, Thompson derives (viii) from (ix).

(viii) She dances well, which I don't.

(ix) She dances well, and I don't dance well.

Again, however, we do not get (x) from (xi).

(x) *She doesn't dance well, which I do.

(xi) She doesn't dance well, and I do dance well.

Thompson's analysis predicts that (vii) and (x) will be grammatical; my analysis predicts that they will be ungrammatical. For unless there is a special reason not to, S specifiers behave just like NP specifiers. Thus, just as (iii) is a bad structure, so is (xii).

(xii) * $[X [N X]_{COMP} S_1 X]_S [X [which]_{COMP} S_1 X]_S$

The two structures are quite parallel.

I should point out that sentences like (xiii) are only spurious counterexamples to my claim.

(xiii) She doesn't dance well, which annoys me.

(xiv) and (xv) show the difference in structure, before deletion, between (x) and (xiii). In (xiv), the N is juxtaposed to "which" --this is the illegal structure--while in (xv), N is only part of the structure dominated by "which".

(xiv) She does N [dance well], which [dance well] I do.

(xv) [She does N dance well], which [she does N dance well] annoys me.

Thus there is no reason why such sentences should be ungrammatical.

Thompson explains two more types of examples, represented by (xvi) and (xvii), by her sentence juxtaposition hypothesis.

(xvi) That Cornelius was pleased, which he certainly had reason to be, was obvious.

(xvii) She taught me to stand on my head, which I had never done before.

Again, the corresponding sentences with N juxtaposed to "which" are ungrammatical.

(xviii) *That Cornelius wasn't pleased, which he certainly had no reason to be, was obvious.

(xix) *She taught me not to stand on my head, which I had often done before.

My analysis explains all of these ungrammatical sentence types in the same way. It does this by giving a unitary view of the specifiers of S's and of NP's, and by postulating the same sort of source for rhetorical questions and sentences containing relative clauses. (I have not specifically argued that the relative clauses discussed here are derived from adjoined structures, but I think that that is in fact the case.) The constraint against juxtaposing N and "which" is not a strong constraint, however. Some people do not have it at all, and get all of the structures (i)-(xix). Their dialect simply says nothing about my analysis. Others are slightly uneasy about the sentences I have starred, finding some more acceptable than others, but neither totally accepting nor rejecting any type consistently. This dialect provides weak support for my analysis.

6. Consider the following sentence:
 (i) What he said was that he hated liver.
 This is a pseudo-cleft sentence. "What he said" is what I will call the containing argument. It might also be called the structure clefted out of, or the argument to which WH is attached. "That he hated liver" is what I will call the clefted argument. It might also be called the contained argument, or the argument to which TH or N is attached. "What he said" is the question; "that he hated liver" is the answer.
7. Ross' assertion that disjunctive questions cannot be the containing arguments of pseudo-clefts is dependent upon some further assumptions he makes as to the source of the second arguments in (i) and (ii).
 (i) Why in the world he did it is a good question.
 (ii) Who the hell did this is anybody's guess.
 Here the first arguments, which are disjunctive questions, appear to be the containing arguments, in violation of Ross' assertion. What he contends is that, underlyingly, the first arguments are the clefted arguments and the second arguments are the containing arguments. He points out, correctly, that disjunctive questions may perfectly well be the clefted arguments in pseudo-cleft sentences, as in (iii) and (iv).
 (iii) What he asked me was why in the world I had done it.
 (iv) What she wanted to know was who the hell did this.
 Underlying (ii), then, would be something akin to (v).
 (v) What anybody might guess is who the hell did this.
 Those who do not accept this suggestion might simply consider sentences like (i) and (ii) exceptions to Ross' otherwise valid generalization. At any rate, there could still be no rhetorical questions corresponding to (i) and (ii), because "a good question" and "anybody's guess" in the sense used here could never be presupposed answers.
8. Those who do not accept (180) probably have difficulty getting any pseudo-clefts with negative clefted arguments. Thus they probably will not like (i) or (ii).
 (i) Nowhere is where I went.
 (ii) What I said was nothing.
9. "Whether" questions may, of course, be the clefted arguments of pseudo-clefts, but even this use is restricted, as the following examples show.
 (i) What bothers me is (the question of) whether he is coming or not.

- (ii) *What bothers me is (the answer to (the question of)) whether he is coming or not.
- (iii) (The question of) Whether he is coming or not is John's problem.
- (iv) (The answer to (the question of)) Whether he is coming or not is John's problem.

"Whether" questions paraphraseable by "the answer to (the question of)" are good as pseudo-cleft arguments only when the predicate they are clefted out of comments specifically on the lack of knowledge as to just what the answer is--when the answer is still a question, or was at some time (cf. (v) and (vi)).

- (v) What was not known at that time was (the answer to (the question as to)) whether he was coming or not.
- (vi) ?What will soon be known is (the answer to (the question as to)) whether he is coming or not.

The crucial semantic fact about these predicates is not that they do not presuppose the existence of an answer, but rather that they either presuppose or assert the non-existence of an answer. If I may coin a word, they might be called "dis-factives". Of course, the answer is also unknown, in effect, if it is being kept secret. Thus (vii) is grammatical, (viii) is ungrammatical, and (ix) is grammatical only if it is clear that the speaker intends to keep the answer a secret.

- (vii) Whether Amy is coming or not is what Jack will tell us tomorrow.
 - (viii) *Whether Amy is coming or not is what I told Jack.
 - (ix) Whether Amy is coming or not is what Jack told me.
- This semantic factor characterizes all object "whether" clauses, since these are all answer clauses, and all subject "whether" clauses not paraphraseable with "the question of" preceding "whether". Thus (x) and (xi), where the answer is unknown, are grammatical, while (xii) and (xiii), where the answer is known, are ungrammatical.
- (x) I don't know whether she's content or not.
 - (xi) Jack will tell me whether he's angry or not.
 - (xii) *I know whether she's content or not.
 - (xiii) *Jack told me whether he's angry or not.

These last two sentences become good with the addition of qualifying clauses which make them generic and secretive, respectively.

- (xiv) I generally know whether she's content or not by the look on her face.
- (xv) Jack told me whether he's angry or not, but I won't tell you.

We see, then, that Faraci's contentions are borne out by the fact that the "whether" clauses that occur as the clefted arguments of pseudo-clefts are semantically constrained in the same way as embedded question "whether" clauses.

10. Strangely enough, even though (181) is ungrammatical, and (i) is ungrammatical, (iiA) is a perfectly good answer to (iiQ), insofar as such a situation is possible.

(i) *Neither he is coming nor he is not coming.

(ii) Q. Is he coming or not?

A. Neither.

This fact provides an argument against deriving answers to questions from pseudo-cleft structures. It also provides an argument for postulating underlying structures like (i), with an unembedded "neither".

11. In yes-no rhetorical questions and in tag questions, WH is attached not to a disjunction of S's, but rather to a single S, at least at the level we are considering. It may be that at a deeper level, the whole structure is a disjunction to which WH is attached, and the WH is later lowered onto the half which is not presupposed or asserted.
12. The other important difference between pseudo-clefts and the structures I have postulated as underlying rhetorical questions is that the arguments of pseudo-clefts are joined by the copula "be". I am not sure whether "be" is part of the deep structure or is inserted transformationally. (Again, it is interesting that "be" must have two and only two arguments, while a sentence may have only one adjoined relative structure, so that, counting the main sentence, there are again two arguments.)

CHAPTER III: SUPPOSITIONS

In Chapter II, I explained the fact that yes-no rhetorical questions presuppose the statement corresponding to the question, but of opposite negativity, by deriving these questions from a tag sentence source. In this chapter, we will see that many non-rhetorical yes-no questions, similarly, "suppose" the statement corresponding to the question, but of opposite negativity. Other questions, however, suppose the statement with matching negativity, and still others apparently are neutral. I will try to reconcile these facts with the two sources (tag sentences and disjunctions) that have so far been mentioned in connection with various types of yes-no questions.

III.1 Inherent Opposite Supposition It is common knowledge that negative yes-no questions are, in some sense, "leading" questions. The defense attorney would very likely object to the prosecution asking (1), while he would probably let (2) pass.

- (1) Weren't you at the scene of the crime at 10:00 on the night of the murder?
- (2) Were you at the scene of the crime at 10:00 on the night of the murder?

Questions like (1) are used when the speaker had been supposing

the corresponding positive statement, but now, either because doubt has arisen, making a negative answer seem possible and even likely, or because the speaker merely wishes to hear his original belief confirmed, he poses the question. This is a complex situation semantically, and it is hard to say which answer the speaker is really expecting. But because of the speaker's original belief, the question is definitely biased toward the positive answer.

As pointed out in Chapter II, this bias does not amount to a presupposition, because of the element of doubt. Only in rhetorical questions is the favored answer actually presupposed. Accordingly, I will refer to the bias of regular questions as their "supposition". The supposition of a question is not its expected answer, but the speaker's original belief with regard to the matter at hand. (By original belief I mean what the speaker had been supposing just prior to the event that prompted him to ask the question.)

If the supposition were indeed a presupposition, only a positive answer would be a good answer to the question. A negative answer would be a denial of the presupposition. But in fact, both answers seem quite normal and acceptable, with no real strangeness or difficulty about either one of them.

While the positive bias of negative yes-no questions has been widely recognized, it has not as often been noticed that

positive yes-no questions have a corresponding inherent negative bias. This is revealed most clearly in rhetorical questions, where the bias has become a presupposition. Apparently, then, the form of a question may often reveal something about the questioner's assumptions.

Other languages are similar to English in this respect. Japanese has a question-answering system based on the distinction between agreement and disagreement. That is, when answering a question, one must decide which answer is expected, and express either agreement or disagreement with that answer. This leads us to entertain the possibility that all questions in all languages are, in each case, more or less biased toward one answer or another.

The possibility of a bias in seemingly neutral questions in Finnish, which, like English, has a positive-negative answering system, is supported by the behavior of the particle "-han", which may be translated "as you know" or "I'm sure you'll agree".

(3) Poika on kotona. [The boy is at home.]

(4) Poikahan on kotona. [The boy is at home, as you know.]

When used in questions ("-ko" is the question particle), "-han" reveals a negative bias in positive questions and vice versa.

((6) has an additional neutral reading corresponding to (5).)

- (5) Onko poika kotona? [Is the boy at home?]
- (6) Onkohan poika kotona? {I doubt that the boy's at home.}
[The boy isn't at home, is he?]
- (7) Eikö poika ole kotona? [Isn't the boy at home?]
- (8) Eiköhän poika ole kotona? {I'm pretty sure the boy's home.}
[The boy's at home, isn't he?]

(These examples were pointed out to me by Paul Kiparsky.)

This opposite bias should not seem particularly strange to English speakers, for here, too, a positive question often has a negative bias and vice versa. This aspect of the semantics of questions is reflected even in the simple fact that "I question that" indicates doubt of "that", whether "that" is positive or negative in form.

Or consider the effect of the word "really", which generally reinforces the latent force of a sentence, on questions embedded under "whether". Again an opposite bias is revealed.

- (9) {I wonder if he's really here.}
{I really wonder if he's here.} [negative bias]
- (10) {I wonder if he isn't really here.}
{I really wonder if he isn't here.} [positive bias]

In tag questions, the tag part is of negativity opposite to that of the statement part. But the two parts are consistent, since the tag, being in question form, has a bias of opposite negativity, i.e., the same bias as that of the statement. Even in the belligerent tags, where both parts have the same negativity

(So I'm stupid, am I?), the tag, as usual, has an opposite bias, while the statement takes on a matching opposite bias by virtue of the usage of ironic intention.

A final argument for the existence of inherent opposite bias is provided by positive and negative polarity items. Because questions are biased toward answers of opposite negativity, some positive polarity items are ungrammatical in positive questions, and some negative polarity items are ungrammatical in negative questions, while the same items are quite acceptable in questions of opposite negativity, where they are compatible with and reinforce the inherent bias.

- (11) Sean is far taller than you.
- (12) Isn't Sean far taller than you?
- (13) *Sean isn't far taller than you.
- (14) *Is Sean far taller than you?
- (15) Tommy isn't all that bright.
- (16) Is Tommy all that bright?
- (17) *Tommy is all that bright.
- (18) ?*Isn't Tommy all that bright?

It is facts like these that have led some people to suggest (John Ross told me that Thomas Bever had once made such a suggestion) that such biased questions, particularly negative questions, are derived from tag sentences. I discussed this source in Chapter II in connection with rhetorical

questions. There, however, the answer toward which the question is biased is, in fact, presupposed. This is not the case in normal questions. This is one factor which biases me against a tag source for biased but non-rhetorical questions.

A second factor is an inconsistency. One of the most convincing pieces of evidence for the tag source for negative questions (attributed by Ross to Bever) is the following: "That's right" and even "You're right" may be used to answer negative questions with positive bias and to answer tag questions, but not to answer positive questions with negative bias.'

(19) Q. Haven't I met you somewhere?

A. {That's right.}
{You're right.}

(20) T. I've met you somewhere, haven't I?

A. {That's right. }
{?You're right.}

(21) Q. Have I met you anywhere?

A. {*That's right. }
{*You're right.}

First, I will show that this argument that negative questions are derived from tag questions does not hold for all negative questions. Second, I will show that some questions for which (19A) is an acceptable reply have no corresponding tag questions, and so could not have been derived from tag sentences.

III.2 Positive and Negative Polarity Items The trouble with

the opposite bias view of questions and the tag source for them is that the opposite bias rule is not hard and fast. Negative questions usually have a positive bias, but they allow many negative polarity items, and when one occurs, its presence is sufficient to shift the bias from positive to negative. The following sentences could not be derived from grammatical tag sentences and cannot be answered with "That's right" without some strangeness. This is a second argument against a tag source for negative questions.

- (22) Didn't you have very much fun?
- (23) Doesn't she ever talk?
- (24) Won't anybody help?
- (25) Won't Bruce lift a finger to help?
- (26) Didn't he reach the top until 5:00?

These cannot be derived from the following:

- (27) *You had very much fun, didn't you?
- (28) *She ever talks, doesn't she?
- (29) *Anybody will help, won't they?
- (30) *Bruce will lift a finger to help, won't he?
- (31) *He reached the top until 5:00, didn't he?

(As we would expect from Chapter II, (22)-(26) cannot be rhetorical questions.)

As Horn (1970) and others have noticed, some polarity items are "stronger" than others. That is, "very much", for instance, is ungrammatical in a subset of the types of contexts in which "until" is ungrammatical, etc. Judgements on negative questions with negative-polarity items usually range from total unacceptability for strong polarity items to total acceptability for weak polarity items within one person's speech.

Interestingly enough, negative questions always have either a positive or a negative bias and a positive or a negative expected answer--they are never really neutral in either respect. In positive questions the presence of a positive-polarity item effects the bias and expected answer in a way similar to the way in which negative-polarity items affect negative questions. Here, however, the shift is not always from negative to positive, but sometimes just from negative to neutral. again depending on the strength of the polarity item.

- (32) Is it kind of late?
- (33) Would you rather stay home?
- (34) Is it still raining?
- (35) Did somebody say something?
- (36) Is it already time to go?
- (37) Are you pretty tired?

(38) Could we just as well have left it behind?

(39) Does it rarely snow?

(40) Can you hardly breathe?

Again, the acceptability of these questions is worst for the strongest polarity items, and of those that are left, those with the stronger items are the ones with a definite positive bias and positive expected answer, with no possibility of a neutral interpretation. But the questions with weak positive-polarity items, and most positive questions which have no polarity items of either type, may optionally be used and interpreted as having no bias at all--as being truly neutral.

(41) Is it time to go?

(42) Has the mail come?

In this context, it should be recalled that the Finnish example (6), with the polarity item "-han", may be used neutrally, as well as with negative bias, while (8) may only be used with positive polarity. This is quite parallel to the situation in English.

Now I wish to return to the inconsistency I mentioned in connection with the "That's right" reply argument for a tag source for negative questions. Notice that "That's right" is a possible reply to (32)-(40), and even, to some extent, to (41)-(42). However, (32)-(40) could not be de-

rived from tag questions. That is, (35), for instance (repeated below) does not mean the same as (43), which is ungrammatical anyway. (35) is paraphraseable by (44), but the question (35) does not have the negation of the tag of (44), so a derivational relationship does not seem likely. Suggesting (45), with no negativity switch from statement to tag, as the source of (35), seems to me to be a hedge, since the suggested source for negative questions was negativity-switching tag questions. Besides, (45) does not mean the same as (35).

(35) Did somebody say something?

(43) *Somebody didn't say something, did {they?
he?}

(44) Somebody said something, didn't {they?
he?}

(45) Somebody said something, did {they?
he?}

Thus there seems to be no tag source for (35), but it may still perfectly well be answered "That's right". The criterion for this reply seems to be not that the question be paraphraseable by a tag question, but rather that the question expect a positive answer, or at least that it not expect a negative answer.

A fourth argument against a tag source for negative questions is based on the fact that positive answers to negative questions are syntactically restricted.¹ The difficulty

is somewhat attenuated but nevertheless still present when a positive answer is clearly expected. However, there is no difficulty whatsoever about positive answers to tag sentences like (46). If (47Q) is to be derived from (46Q), their answers should exhibit similar restrictions. This is not the case. The answers to (47Q) are more like those to (48Q) (which nobody, I think, suggests to be the source of (47Q)), but even here the parallelism is not exact.

- (46) Q. Maude can lift that, can't she?
 A. No, she can't. B. No.
 C. Yes, she can.
 D. Yes. [fully grammatical]
- (47) Q. Can't Maude lift that?
 A. No she can't. B. No
 C. Yes, she can.
 D. ??Yes. [seems abrupt and incomplete]
- (48) Q. Maude can't lift that, can she?
 A. No, she can't. B. No
 C. Yes she can.
 D. *Yes. [very bad]

I see no good reason, then, for deriving non-rhetorical questions from tag question sources.

III.3 Bias and Answering Systems The facts about bias and expected answer remain to be explained. But before going into these questions more deeply, I would like to point out that, although complicated and interesting, they are peripheral in English. That is, it is not very important that I be able to figure out the bias and expected answer to a question directed at me, in order to reply successfully.

There are many languages where the basic distinction in the question-answering system is not positive-negative, as in English, but rather agreement-disagreement, as in Japanese. In such languages, there are many questions--probably far more than in English--where it is obvious what answer is expected, and the answerer simply agrees or disagrees with this expected answer. But there are also usually many questions--again, probably far less than in English--where it is not obvious what answer is expected. The answerer must then decide, on the basis of context, intonation, and various other subtle clues, which answer is more likely to be the expected one, and express agreement or disagreement with that answer. Confusion can easily result.²

The point about Japanese is that the answerer must, in every case, assume that a certain answer is expected, and be more or less able to determine which it is. I would argue that in English, too, there is almost always an expected

answer, more or less revealed by the way the question is phrased. But in English the answerer is relieved of the onus of deciding what answer is expected by the positive-negative question-answering system. He simply answers "yes" if his answer is positive in form, and "no" if his answer is negative in form, whether he feels he is agreeing or disagreeing with his interlocutor. It is the positive-negative question-answering system that makes the existence of a large class of neutral questions a possibility. In exchange, the English speaker sometimes has to face the problem of deciding whether a construction is basically positive or basically negative.

In general, we would expect that in languages where, given the speaker's bias, there is only one possible way of phrasing his question, agreement-disagreement answering systems will be possible. Of course, no language will have a completely straightforward system, but the closer it comes to such a simple relationship between bias and question form, the more possible it will be for it to have an agreement-disagreement system. For languages where the relationship is complicated, such an answering system is not very likely, if indeed it is possible.

In languages where some vestige of the second clause of the disjunction remains in most normal questions, an agreement-disagreement system is equally unlikely. In Mandarin Chinese, for instance (I am indebted to Johanna Kovitz for this information), questions are normally asked in the following sort of

form:

(49) Is or isn't he coming?

As we would expect, this language has a positive-negative answering system.

In English such questions are a special subclass. When one occurs, the normal "yes"- "no" positive-negative system must be suspended. The question must be answered either "He is" or "He isn't", much like the Chinese system. This is still a positive-negative system, however.

III.4 Rules for Bias The problem in English is as follows: if we cannot explain biased questions by deriving them from tag sentences, how are they to be explained? The only other source for yes-no questions that has independent justification is the disjunctive source--something like WH(S or S'). There are only two likely possibilities here for single term questions. Either they are all derived from WH(S or not S), or some are derived from WH(S or not S) and some are derived from WH(not S or S). I shall argue for the latter possibility, claiming that positive questions are derived from the first source, negative questions from the second.

First I shall argue against WH(S or not S) as a source for negative questions. The first argument is that negative questions have all and only the intonational possibilities of positive

questions. If they were derived by post-intonation assignment deletion of first disjuncts, we would expect them to have falling cadences. Instead, they normally, like positive questions, have rising cadences. As will be explained in Chapter IV, this would be a natural consequence of their being first terms of disjunctions.

The second argument is theoretical. If the non-synonymous "Is John here?" and "Isn't John here?" were both derived from the same source, we would have to allow transformations to change meaning. This idea has recently gained adherents (Chomsky, 1969). However, everyone recognizes that such changes must be severely constrained. Nobody would want to derive "John is here" from the same source as "John is not here". The non-synonymy we are discussing is not quite so radical. The point, though, is that the burden of proof always lies with those who would claim that two sentences with different surface structures have the same deep structure. Synonymy or near synonymy has always been one of the best arguments for such claims. The greater the non-synonymy of the two sentences, the heavier the burden of proof.

The third argument is also theoretical. Jorge Hankamer (1971) has argued that backwards deletion between coordinate conjuncts does not exist. He explains as instances of conjunction reduction and scrambling all known cases of backwards gapping, which had been the best evidence for backwards deletion.

My contention that negative as well as positive questions come from first conjuncts conforms to his restriction, while the other derivation of negative questions does not, and would require a more powerful grammar.

Now let us consider some of the arguments that might be advanced against a WH(not S or S) source for negative questions. The first and most obvious is that such a source is almost never realized in full alternative form. When it is so realized, it sounds rather unnatural, and furthermore, does not mean the same as a single term negative question, which is always biased, but rather is neutral like positive questions and positive-first alternations. These objections, which appear formidable, can actually be explained rather naturally.

The first observation to be made here is that questions in full alternative form are always more nearly or exclusively neutral than single-term questions. Just by virtue of both possibilities⁶ being mentioned explicitly, the normal bias of the corresponding single-term question is attenuated. Thus while (50) can either have a negative bias or be neutral, in (51) the negative bias is much less possible, if it is possible at all.

(50) Can Bernie lift 300 pounds?

(51) Can Bernie lift 300 pounds or not?

The other side of the coin is that single-term questions

which clearly have a strong bias sound unnatural when realized as alternatives.

- (52) Does Jim really have any money? [negative bias]
 (53) ?*Does Jim really have any money or not?
 (54) Does it seldom rain here? [positive bias]
 (55) ?*Does it seldom rain here or not?

As I have pointed out, negative questions always have some bias--positive or negative--and so, although they are always more neutral, they are also always more or less unnatural, when realized as alternatives. The ones with strong bias are usually completely out as alternatives.

- (56) Can't Bernie lift 300 pounds? [weak positive bias]
 (57) ?Can't Bernie lift 300 pounds or can he?
 (58) Doesn't he seldom eat? [strong positive bias]
 (59) *Doesn't he seldom eat or does he?
 (60) Didn't he leave your house at all for a week?
 [negative bias]
 (61) ?*Didn't he leave your house at all for a week or did he?

Actually, the questions with non-normal matching bias ((54) and (60)) are better as alternatives than the questions with reinforced normal opposite bias ((52) and (58)).

We see, then, that the fact that negative questions are unnatural in, and non-synonymous with, their full alternative

realizations can be explained in terms of their always being biased. We can express this either with semantics-dependent syntax (second conjunct deletion is obligatory if the question is biased) or with syntax-dependent semantics (bias-assignment and filtering rules operate after second conjunct deletion). I will give the rules within the latter framework, and presume that they can be easily rewritten in the former.

We will allow the syntactic rules, then, to operate freely.

The relevant ones are:

Second Conjunct Reduction

whether $\begin{matrix} \text{[Comp NP Aux VP]} \\ 1 \quad 2 \quad 3 \quad 4 \quad 5 \end{matrix} \text{S}$ or $\begin{matrix} \text{[Comp NP Aux VP]} \\ 6 \quad 7 \quad 8 \quad 9 \quad 10 \end{matrix} \text{S} \Rightarrow 123456789\emptyset$

condition: $3 \ 4 \ 5 = 8 \ 9 \ 10, 2 \neq 7$

Tag Reduction

whether $\begin{matrix} \text{[Comp NP Aux VP]} \\ 1 \quad 2 \quad 3 \quad 4 \quad 5 \end{matrix} \text{S}$ or $\begin{matrix} \text{[not NP Aux]} \\ 6 \quad 7 \quad 8 \quad 9 \end{matrix} \text{S} \Rightarrow 1234567\emptyset\emptyset$

condition: $3 \ 4 = 8 \ 9, 2 \neq 7$

Tag Deletion

whether $\begin{matrix} \text{[Comp NP Aux VP]} \\ 1 \quad 2 \quad 3 \quad 4 \quad 5 \end{matrix} \text{S}$ or $\begin{matrix} \text{[Comp NP Aux]} \\ 6 \quad 7 \quad 8 \quad 9 \end{matrix} \text{S} \Rightarrow 12345\emptyset\emptyset\emptyset\emptyset$

condition: $3 \ 4 = 8 \ 9, 2 \neq 7$

These rules may be somewhat incorrect. For instance, the second and third rules might operate on the same input as the first. These questions are not relevant for our purposes, however.

The following filtering and interpretation rules then apply.

Opposite Bias

Questions with N in the Comp of the first conjunct are assigned a positive supposition; questions with TH in the Comp of the first conjunct are optionally assigned a negative supposition.

Polarity Items

Questions containing positive or negative polarity items are assigned a positive or negative supposition, respectively. Questions containing instances of both types are ungrammatical. If the result of this rule conflicts with that of the previous rule, the question is the less acceptable, the stronger the polarity item, but the result of this rule takes precedence.

The preceding two rules are cumulative. This may be expressed as follows: if neither rule applied, the bias is 0; if only one applied, the bias is 1; if both applied, with conflicting results, the bias is 2; if both applied, with the same result, the bias is 3.³

Alternative Form

When a question is in alternative form (consists of two terms (sentences) joined by or, differing only by virtue of deletion and complementizers), the stronger the bias, the more ungrammatical the question.

These three supposition rules can be written more formally as follows (neg = negative, pos = positive, supp = supposition):

- A. $\left\{ \begin{array}{l} \text{Whether [TH S] X} \rightarrow 1 \text{ neg supp } \text{[optional]} \\ \text{Whether [N S] X} \rightarrow 1 \text{ pos supp } \text{[obligatory]} \end{array} \right.$

- B. Whether $\left[X \begin{matrix} \text{(neg)} \\ \text{(pos)} \end{matrix} \text{ polarity item } Y \right] Z \rightarrow 1 \begin{matrix} \text{(neg)} \\ \text{(pos)} \end{matrix} \text{ supp } \left[\text{oblig.} \right]$
- C. $\left\{ \begin{array}{l} 1\alpha \text{ supp} \quad , \quad 1\alpha \text{ supp} \quad \rightarrow \quad 3\alpha \text{ supp} \\ \text{from rule A} \quad \text{from rule B} \end{array} \right.$
- $\left\{ \begin{array}{l} 1\alpha \text{ supp} \quad , \quad 1 \neg\alpha \text{ supp} \quad \rightarrow \quad 2 \neg\alpha \text{ supp} \\ \text{from rule A} \quad \text{from rule B} \end{array} \right.$
- D. Whether $\left[\begin{matrix} \text{(N)} \\ \text{(TH)} \end{matrix} S \right]$ or $\left[\begin{matrix} \text{(TH)} \\ \text{(N)} \end{matrix} S \right]$, β pos or neg supp $\rightarrow \beta$ ungrammatical

In Chapter II, I justified the postulation of a tag sentence source for rhetorical questions. In this chapter, I have argued against such a source for normal questions. I have introduced the notion of supposition or bias, and shown that it affects both the form and the grammaticality of normal questions. This notion can be more easily expressed under the assumption that normal questions are derived from a disjunctive source than under the assumption that they are derived from tag sentences. The difference between the two types of questions (normal and rhetorical) that justifies the difference in their sources is that rhetorical questions presuppose their answers while normal questions do not. In the next chapter, I will give a different sort of argument further supporting the hypothesis that normal questions are derived from disjunctive sources.

Footnotes to Chapter III

1. This statement is developed more fully in Chapter V.
2. The analogous situation arises in English with questions like "Have you no bananas?", where both "yes" and "no" can go with either the agreeing or the disagreeing answer. Again, this is discussed more fully in Chapter V.
3. These rules also determine the bias and grammaticality of embedded questions. In embedded questions, however, there are additional contextual restrictions on the amount of bias that is permissible. Most contexts permit only positive-first alternatives and positive single-term questions. Thus although (i) is pretty good, (ii) is out.
 - (i) ?I really wonder whether Kate isn't here.
 - (ii) *I have no idea at all whether Kate isn't here.
 In some of the cases where biased embedded questions are permitted, the meaning is nearly the same if "whether" is replaced with "that".
 - (iii) ?I don't care whether you don't like me.
 - (iv) ?I don't care that you don't like me.


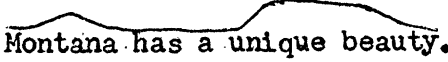
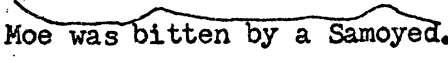
CHAPTER IV: INTONATION

In this chapter, I will point out and suggest derivations for the intonational patterns characteristic of questions and certain related constructions. I will attempt to characterize the semantic and functional uses of such basic patterns as "rising" and "falling", and discuss the rules which assign them. We will see that, in general, falling intonation correlates with assertiveness, new information, and finality, and rising intonation correlates with lack of assertiveness, old information, and non-finality. We will also see that, if yes-no questions are derived from a disjunctive source, we can derive "question intonation" simply and naturally if we order intonation assignment before conjunct deletion.

I.1 The Problems In this section, I will describe the normal intonation pattern of various sentence types, mentioning a few of the exceptions in each case. I will restrict my attention at first to the coda or cadence of the patterns.

Declarative sentences generally have falling cadences.

For example:¹

- (1)  It's probably raining in Vancouver.
- (2)  Montana has a unique beauty.
- (3)  Moe was bitten by a Samoyed.

Sentences with the syntactic form of statements may end with rising intonation, as in (4), but the effect is that of a question with the expectation of a positive answer expressed.

(4) He rarely mentions it?

There are other counterexamples--a special type is discussed in section I.2--but we still may say that in the vast majority of cases--the normal, usual, uninteresting cases--statements have a falling cadence.

Yes--no questions normally end with a rise in intonation.

For example:

(5) Is it snowing again?

(6) Does Steve have a car?

(7) Can you touch your nose with your tongue?

(8) Aren't you tired?

Under special circumstances, as in (9), a question may end with falling intonation.

(9) A. Steve's car ran out of gas.

B. Oh, does Steve have a car?

Here B had not known that Steve had a car, but realizes that the answer to his question must be yes. In effect, he is merely registering the fact that this information is news to him.

Again under special circumstances, as in (10), the rise

may occur in some position other than the end, in which case the tone remains high until the end, where there may optionally be a further rise.^{2,3}

(10) Did Penny impart that information to you?

Here "Penny", rather than any of the constituents ending in "you", is the focus of the question.

Again there are many other sorts of counterexamples, but again we may say that in the usual cases, yes-no questions have a rising cadence.

Tag questions appear from their form to be part statement, and part question. And indeed, tag questions may have either a falling cadence or a rising cadence. The two types have different uses and, probably, different presuppositions. We will call the first type--the one with a falling cadence--an S tag, and the type with rising cadence we will call a Q tag. The S tag is used in nearly the same way as a statement, except that a response is more specifically asked for. There is a strong expectation on the part of the speaker that the response will confirm his pseudo-statement. He is not so much imparting or requesting information as he is seeking acknowledgement that his interlocutor shares the belief expressed in the statement part of the sentence.

This use of the tag question has a falling cadence. In particular, the pitch of the pronoun in the tag is lower than the pitch of the auxiliary or modal. (To many people, it seems

wrong to write a question mark after such a sentence, so I use a period.)

(11) It's raining, isn't it.

(12) It isn't raining, is it.

The second type of tag question--Q tags--are more nearly questions than statements. The speaker still expresses his own belief in the statement part of the sentence, and in the question part he still calls for a response, expecting confirmation. However, some doubt as to the correctness of his belief has entered his mind, and disconfirmation would not surprise him as much as in the previous case.

This use of the tag question has a rising cadence. In particular, the pitch of the pronoun in the tag is higher than the pitch of the auxiliary or modal.

(13) It's raining, isn't it?

(14) It isn't raining, is it?

S tags and Q tags are not the only possible types. A third very common use of the tag question, which was discussed in Chapter II, is as a rhetorical question. Then there are the belligerent tag sentences, where the statement and question halves of the sentence are either both positive or (in some dialects) both negative. Belligerent tags will be discussed in footnote 14.

S tags and Q tags share more properties with statements and questions, respectively, than just intonation. For instance, consider the sorts of responses that are appropriate for each. In (15), speaker B, questioning the motivation for A's speech act, uses the verb "say".

(15) A. It's raining, isn't it?

B. No. [pitch drops sharply indicating surprise]

What makes you say so?

In (16), speaker B, again questioning the motivation for A's speech act, uses the verb "ask".

(16) A. It's raining, isn't it?

B. No. [with the milder pitch drop of matter-of-fact question-answering] Why do you ask?

(15B) and (16B) are still possible, but much less appropriate, in response to (16A) and (15A), respectively. Since there is no performative verb corresponding uniquely to tag questions, one is forced to choose between the two which correspond to their component parts. As we have seen, the choice is usually not arbitrary.

Another example is provided by the grammatical restrictions on S tags and Q tags. S tags have many of the same restrictions as statements, while Q tags pattern like questions in certain respects. For instance, it is grammatical to question people,

but not to inform them, on their suppositions. The S tag (17), like the statement (18), is ungrammatical, while the Q tag (19), like the question (20), is grammatical. (However, I do not mean to imply that the members of the pairs are paraphrases of each other.)⁴

(17) *You don't suppose he'll come, do you.

(18) *You don't suppose he'll come.

(19) You don't suppose he'll come, do you?

(20) Do you suppose he'll come?

Conversely, adverbs like "certainly" are grammatical in statements, but not in questions. The S tag (21), like the statement (22), is grammatical, while the Q tag (23), like the question (24), is ungrammatical.

(21) Bob certainly is a stone, isn't he.

(22) Bob certainly is a stone.

(23) *Bob certainly is a stone, isn't he?

(24) *Isn't Bob certainly a stone?

Another kind of example is provided by positive polarity items. "Already" is a positive polarity item. Hence (25) is grammatical, but (26) is not, except as a denial of a sentence like (25).

(25) It's already raining.

(26) *It isn't already raining.

The S tag (27), like (26), is ungrammatical.

(27) *It isn't already raining, is it.

However, (28) and (29) are grammatical.

(28) It isn't already raining, is it?

(29) Is it already raining?

What we have seen so far is that yes-no questions and sentences that function and pattern similarly have rising cadences, while statements and sentences that function and pattern similarly have falling cadences. Now let us examine the intonations of WH questions,⁵ to see where they fit into this scheme.

Ordinary WH questions have falling cadences. They may contain more than one WH-word, but the extra ones do not affect the cadence, nor do they occasion special rises or falls of their own.

(30) Who did what to who?

(31) How do you do?

(32) What time is it?

(33) What are you going to do when you grow up?

(34) Why don't we talk about your mother?

There are a few types of WH questions that have rising cadences. One is exemplified by (35B).

- (35) A. What's the matter with Barbara?
 B. What's the matter with Barbara?
 A. That's right. What's the matter with Barbara?

Here B thinks he has heard correctly, but is not quite sure and wants to check. (35B) is probably derived from something like (36), in which case it is not surprising that it has the intonation of a yes-no question.

- (36) Did you $\left. \begin{array}{l} \text{say} \\ \text{utter} \\ \text{ask} \end{array} \right\}$ "What's the matter with Barbara?"

This derivation does not, however, work for (37B).

- (37) A. What's the matter with Barbara?
 B. What's the matter with who?
 A. Barbara. What's the matter with her?

I do not think such questions are derived from any sort of yes-no question, so their intonation cannot be explained in that way. Besides, the rise is not really associated with the cadence, as it is in (35B), and in yes-no questions generally. In (38), the rise is on "who", and high tone is maintained to the end, where a further rise is only optional.

- (38) How did who find out where we live?

In fact, such questions are not even especially associated with WH questions. They are quite a general phenomenon called echo

questions, and may be formed from any type of sentence, as the following examples show.

(39) Did who eat all his grainies?

(40) Rita married who?

(41) Wash who?

In statements and imperatives, but not sentences that are already questions, the WH-word may be moved to the front.

(42) Who did Rita marry?

(43) Who { am I to
do you want me to } wash?
should I }

(44) *Who did (he) eat all his grainies?

(45) *Who how did (he) find out where we live?

These questions are used either when the word in question was not heard, or when the word replaced by the WH-word occasions amazement. For statements and imperatives, sentences like (40) and (41) are preferred for the amazement version, and sentences like (42) and (43) for the unheard version.

"Whether" is never used in echo questions. Instead, one of the possibilities in (46B) may be used.

(46) A. John put it away.

B1. John what?

B2. John did what?

B3. John did (or didn't) put it away.

B4. John did put it away (or he didn't).

(47B) must be considered an echo question, although it does not echo any of the preceding sentence.

(47) A. Prices slumped.

B. What did you say?

What is going on here is that "What" has replaced the entire surface sentence in (47A). The rest of the sentence, "did you say", echos either the performative sentence which dominated (47A) in deep structure, or the utterance situation which is "in the air". I am hesitant to claim this as a good argument for the performative analysis because of the possibility of echo questions like (48B).

(48) A. Doomsday is coming! Doomsday is coming!

B. What are you shouting about?

"Shout" is not a performative verb.

There is another type of WH question which is very similar to echo questions, but with the opposite intonation. They are used mostly when the referent of a pronoun is not understood, as in (49).

(49) A. Where did he hit Ken?

B. Where did who hit Ken?

Again, like echo questions, these questions may be formed from any kind of sentence (as long as it contains a pronoun), and the two types of question have much the same restrictions. For both, as mentioned before, the WH-word may not move left past another Q, but otherwise may usually go to the beginning of the sentence. And both must avoid certain constructions. That is, strict echo is not always possible. This will be true whenever the questioned element is something that, in the original sentence, had been preposed without causing subject-auxiliary inversion.

(50) A. There it is!
 B. ^{*Where} it is?
 *Where
 B'. ^{Where} is it?
 Where

The same problem will arise with sentences like "Him, I like" and "Then, we knew the truth".

The big difference between these two types of WH question, aside from their functions, is that echo questions have rising intonation on the WH-word, while the questions under discussion, which I will call REF-questions, have falling intonation on the WH-word.

The last group of intonations I will discuss in this section is the intonation of answers. Answers to questions and tag questions have falling intonation, except in certain cases,

such as where the reply is being offered hesitantly or as a guess. But the fall in intonation may be either relatively slight or relatively steep. I will refer to a slight fall as an instance of "mild" intonation and to a steep fall as an instance of "sharp" intonation.⁶ Now usually, when it is obvious what answer is expected, as with tag questions, an answer that agrees with the expected answer will have mild intonation, and a disagreeing answer will have sharp intonation. This is illustrated in (51A1-2).

(51) Q. You're Wally, aren't you?

A1. Yes. [agreeing]

A2. No. [disagreeing]

A3. Yes. [agreeing, surprised]

A4. No. [disagreeing, surprised]

But the other combinations, (51A3-4), are also possible. In (51A3), sharp intonation is used to agree. This happens when the answerer must admit the truth of the questioner's assumptions, but is surprised either that this should be so or that the questioner should possess this information. In (51A4), mild intonation is used to disagree. This happens when the answerer knows that the questioner's assumptions are wrong, but is not surprised at his taking such a position.

The basic intonational distinction here, then, is not one of agreeing vs. disagreeing intonation, but rather mild vs.

sharp. Mild intonation, whether used to agree or to disagree, is appropriate when the speaker is calm and sure of himself. The speaker could be said to be secure in his position, unsurprised, unobjecting. Sharp intonation, whether used to agree or to disagree, is appropriate when the speaker is surprised either at the questioner's position or at the position he himself is forced to take. He is insecure, surprised, or protesting.

Echo questions provide another instance of the mild vs. sharp distinction. Consider the following four dialogues.

(52) A. The mayor has arrived.

B. $\left\{ \begin{array}{l} \text{What?} \\ \text{What did you say?} \end{array} \right.$ [sharp rise]

A. That's right.

B. Oh, my God!

(53) A. The mayor has arrived.

B. $\left\{ \begin{array}{l} \text{What?} \\ \text{What did you say?} \end{array} \right.$ [mild rise]

A. The mayor has arrived. [enunciated clearly]

B. Oh. I thought you said "The mare has arrived" or something like that.

(54) A. The mayor has arrived.

B. $\overline{\text{What?}}$ [with median rise]

A. The mayor has arrived. [enunciated clearly]

B. No, no. I heard you the first time. But I didn't know he was coming! I'm not ready! etc. etc.

(55) A. The mayor has arrived.

B. What? [with median rise]

A. That's right.

B. No, no. I just didn't hear what you said.

In (54) and (55), it is not clear whether B's intonation is supposed to be mild or sharp. A has incorrectly interpreted the ambiguity, and consequently thrown the dialogue off course. In (52) and (53), B has made his meaning clear by using more extreme intonation.

Here again sharp intonation correlates with surprise and agitation, and mild intonation with the case where these elements are less evident. But here, "mild" refers to a slight rise, rather than a slight fall, and "sharp" to a steep rise, rather than a steep fall.

We might surmise, then, that there is a feature distinguishing mild and sharp, and a feature distinguishing rise and fall, and that the two combine to yield four possibilities. The rise-fall distinction usually correlates with syntactic distinctions, while the mild-sharp distinction does not. For instance, there is a difference in usage and meaning between "What?" and "What?", but I know of no syntactic difference between them. So we would want to say that the mild-sharp distinction is attitudinal and

peripheral. I will have no more to say about it in this chapter.

I.2 Rising and Falling Intonation In the last section, I made a tentative suggestion that questions and sentences that function and pattern like questions have rising cadences, while statements and sentences that function and pattern like statements have falling cadences. It became obvious that this could not be correct when WH questions were taken into consideration. These have falling cadences, so here the correlation of rising intonation with questions and falling intonation with statements breaks down.⁷

What I would suggest instead is that the difference in intonation between yes-no and WH questions is an automatic consequence of a difference between their underlying structures. Yes-no questions are derived from disjunctions; WH questions are not. The first halves of disjunctions receive rising intonation; the second halves receive falling intonation. During the derivation of single-term questions, first intonation is assigned, then the second terms are deleted, leaving a single term which has rising intonation. The rising-falling distinction serves to set off other types of oppositions, too. To see this, we need a bit of background.

Many people have previously talked about the opposition between rising and falling intonation. In Lieberman's book (Lieberman, 1967), rising intonation is correlated with the feature [+BG] and falling intonation with the feature [-BG]

(BG = breath group). Dwight Bolinger (Bolinger, 1965) has A and B pitch accents. His A accent corresponds to falling intonation. His B accent corresponds to a fall-rise pattern, which is a variant of rising intonation. Ray Jackendoff (Jackendoff, forthcoming) discusses these two accents in great detail. He says, "The two pitch accents we are interested in are called A and B accents by Bolinger. In both accents, the focus syllable has a high pitch. By the onset of the next vowel there is an abrupt drop to low pitch. The two accents differ in that the A accent concludes with a fall in pitch, and the B accent concludes with a rise in pitch."

He shows that when a sentence has only one focus, it normally gets an A accent. When a sentence has two foci, "invariably one will receive an A pitch accent (falling) and one will receive a B pitch accent (rising)" (ibid., 96). This shows that the two are not independent of each other, but rather perform an oppositional function. The opposition--the difference in meaning between the two--is approximately that between topic and comment. An A accent is assigned to a focus syllable when the focus provides new information--makes an assertion or comment--answers a question. Jackendoff calls this the dependent variable, since its value must be chosen so as to make the sentence true. A B accent is assigned to a focus syllable when the focus is old information--a topic or idea mentioned or presupposed in previous

discourse. This he calls the independent variable. In my analysis, this difference is represented in terms of TH. B accents are assigned to things with TH attached to them (things with B accents must be anaphoric), and A accents are assigned to things without TH (things without A accents need not be anaphoric--they provide new information). The following two discourses (Jackendoff's examples) illustrate the A and B accents. Suppose there were a number of people and a number of things to eat. Various people ate various things, and I am asking about how they paired up.

- (56) Q. What about FRED? What did HE eat?
 B A
 A. FRED ate the BEANS.

Here Fred is the topic and refers back to the question, while beans provides the answer.

- (57) Q. What about the BEANS? Who ate THEM?
 A B
 A. FRED ate the BEANS.

Here beans comes from the question, and Fred is the answer.

(56A) and (57A) are identical, except for the placement of the A and B accents. But their meanings, and the questions they answer, are quite different.

This opposition is the same as that between echo questions and REF-questions. Observe the three-way contrast below.

- (58) Where did who go? [echo question]

(59) Where did who go? [REF-question]

(60) Where did who go? [WH question]

Katz and Postal (1964) rightly contend that the reason the intonation of "who" is dynamic in (58) but level in (60) is that "who" receives emphasis in (58). They do not discuss questions like (59), but the same thing is true in such cases. The only problem, then, lies in determining why emphasis occasions a rise in pitch in (58) but a fall in pitch in (59). (60) is merely a WH question with two WH-words.

The difference between (58) and (59) lies in the nature of the information being sought. (58) asks for a repetition of information previously given (and therefore anaphoric), and has rising intonation. (59) asks for new information--specifically, the referent of a pronoun (which has failed to meet its presupposition of being anaphoric)⁸--and has falling intonation. (58) would be asked in reply to "Where did John go?"; (59) in reply to "Where did he go?"

We can now explain the echo-REF distinction in the same way as the A-B distinction. In Jackendoff's notation, (61) and (62) would have the following presuppositions (λ = "the class of"):

(61) John hit who?
 +emph
 Presupposition: $\lambda(x)$ [John hit x] is well-formed
 x is an independent variable

(62) John hit who?
 +emph
 Presupposition: $\lambda(x)$ [John hit x] is well-formed
 x is a dependent variable

WH-Movement is obligatory for [-emph] WH-words, but optional for [+emph] WH-words. Movement is blocked if the COMP node is already filled, as explained by Chomsky (1971).

Jackendoff points out another type of case where the only accent in a sentence is a B accent. This occurs when the function of the other focus is filled by the affirmation-negation distinction, but the AUX is not actually accented. In such sentences, the affirmative or negative is taken out of the presupposition and associated with the focus. This explains the difference between (63) and (64).

(63) ^A All of the men didn't go.

Presupposition: $\lambda(x)$ [x of the men didn't go] is well-formed. x is a dependent variable

Assertion: $\text{All} \in \lambda(x)$ [x of the men didn't go]

(64) ^B All of the men didn't go.

Presupposition: $\lambda(x)$ [x of the men went] is well-formed. x is an independent variable

Assertion: $\text{All} \notin \lambda(x)$ [x of the men went]

In such sentences, there may be a focused syllable which is emphasized, as "all" is in these examples. Then the B accent goes on the focused syllable. But it is also possible for the entire sentence to be focused. When this is the case, and the variable is dependent, an A accent is placed on the last stress peak, so that the sentence is ambiguous as to how much of it is the focus. But when the entire sentence is the focus and the

negative is associated with the focus, so that we can get a B accent, the B accent is not placed on the last stress peak. Instead, it is placed on a stress-less syllable, as in (65).


(65)  John didn't break it.

Presupposition: $\lambda(x)$ [x is the case] is well-formed
x is an independent variable

Assertion: John broke it $\neq \lambda(x)$ [x is the case]

X's being an independent variable means that "John broke it" is presupposed not in this sentence, but in previous discourse ("John broke it" is anaphoric). When the whole sentence is the focus, the presupposition of that sentence is rather vacuous, except that the type of variable is specified.


Now, let us be more exact about where the B accent is placed in these sentences. When there are two stress peaks, as there usually are, the B accent goes on the first stress-less syllable after the first stress peak. This situation seems contrived to make (66) unambiguous--to alleviate the possibility that any particular word will be understood to be the focus. It also shows that intonation assignment must follow the operation of the Nuclear Stress Rule.

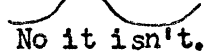
(66)  The man from Pennsylvania didn't break it.

Sentences like (65) and (66) have about them a certain lack of assertion, or feeling of protest. In some cases, assertiveness or its lack is a more important factor in choosing between

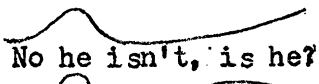
A and B accents than the dependence or independence of the variables. To illustrate this, consider disagreeing replies to statements. Such replies have what we will call "non-stop" intonation. In replies to questions of the form $\left\{ \begin{array}{l} \text{no} \\ \text{yes} \end{array} \right\}$ -tag, there is always a break, at least potentially, between $\left\{ \begin{array}{l} \text{no} \\ \text{yes} \end{array} \right\}$ and the tag. In non-stop intonation, such a break is impossible. Non-stop intonation replies may have either an A accent or a B accent.

(67) S. It's hot out.

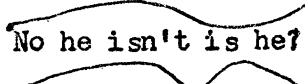
R1.  No it isn't.

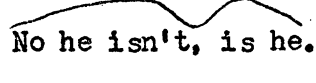
R2.  No it isn't.

In isolation, (67R1) sounds as if the speaker is quite sure of what he is saying, (67R2) as if he were less so. (67R1) is a stronger contradiction than (67R2). In (67R1), the speaker seems secure, assertive, perhaps even threatening. In (67R2), the speaker seems surprised, less assertive, more polite. Notice the behavior of tags after the two sorts of replies.

(68)  No he isn't, is he?

(69)  No he isn't, is he.

(70)  No he isn't is he?

(71)  No he isn't, is he.

A falling tag is used when the speaker expects confirmation from his addressee. Since it is strange to expect someone you are contradicting to confirm your contradiction, (69) and (71)

are best if the first part is addressed to the contradictee and the tag to someone else. A rising tag makes a statement more like a yes-no question, and introduces an element of uncertainty as to what the reply will be. So (68) (= (67R2) + rising tag) is much better than (70) (= (67R1) + rising tag), since it is a bit schizophrenic to make a very strong contradiction ((67R1)) and then immediately express doubt about its correctness. In (68R2), there is already some doubt in the contradiction.

As replies, (67R1) and (67R2) are both better following non-hesitant statements and S tags than following hesitant statements and Q tags. This is because non-stop intonation is a device specifically intended for use in contradicting assertions. Now, there are many degrees of assertiveness in between completely neutral questions which are not biased toward any particular answer, and emphatic declaratives. The less assertive the sentence, the more inappropriate non-stop intonation is in the reply.

However, interestingly enough, when non-stop intonation is used in reply to a hesitant statement or Q tag, (67R1), the stronger form, is better than (67R2), while in reply to non-hesitant statements and S tags, (67R2) is better than (67R1).

(72) Q. He's not going, is he? S. He's not going...?

R1. Yes he is. [is better than] R2. Yes he is.

- (73) Q. He's not going, is he. S. He's not going.
 R2. Yes he is. [is better than] R1. Yes he is.

We see here that a less assertive sentence invites a more assertive sentence, and vice versa, when their assertions are opposite.⁹ This is another example of the correlation of the falling-rising distinction with oppositeness. The first example showed that the rising-falling distinction correlated with the distinction between old information and new information, i.e., TH and ϕ . This second example has shown that replies which contradict tend to have intonation opposite (B or A) to the intonation (A or B, respectively) of the statement they are contradicting.


Many sentences have the intonation pattern of (67R2). E.g.,

(74) Eat your zonkers.

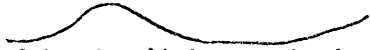
(75) I don't know whether he's decent.


The final rise here is not intrinsically associated with the coda, but is a deferred rise associated with the earlier fall. Many sentential patterns affect the last word of the sentence without in any way reflecting its intrinsic function. For instance, "who", at the end of a sentence, may have rising intonation without marking an echo question. And the stress-less pronoun "him", unfocused in (77), can have a rise.

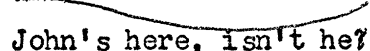
(76) I don't know who.

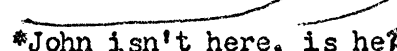
(77)  I don't know him.

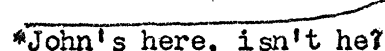
It is possible that the intonation of Q tags can be explained as a variant of the pattern illustrated in (74)-(77). As in those examples, Q tags have a high point in the first part of the sentence, and a rise at the end.

(78)  John isn't here, is he?

(79)  John's here, isn't he?

(80)  John's here, isn't he?

(81)  *John isn't here, is he?

(82)  *John's here, isn't he?

The statement part may not have level intonation and may not end in a rise. The only important difference between the intonation of Q tags and the patterns in (74)-(77) is that the final rise of the Q tags may terminate at a somewhat higher level. From a semantic point of view, it seems to be true that these sentences all have the same mood or attitude. There is about them the same feeling of protest and lack of assertiveness that was mentioned in connection with "No he isn't".

I have already argued (p. 94) against trying to derive tag questions in a way parallel to questions, i.e., from structures like that underlying (83).

(83)  John is here, isn't John here or is John here?

As I pointed out, there is the very upsetting fact that when disjunctions do occur with tags, they do not always conform to what we would expect from a source like (83).

- (84) John's here, isn't he? Or IS he.
- (85) John isn't here, is he? Or IS he.

Both the positive and the negative tag may disjoin with a positive term. Since, then, we cannot derive Q tags from disjunctions, their rising intonation must be otherwise explained. The protest intonation pattern provides such an explanation. Thus the rising cadence of Q tags is actually only the deferred rise of a fall-rise B accent on the whole sentence. These rising cadences are thus derived quite differently from those on yes-no questions, as we shall now see.

So far we have discussed two uses of the rising-falling distinction. It correlates with the topic-comment distinction and with the non-assertive-assertive distinction. A third use of the rising-falling distinction is in positional opposition. This is the well-known phenomenon of comma intonation, where non-final clauses and terms of conjunctions get B accents, and the final term gets an A accent. I will use disjunction with exclusive "or" as an example. These are disjunctions where, of the two terms, we must choose one and we cannot choose both. Such disjunctions generally have a B accent on the first term and an A accent on the second, as in (86)-(88).

- (86) Either the butler did it with a hammer in the den,
or somebody's lying.
- (87) Do the dishes or scrub the floor; I don't care which.
- (88) Do it quickly or not at all.

Before proceeding further, I should explain the variants of the B accent. The A accent, or falling intonation, assumes everywhere the same shape, as far as we need be concerned. But the B accent has at least two quite different shapes. One is the plain rise found at the end of yes-no questions, and the other is the fall-rise pattern discussed by Bolinger and Jackendoff. The fall-rise is the form that occurs more freely. The rise of the fall-rise may optionally (and preferably) be deferred to the end of the sentence if no other focus follows it. Thus we get both (89) and (90), which are synonymous, but (91) cannot become (92).

- (89) All of the men didn't come.
- (90) All of the men didn't come.
- (91) Fred ate the beans.
- (92) Fred ate the beans.

When and only when there is another accent before the end of the sentence, the B accent may optionally become a plain rise. Thus (93) (= (91)) can become (94), but (95) cannot become (96).

- (93) Fred ate the beans.
- (94) Fred ate the beans.

(95) Fred ate the beans.

(96) Fred ate the beans.

A second factor, which influences the shape of the B accents in disjunctions in particular, is that, the more nearly true opposites the two terms are, the more likely it is that the B accent will take the form of a plain rise.

(97) Is this dog female or does it just look pregnant?

(98) *Is this dog female or male?

(99) Is this dog female or male?

(100) Either it was done by John or we have the wrong man.

(101) *It was done either by John or by someone else.

(102) It was done either by John or by someone else.

(103) I want to know whether this dog is a Pekinese or whether he's some other weird breed.

(104) *I want to know whether this dog is a Pekinese or not.

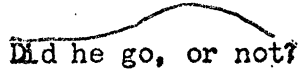
(105) I want to know whether this dog is a Pekinese or not.


Sometimes the starred sentences are acceptable if there is special emphasis on the second disjunct.

This leads us back to our original problem, namely, why WH questions have falling cadences while yes-no questions have rising cadences. What I would like to propose is that it is not WH questions but yes-no questions that are exceptional in this regard. There is an important distinction between yes-no

questions and WH questions which has many consequences. The difference is that "whether" is binary-valued, while other WH-words are many-valued. A yes-no question asks us to choose one of two answers; a WH question asks us to supply one of many possible NP's.

I will argue that yes-no questions are, in fact, derived from disjunctions.^{10,11} This is shown by their intonation. Most yes-no questions have the underlying form "whether S or not S" (or "whether not S or S"). Now there are no truer opposites than S and not S. There is no third possibility. So yes-no questions, when both terms survive, always have a plain rise on the first term, as in (106), rather than a fall-rise, as in (107).¹²

(106)  Did he go, or not?

(107)  Did he go, or not?

Now, if yes-no questions are derived from such disjunctions, and if intonation is assigned to the questions before the second half is deleted, then the first half will have a rising cadence. The second half, with its balancing fall in intonation, is then deleted. The result is the so-called "question intonation". The fact that a B accent may not take the form of a plain rise unless an A accent follows explains why a plain rise can occur at the end of a sentence only if the sentence is a reduced disjunction (as in yes-no questions) or if the rise is the deferred rise of an earlier fall-rise pattern (as in Q tags).

The rule which deletes "or not" is an example of a syntactic deletion rule which must operate after the phonological process of intonation assignment. Another such example is discussed in "Answers to Yes-No Questions" (Pope, 1971).

Under this hypothesis, WH questions are in no way exceptional. They have falling cadences like any other normal English sentence type. Nor are yes-no questions exceptional, except for the fact that part of their intonational pattern has been deleted along with part of their structure. But their pattern as a whole has a function independent of sentence type.

There is one important piece of evidence supporting the disjunction hypothesis which is based on intonation alone. That is the fact that, when the second term of the disjunction is not deleted, the intonation pattern of the question is that of a disjunction, not that of a yes-no question. In particular, the second term may not have a rising cadence.

(108) Are you awake or aren't you?

(109) *Are you awake or aren't you?

(110) Are you awake or not?

(111) *Are you awake or not?

This cannot be explained by saying that questions with two terms which are opposed always have opposing intonation, because conjunctions do not have the same pattern here, even though they do elsewhere.

- (112) Did you laugh and cry?
 (113) *Did you laugh and cry?
 (114) I laughed and cried.

The derivation of question intonation from disjunction intonation explains why, in English and many other languages, yes-no questions have rising cadences, but WH questions do not. It is because WH questions are not derived from disjunctions, unless, as some have proposed, the disjunctions are infinite.¹³ But in that case, the question would be derived not by deleting all but one term, but rather by collapsing them all, so the situation is not at all parallel, intonationally.

This completes our analysis of basic intonation patterns. The last section deals with a remaining problem--the intonation of embedded "whether" questions--and concludes with a summary and discussion of the rules that have been postulated in the course of the chapter.¹⁴

IV.3 Embedded Yes-No Questions and Conclusion In the light of the generalizations we have discovered so far, the intonation of embedded yes-no questions is somewhat strange. They never end in a rise, even when the second term has been deleted. Langacker (1969) says about this "It is reasonable to suppose that the declarative intonation of the main clause overrides that of the embedded question when the former is truncated so that only one clause remains." I think a more plausible solution is that

(115)-(117) are related, and (118)-(119) are not related to the first three.

(115) I wonder whether she likes me or not.

(116) I wonder whether or not she likes me.

(117) I wonder whether she like me.

(118) I wonder whether she likes me or not.

(119) I wonder whether she likes me or not.

I have already suggested that (119) has special emphasis on "not", and so cannot be reduced. The difference between (118) and (115) is that in (118), "not" is part of the focus, but in (115) it isn't. In embedded questions, then, unlike topmost questions, "or not" can be moved or deleted only if it is not part of the focus.

I can think of two ways in which "or not" might come to be outside the focus. The first method derives (115) from (116); the second derives (116) from (115). I think the second is closer to the truth.

The first method works as follows: "or not" will be unaccented just in case the whole disjunction as a unit is focused, rather than each term separately, and the first S, instead of the second, deletes. The A accent will come on the last stress peak of the second S, and that will be the only accent. "Or not", being unaccented, may either move to the end of the sentence or delete. This means that (120) is the source of (121)-(123).

- (120) I don't know [whether I like him or not I like him.] focus
- (121) I don't know whether \emptyset or not I like him.
- (122) I don't know whether $\emptyset \emptyset$ I like him or not.
- (123) I don't know whether $\emptyset \emptyset$ I like him \emptyset .

The second method works as follows: "or not" will be un-accented just in case it is considered an unimportant possibility, in a manner completely parallel to (124) and (125).

- (124) Give it to Donna or somebody.
- (125) Why don't you complain or something.

When the sentence following "or not" is deleted, and "or not" is unaccented, "or not" may either be attracted to "whether" or may delete. This means that (126) is the source of (127)-(129).

- (126) I don't know [whether I like him] focus or not I like him.
- (127) I don't know whether I like him or not \emptyset .
- (128) I don't know whether or not I like him $\emptyset \emptyset$.
- (129) I don't know whether \emptyset I like him $\emptyset \emptyset$.

Both methods have the virtue that they relate (115)-(117) as opposed to (118)-(119). That this is a virtue is shown by the fact that the two groups pattern differently in other environments. For instance, the first group but not the second is ungrammatical in adverbial clauses, as in (130)-(134).

- (130) *I'm leaving, whether you like it or not.

- (131) *I'm leaving, whether or not you like it.
- (132) *I'm leaving, whether you like it.
- (133) I'm leaving, whether you like it or not.
- (134) I'm leaving, whether you like it or not.

In topmost questions, too, the first group but not the second is only marginally acceptable in special usages. Thus (135)- (137) could only be used in answer to something like "What did you ask?"

- (135) ?Are you leaving or not?
- (136) ?Are or aren't you leaving?
- (137) ?Are you leaving?
- (138) Are you leaving or not?
- (139) Are you leaving or not?

But although the first method shares this one virtue with the second, it also has many disadvantages which the second does not. First, the first method but not the second requires us to move a complementizer (not) rightward out of its sentence. I think complementizers may move rightward into their own sentences. The placement of sentential negatives on the auxiliary may be such a rule. Others were discussed in Chapter I. And complementizers may move leftward and upward out of their sentences. Chomsky (1971) argues that WH-Movement is such a rule. In the cases we are considering, where a complementizer moves out of its own sentence but not upward, we add less power to the grammar if this

movement is leftward than if it is rightward. The left restrictions already allow complementizers to move out of their own sentences so long as they do not move down. The rightward restrictions do not allow complementizers to move out of their own sentences. The two proposed movements are illustrated again in (140) and (141).

- (140) I wonder whether or not it's true (first method)
- (141) I wonder whether it's true or not (second method)

The second problem with the first method is that it requires backwards deletion in a conjoined structure. As previously mentioned (p. 118), Jorge Hankamer (Hankamer, 1971) argues that backward deletion is never possible in conjoined structures. He explains backward gapping, the best argument for the existence of such deletions, as a result of node raising and scrambling. If Hankamer is right, our first method, which allows either the first or the second term of a questioned disjunction to be deleted, requires a more powerful grammar than would otherwise be needed. The second method requires only forward deletion, which is quite well motivated. The two proposed deletions are illustrated in (142) and (143).

- (142) I wonder whether \emptyset or not it's true. (first method)
- (143) I wonder whether it's true or not \emptyset . (second method)

For these reasons I will adopt the second method of deriving the

to the first stress-less syllable after the first stress peak. Otherwise, assign it to the highest stress peak.

(148) Assign A accents to focus syllables which are dependent variables or final terms of conjunctions (etc.). When the entire sentence is the focus, assign an A accent to the last stress peak.

(149) A accents are realized as falls (start higher than normal and fall to lower than normal).

(150) B accents are realized as fall-rises (start higher than normal, fall to lower than normal, then rise, but not as high as the first high). When the B accent is non-final and no other focus syllable follows it, the final rise is (preferably) deferred to the end of the sentence. When the B accent is non-final and another focus syllable follows it, the B accent may take the form of a rise (rising higher than the normal B accent's final rise) with no preceding fall. This rule is optional except that in disjunctions, the more nearly true opposites the two terms are, the more obligatory this rule becomes.

(151) X $\left[\begin{array}{ccccc} \text{Whether S or not} & & & & \\ 1 & 2 & 3 & 4 & 5 \end{array} \right] Z \rightarrow 1 \ 2 \ 3 \ \emptyset \ 5 \quad \left[\text{Optional} \right]$

In embedded sentences, "or not" must be unaccented.

(152) Whether S Y $\rightarrow \emptyset \ 2 \ 3 \quad \left[\text{Obligatory} \right] \quad \left[\text{Applies only in top-most S's.} \right]$
 $\begin{array}{cc} 1 & 2 \ 3 \end{array}$

(153) X $\left[\begin{array}{cccc} \text{Whether S or not} & & & \\ 1 & 2 & 3 & 4 \end{array} \right] Y \rightarrow 1 \ 2 \ 4 \ 3 \ 5 \quad \left[\text{Optional} \right]$

Applies only in embedded S's. "Or not" must be unaccented.

(154) Negative Incorporation (see Klima, 1964)

Intonation assignment is ordered quite late in the syntactic component, following most transformations. This includes some root transformations, such as Adverb-Preposing and Topicalization. Furthermore, intonation assignment must follow the operation

of the Nuclear Stress Rule, since rule (147) refers to the stress peaks of a sentence, and these are determined by the Nuclear Stress Rule.

However, there are some syntactic rules that have to follow intonation assignment. In Pope, 1971, I showed that Answer Deletion--the rule or rules reducing answers from full sentences to fragments--must follow intonation assignment. Now we have seen that the rules ((151) and (153)) which delete and move "or not" must also follow intonation assignment. (I would like to do away with the rule which moves "or not", and claim that only deletion rules may follow intonation assignment, but so far I have been unable to do so.) The differing conditions on deletion of "or not" in embedded and main clauses explain the differing intonational patterns of embedded and main sentence questions with only one term. (Embedded questions always have falling cadences, while most single-term main sentence questions have rising cadences.)

The fact that certain aspects of intonation assignment depend on the prior operation of the Nuclear Stress Rule, and the fact that some syntactic rules follow intonation assignment, taken together, lend support to Bresnan's argument that the Nuclear Stress Rule must operate within the syntactic component (Bresnan, 1971).

Furthermore, from the facts that Adverb-Preposing, a last-cyclic rule, must precede intonation assignment, while "or not"

deletion in embedded questions, a cyclic rule, must follow intonation assignment, we may surmise that intonation assignment, like Bresnan's NSR, applies cyclically. This also means that the rules which follow intonation assignment on the regular cycle will have to follow last-cyclic rules on the final cycle.

Since I am offering an analysis of only a very small subset of English intonational phenomena, I cannot defend this ordering hypothesis. Rather, I merely suggest it as one way in which the phenomena I have studied could fit within the generative framework. If the hypothesis is correct, it means that not all last-cyclic rules can be ordered after all cyclic rules on the final cycle. I will leave open the question of whether all intonation assignment and realization rules come together in the ordering, or whether other types of rules may be interspersed among them. The former situation, however, would seem to be the more natural, i.e., the less marked or "expensive".

I do not wish to claim that there is anything universal about the rules or ordering I have proposed, since the analysis is based only on English. It is possible that in other languages, no syntactic rules follow intonation assignment. However, I would venture to make some contingency predictions about the relationship between question type and intonation pattern for language in general.

First, I think that in most, if not all, languages, yes-no questions or their equivalents will be derived from disjunctions.

This will be evidenced by facts such as the following: 1) the disjunction, with both terms intact, will sometimes appear on the surface, 2) single term questions will be interpreted to mean the same as a disjunction of that question and its negation, 3) if single-term questions have rising cadences, so will first terms of disjunctions of S and not S, 4) the question word for yes-no questions, if there is one, will bear some relationship to the word for "either" or the word for "or". Of course, not all of these facts will show up in every language. But all of the languages I have investigated exhibit one or more of them.¹⁵

Second, I think that in no language will (non-whether) WH questions be derived from disjunctions. This will be evidenced by facts such as the following: 1) such questions will not be able to show up as disjunctions analogous to those possible for yes-no questions on the surface, 2) single-term questions will not be interpreted as meaning the same as a disjunction of that question and its negation, 3) WH questions will not have rising cadences unless there is some intonational pattern in the language, other than that of disjunctions, which applies to WH questions as a sub-case.¹⁶

In summary, we have seen that the falling-rising intonational distinction serves in English to set off opposites, whether they be functional opposites, semantic opposites, or positional opposites. The intonations and their variants are assigned by rule at a position in the syntax before the operation of at least

one movement and at least one deletion rule. Question intonation, echo and reference questions, and sundry other anomalies can be explained by more general intonational processes.

Footnotes to Chapter IV

1. I will indicate intonation with wavy lines, where "up" means high pitch, and "down" means low pitch.
2. Such examples, along with many other variations in question intonation, are discussed in Chafe, 1968.
3. The contour of (10) suggests that there is a low-level rule which distributes the last functionally assigned pitch rightwards to the end of the sentence or to the next assigned accent.
4. Also, of course, the parallelism of S tags and statements does not always hold, as (i) and (ii) show. See R. Lakoff's discussion of these constructions in Lakoff, 1969a.
 - (i) *I don't suppose he'll come, do I.
 - (ii) I don't suppose he'll come.
5. Although yes-no questions are technically WH questions, I have been using and will continue to use the term to designate questions with a WH-word other than "whether".
6. James McCawley recently told me that one of his students had shown that pitch falls that corresponded to a musical fourth served, as in music, as non-final cadences, indicating some doubt or leaving the conversation open. Pitch falls corresponding to a musical fifth served, again as in music, as final cadences, indicating strong assertion and closing conversations. This may be one more concrete way of regarding the mild-sharp distinction.
7. Lieberman (1967) concerns himself with this problem. The solution he proposes is that if a question has a special question morpheme (WH in English) in surface structure, the pitch falls at the end; otherwise, it rises. In other words, there is a trading relationship. A question must have some signal of its questionhood. The signal may be either rising intonation or a question morpheme appearing on the surface.

This is a very attractive hypothesis. Nevertheless, there are a few problems with it. First, as Kim (1968) asked in his review of Lieberman's book, why is inverted word order not as good a signal of questionhood as WH in English? There are not many types of sentences other than yes-no questions that begin with tensed AUX in English. One type that does invert is exclamatory sentences, as in (i).

 - (i) Is he ever zealous!

A second, rather spurious sort of counterexample is repeated

questions, as in (iiA2).

(ii) A1. Is he annoying you?

B. Is he annoying me?

A2. Yes. Is he annoying you.

(iiA2) is not really a question, but rather a statement of what A's previous question said. It has falling intonation, as does (i).

There are other types of sentences with inverted word order, but, with the exceptions mentioned above, yes-no questions are the only type that begins with an indicative tensed AUX in surface structure. This should, then, be a pretty strong signal of questionhood. Why is rising intonation needed in addition?

Now consider the distribution of WH-words. WH-words are used not only for questions, but also for relative clauses, and for embedded questions, which are quite different in function from questions proper. Limiting ourselves to sentence-initial position doesn't help limit the scope of the problem, firstly, because relative pronouns may be sentence-initial, as in (iii).

(iii) What really finished him off was the piano.

(iii) is not a question, and so we cannot say that a sentence-initial WH-word is a reliable question signal. One could argue that the hearer knows, after he hears "was", that "what" in (iii) is not immediately dominated by the topmost S, as a question signal would be, but this additional condition makes for a rather weak and complicated signal.

In the second place, REF-questions must be considered a special type of WH question. That is, although the WH-words in REF-questions occur more freely, since they need not move, they are generated in the same way as and have the same forms as the WH-words of WH questions. REF-questions, like WH questions, have falling intonation, so that the WH-word is again the only signal of questionhood. Yet the WH-word need not be in sentence-initial position, as it is not in (ivB).

(iv) A. Romy did it!

B. Romy did what?

For these two reasons, it is hard to argue that Q-WH's are easy to distinguish positionally from other WH's. This weakens the theory that they are sufficient signals to obviate the necessity for rising intonation.

Neither do WH questions necessarily exclude rising intonation. In fact, they often do, optionally, have rising cadences, as in (v).

(v) Why is grass green?

Furthermore, echo questions, which are, again, a special type of WH question, always have rising intonation.

In summary, I think the theory that rising intonation and WH-words enjoy a trading relationship as question signals is inadequate for the following reasons: 1) inverted word order seems as good a question signal, at least for yes-no questions, as WH is for WH questions, but yes-no questions still have rising intonation, 2) WH-words, qua morphemes or qua morphemes in certain positions, do not uniquely signal questions--rather, one must consider in addition the abstract structures in which they participate, and 3) WH-words, even when signalling normal WH questions, do not preclude rising intonation.

8. As I said, Ref-questions ask for the referent of a pronoun, and not just that of a NP whose referent is not clear. Thus (iA) cannot give rise to (iB), although (iiA) and (iiB) are good.

(i) A. John went somewhere.

B. *John went where?

(ii) A. John went there.

B. John went where?

Notice what we get in response to "one".

(iii) A. John ate one.

B. John ate one what?

Also, REF-questions can ask for the referents of deletions, at least certain kinds of deletions.

(iv) A. John knows.

B. John knows what?

(v) A. John knows.

B. *John knows what?

I think that, here again, it will turn out that deletion of material which is presupposed to be anaphoric can be questioned by a REF-question, but deletion of, e.g., unspecified NP's cannot be.

9. When their assertions are the same, on the other hand, it's better if their intonations match. Thus there is a difference in the intonation of answers like "That's right" and "You're right" used in reply to S tags on the one hand, and to Q tags and negative questions, on the other. In reply to Q tags

and negative questions "That's right" is stressed on "that". More accurately, the sentence has a B accent. ("You're right" for some reason may not have this intonation pattern, and so it is not very good as a reply to Q tags and negative questions.) In replies to S tags, "That's right" may have this pattern, but it is better if "right" is stressed, or, again more accurately, if the sentence has an A accent. "You're right" may have this pattern, so it is good as a reply to an S tag.

(i) A. Haven't I met you somewhere?

B1. That's right.

B2. ?That's right.

B3. *You're right.

B4. ?You're right.

(ii) A. I've met you somewhere, haven't I?

B1. That's right.

B2. ?That's right.

B3. *You're right.

B4. ?You're right.

(iii) A. I've met you somewhere, haven't I.

B1. ?That's right.

B2. That's right.

B3. *You're right.

B4. You're right.

In Chapter IV I have shown that S tags have A accents and Q tags have B accents, and that when such sentences receive disagreeing replies, the reply with the opposite accent is the preferred one. Here we see that when such sentences receive agreeing replies, the reply with the same accent is the preferred one.

10. This is not a new idea. Lieberman (1967) adopts this analysis. Katz and Postal (1964) recognized the connection between yes-no questions and disjunctions, but consigned the association to the semantic, rather than the syntactic component. Hasegawa (1968), Langacker (1969 and 1970), and Moravcsik (1971)

derive yes-no questions from disjunctions and argue for the derivation of yes-no question intonation I give here.

11. The main drawback of a syntactic association between disjunctions and yes-no questions is that it apparently doesn't work as well for negative yes-no questions as it does for positive ones. I contend that it is always the second half of the disjunction that is deleted to form yes-no questions, rather than sometimes the first half and sometimes the second half. This means that we must postulate underlying disjunctions of the form neg-or-pos as well as the more natural and grammatical pos-or-neg. I gave some semantic and syntactic arguments for this analysis of negative questions in Chapter III.
12. If the "not" receives special emphasis, so that the first term may receive a fall-rise, the "not" can't be deleted, since the presence of [\uparrow emph] will not fit into the structural description of the deletion transformation.
13. Langacker (1969) proposes that all questions are derived from disjunctions, but that in all cases other than yes-no questions, the disjunction is infinite. This has some semantic, but little syntactic, plausibility. However, even in terms of semantics alone, the situation is more complicated than he has indicated, as I showed in Chapter II. At any rate, an infinite disjunction would certainly defy intonation assignment. So either intonation would simply not be assigned to infinite structures, or intonation assignment would follow the collapse of the disjunction. In either case, the intonational pattern of WH questions would still be different from that of yes-no questions.
14. One problem that remains but is rather peripheral is that of intonational placeholders. John Ross has pointed out to me that "hunh" and "hm" are not mere bestial grunts. They serve a linguistic function as intonational placeholders, rather like the 0's in the number system. Each has a distinct function, and there are restrictions on their use. (For many people, they tend to merge phonetically. Thus their one grunt allows anything allowed by either of our two distinct grunts.)
 "Hm" is a placeholder for rising intonation. It may not be used after statements--that is, it may not replace tags.
 - (i) *He's coming, hm?
 - (ii) *He's coming, hm?

It may be used redundantly after yes-no questions, which already have rising intonation. But because it is redundant, it sounds rather insistent here.

(iii) Is he coming, hm?

It has two primary uses. First, it is used following WH questions, where the rising intonation on "hm" is not redundant.

(iv) Who's coming, hm?

Its other primary use is as a complete reply in itself. It may be used in response to one's name or some other attention-getter to signal receptivity, or it may be used in response to any sentence to mean "What did you say?", either as a request for repetition or, with a sharper rise, to register incredulity.

(v) A. John?

B. Hm?

(vi) A. Aardvarks have wings.

B1. Hm? [request for repetition]

B2. Hm? [incredulity]

"Hunh" is a placeholder for other intonations. It may not be used after any sentence that ends in a rise.

(vii) *He's coming, hunh.

(viii) *Is he coming, hunh.

It may not be used with redundant falling intonation following a WH question.

(ix) *Who ate all the cookies, hunh.

"Hunh" is used to replace two sorts of tags. One is the negativity-switching tag which is a request for confirmation and has falling intonation (the tag of S tags).

(x) He's coming, hunh. cf. He's coming, isn't he. The other is the sarcastic or belligerent tag which does not switch negativity.

(xi) So I'm stupid, hunh? cf. So I'm stupid, am I? These tags have rising intonation, but it is not the questioning intonation, which starts high and rises. Rather it starts quite low and rises to normal speaking level.

"Hunh" is used in a similar way following belligerent or accusing questions. Its intonation here differs from that

it has in (xi) only in that there is a sudden sharp rise at the very end. (Here it is particularly common to use "hunh" and "hm" interchangeably.) Again, this usage sounds redundant after yes-no questions.

(xii) Did you do it, hunh?

(xiii) What's the matter, hunh?

Perhaps the confounding of "hunh" and "hm" here is due to the fact that this intonation is a combination of the belligerent intonation of "hunh" in (xi) and the rising intonation of "hm" in (iv).

"Hunh" may also be used as a complete reply in itself, usually, again, to register incredulity or bewilderment. "Hm" indicates puzzled incredulity; "hunh" indicates that B is pretty certain A is wrong.

(xiv) A. Aardvarks have wings.

B. Hm? I thought they were some sort of mammal.

B'. Hunh? You're crazy!

We can suggest sources for most of these uses of "hm" and "hunh". The ones requesting repetition or registering incredulity are derived, by deletion of everything but the

intonation, from "What?", which in turn is derived from the

echo question "What did you say?" Two uses of "hunh" were shown to be related to tags earlier. In fact, they are probably derived from these tags. Neither "hm" nor "hunh" may replace the tag of a Q tag, however. This may be because, while a belligerent tag sentence without its tag still sounds belligerent and an S tag without its tag is still a statement, a Q tag without its tag cannot stand alone as a question. In other words, an intonational placeholder can only replace segments and support intonations which are more or less

redundant anyway. ("What?" may seem to be a counterexample to this, but I think it is not, because the slightest gesture of surprise or puzzlement, such as a widening of the eyes or a raising of the eyebrows, achieves exactly the same effect. "What did you say?", as an expression of amazement, is a case of verbal overkill.)

"Hm" and "hunh" following yes-no questions are probably derived from tags also. Tags and placeholders sound about equally redundant in this position. Many people will not accept either one.

(xv) Is it too late, {hm? / is it?}

(xvi) Are you going to step over the line, ^{huh?} are you?
 Only after WH questions do placeholders lack for a source.
 The only morphologically specified substitute I can think of
 which has the same intonation is "do you know?"

(xvii) Why did he do that, hm?
 huh?
 *did he?
 *why did?
 *why? cf. why?
 *yes?
 *no?
 *I ask you? cf. I ask you?
 *tell me? cf. tell me?
 do you know?
 do you know?

However, I do not think "do you know" is a likely source for
 the placeholders, because it has too much semantic content.
 For instance, (xviii) is a strange sentence, semantically.
 But (xix) has none of this strangeness.

(xviii) Why do you think he did that, do you know?

(xix) Why do you think he did that, hm?

What I am rejecting here is the idea that placeholder-
 formation could improve a semantically difficult situation.
 It is, however, quite possible for placeholder-formation to
 improve a grammatically difficult situation. In fact, "huh"
 as a tag-replacer is especially popular in sentences where
 the full tag would be awkward or ungrammatical. It is well-
 known that the tags which do not have negativity opposite to
 that of the first part of the sentence--i.e. the belligerent
 tags--are fully grammatical only if both statement and tag
 are positive, as in (xx). If both are negative, as in (xxi),
 some speakers get the sentences marginally, others not at all.

(xx) So I'm a sap, am I?

(xxi) ??So you can't do it, can't you?

But (xxi), with "huh" replacing the tag and taking over its
 intonation, is fully acceptable.

(xxii) So you can't do it, huh?

If (xxii) is indeed derived from (xxi), this situation is
 reminiscent of rules like Sluicing, which can convert ungram-
 matical sentences into grammatical ones.

This suggests another source for placeholders after WH

questions. Since there seems to be no good morphological source for these placeholders, perhaps what is going on is that tag-formation applies to WH questions, producing, of course, some monstrosity. But if the monstrosity were then immediately wiped out by placeholder-formation, nobody would be the wiser. I know of no good argument for such a source, however, so I will leave this as an unsolved problem.

15. See Moravcsik, 1971 for further discussion.
16. Several problems related to intonation assignment still need to be more fully explicated, but cannot be dealt with here. For one thing, the reduction possibilities in embedded "whether" clauses need further study, as do the stress and intonation of adverbial "whether" clauses (see Kaufman, 1971). Intonational placeholders pose some problems for the analysis I have proposed. And the notion of independent and dependent variables needs refinement and explicit reformulation in terms of TH.

CHAPTER V: ANSWERING SYSTEMS

In this chapter, I will investigate the interrelationship, in answers to yes-no questions, between the positive-negative distinction and the agreement-disagreement distinction. I will develop a notion of semantic difficulty, which can be used in studying the structures of systems of minimal direct answers to questions in the languages of the world.

In section V.1, I will show that of the four types of minimal answers to yes-no questions--positive agreement, negative agreement, positive disagreement, and negative disagreement (henceforth PA, NA, PD, and ND, respectively)--PD is the most restricted in English. In section V.2, I will show that this is because PD is the most difficult or marked answer. This fact has consequences both for the acquisition of language and for the relative possibility or probability of various answering systems showing up in the languages of the world. In section V.3, I will try to show how English determines whether an answer is positive or negative, and in section V.4, I will show that the ease or difficulty which languages have in solving this problem (whether answers are positive or negative) influences their choice of answering system.

V.1 Restrictions on Answers Let us consider answers to yes-no questions--the simple choice between saying "yes" and saying "no". In English, the choice is determined by the presence or absence

and position of negative elements in the question and in the answer. In the simple cases, "yes" goes with a positive answer, and "no" goes with a negative answer. But the choice is influenced by whether we wish to express agreement or disagreement with the questioner's assumption. We tend to use "yes" to agree and "no" to disagree, although the former tendency is the stronger. The functional explanation for this tendency is the difficult to express but strongly felt semantic bond between negation and contradiction or opposition on the one hand, and positive phrasing and agreement or similarity on the other.

- (1) He went, didn't he?
- (2) He didn't go, did he?

Both of these tag questions may be answered "Yes, he did" or "No, he didn't". However, in answer to (1), "Yes, he did" is used to agree, "No, he didn't" to disagree with the questioner's assumption (i.e. "He went"), while in answer to (2), where the assumption is "He didn't go", "No, he didn't" is used to agree, "Yes, he did" to disagree. Now, using "yes" to disagree is an unnatural act, semantically confusing, and, as we shall see, grammatically questionable.

The answers to (1) may be shortened to "yes" and "no", with the same functions as the longer answers. And (2) may be answered, in agreement, "no". But to answer (2) with "yes" is at least partially ungrammatical--insufficient, somehow.

One of the reasons for this is that the habit of agreeing by saying "yes" is so strong that people sometimes do so even in answer to questions like (2). This, everyone agrees, is ungrammatical, but it happens quite often. Consequently, when "yes" is used correctly--to disagree with (2)--the tag "he did" must be added to make the disagreement clear. Thus a representative paradigm of minimal answers to tag questions is as follows:

(3) Q. He went, didn't he?

A. { Yes. }
 { No. }

(4) Q. He didn't go, did he?

A. { No. }
 { Yes, he did. }

The same paradigm applies to regular questions. Thus, even though negative yes-no questions usually seem to expect a positive answer, the fact that they are negative in form takes precedence in determining the form of the possible minimal answers.

(5) Q. Did he go?

A. { Yes. }
 { No. }

(6) Q. Didn't he go?

A. { No. }
 { Yes, he did. }

Compare the German paradigm. Here, positive disagreement

is marked not by use of a tag but by use of "doch" instead of the usual "ja".

(7) Q. Geht's dir gut?

A. { Ja. }
 { Nein. }

(8) Q. Geht's dir nicht gut?

A. { Nein. }
 { Doch. }

There are related paradigms in English. The words "too" and "either", used in disagreeing with statements,

(9) S. He went.

R. { *He did too. }
 { He didn't either. }

(10) S. He didn't go.

R. { He did too. }
 { *He didn't either. }

may also be used to disagree with tag questions which have falling intonation. However, while the "either" response seems a bit excessive and a bit ungrammatical, the "too" response is completely appropriate and fully grammatical, functioning like the corresponding obligatory extra tag of positive disagreement.

(11) Q. He went, didn't he.

A. { *He did too. }
 { ?He didn't either. }

(12) Q. He didn't go, did he.

A. { *He didn't either. }
 { He did too. }

The same holds true of "not" and "so".

(13) Q. He went, didn't he.

A. { *He did so, }
 { ?He did not. }

(14) Q. He didn't go, did he.

A. { *He did not. }
 { He did so. }

The necessity of using a tag in indicating positive disagreement creates difficulties in certain situations. For instance, it is well known that it is hard to decide which pronoun to use with "nobody", as the following examples show.

(15) Nobody came, did { *he? }
 { ?they? }

(16) Nobody raised { their }
 { his } hand.

(17) Nobody shaved { ?themselves }
 { himself }
 { *themselves }

The difficulty becomes even more pronounced in the attempt to answer the question "Did nobody come?" A "no" answer is perfectly acceptable, meaning "No, nobody came". But a "yes" answer requires a tag, as we have seen above. And a tag requires a pronoun. "Someone" and "somebody" do not qualify, as shown by (18).

(18) *Nobody came, did { (somebody) }
 { someone }?

Neither "he" nor "they" is very good, so one is almost forced to make a more specific answer than such questions normally require, avoiding the use of a tag.

(19) Q. Did nobody come?

A. { *Yes, he did.
 ??Yes, they did.
 ?Yes, someone came.
 Yes, John came. }

All of these examples have illustrated the difficulties that arise when one must disagree by saying "yes". In these cases an answer--"yes"--is unacceptable though grammatical. Now we will see that it is also possible for a "yes" answer to be completely ungrammatical because of such difficulties.

It has been pointed out, by Chomsky among others, that certain sentences, involving negative polarity items, which would be ungrammatical if produced without ellipsis, are grammatical after VP Deletion applies. Thus, although (20) is out, (21) is grammatical.

(20) *Joe didn't have very much fun, but Steve had
 very much fun.

(21) Joe didn't have very much fun, but Steve did.

This phenomenon carries over into discourse. Thus (22B) is out, but (23B) is grammatical.

(22) A. Did you have very much fun?

B. { *Yes, very much.
*Yes, I had very much fun. }

(23) A. Did you have very much fun?

B. Yes, I did.

(21) seems to me perfectly grammatical, but some very similar examples are much less so.

(24) ??Mike didn't reach the top {until 5:00
for a week}, but Donna did.

These polarity items are also very nearly unacceptable in yes-no questions.

(25) ?Didn't Mike reach the top {until 5:00
for a week}?

If (25) is acceptable, a "no" answer is expected and fully grammatical, meaning "No, Mike didn't reach the top {until 5:00
for a week}." A "yes" answer, however, or even "Yes, {by noon
in three days}", is pretty ungrammatical.

Certain affective elements pattern similarly.

(26) *It rarely rains here, but it doesn't rarely rain in Seattle.

(27) ??It rarely rains here, but not in Seattle.

(28) Q. ??Does it rarely rain?

A. { Yes (it rarely rains).
??No (*it doesn't rarely rain). }

With these items, however, position makes a great difference. When "rarely" follows the VP, the judgements are like those for (20)-(23), rather than (26)-(28).

(29) ?Here it rains rarely, but it doesn't rain rarely
in Seattle.

(30) Here it rains rarely, but not in Seattle.

(31) Q. Does it rain rarely?

A. {Yes. }
{No. }

This difference in patterning with position correlates with the following differences, which were pointed out to me by H. Lasnik.

(32) No one speaks to me anymore.

(33) ?I speak to no one anymore.

(34) Not often do I work.

(35) *I work not often.

It also correlates with a difference in tags with position.

"Rarely", "seldom", etc. take positive tags when in pre-verbal position, and take negative tags when in post-verbal position.

(36) It rarely rains, does it?

(37) ??It rarely rains, doesn't it?

(38) It rains rarely, doesn't it?

(39) *It rains rarely, does it?

(36) is fully grammatical, while the acceptability of (25) and (28) is questionable, so (36) will better illustrate our point. Here again, (38), like (31), may grammatically be answered either "yes" or "no". (36) may be answered "no", meaning "No, it rarely rains". But a "yes" or "yes, it does" answer is completely ungrammatical. This is not to say that disagreement is impossible. One can answer "Oh, it rains often enough" or some such. But a plain "yes" or "yes, it does" is only confusing. So here again a PD answer is difficult.

The question is, why is a "yes" answer acceptable for (23) but not for (36)? The answer, I think, is that in response to (23), and even (28), one may offer two sentences differing by full negation, even though one is ungrammatical. For (28), these answers are "Yes, it rarely rains" and "No, it doesn't rarely rain." But for (36), where, because of the positive tag, the negative answer must mean agreement, namely, "No, it rarely rains", there simply is no PD opposite. Positive opposites, unlike negative opposites, are not arrived at by adding a "not". Thus, a "yes" couldn't mean "Yes, it doesn't rarely rain". Positive opposites are arrived at by taking away a "not" or other full negation. But in "No, it rarely rains", there is no "not" to take away. A "yes" answer couldn't mean "Yes, it rains", for this is not the opposite of "It rarely rains" and hence not a straight answer to the question. A true opposite would be "It often rains", and this would be a good answer. However, "rarely" and "often" or "not often" are not grammatically related, and hence, given the question, the

relationship necessary for Answer-Deletion is not fulfilled by "Yes, it often rains". Looked at another way, the rules for interpreting answers, given their questions, simply cannot and will not fill in "It often rains" after "Yes" in response to (36). This is an example where "yes" as an answer is ungrammatical on account of the difficulty of positive disagreement.

Now let us consider a third, more complicated case. Answers to the following sort of question, if in minimal form, are very confusing.

(40) Have you no bananas?

If we in fact have no bananas, we may grammatically and truthfully answer this question either "yes" or "no". If we in fact do have some bananas, we may again grammatically and truthfully answer this question either "yes" or "no". Very confusing. Let us rate these answers in terms of the positive-negative and agreement-disagreement distinctions.

- (A) Yes (we have no bananas). Better than C in terms of agreement-positivity match ((40) assumes you have no bananas).
- (B) No (we have no bananas). Better than D in terms of negativity ("no" conditioned by sentential negation in answer).
- (C) Yes (we have some bananas). Better than A in terms of positivity ("yes" conditioned by negationless answer).
- (D) No (we don't have no bananas, i.e., we have some bananas). Better than B in terms of disagreement-negativity match (contradicts assumption that you have no bananas).

The only reason (A) and (D) are grammatical at all is that the negative is not attached to the AUX in the question. Sentences in which the negative follows the AUX (and in questions, where we have Subject-AUX Inversion, all negatives not attached to the AUX follow it) can pattern like positive sentences with respect to some grammatical restrictions. Thus (40) is ambiguous as to whether the negation is sentential or not--as to whether it is a positive or a negative question. This problem will be discussed more fully in section V.3.

Normally, any negation which can be is interpreted as sentential, and in fact, my informants prefer to interpret "yes" and "no" as meaning (C) and (B), respectively. There is more hesitation in interpreting "yes" than for "no". This is because PD is more marked or difficult than NA, as we shall see in section V.2. Similarly, although (A) and (D) are both somewhat unacceptable, (D) is more so because of its double negation.

The informants also prefer to produce "yes" and "no" when they do and do not, respectively, have bananas. That is, they prefer to produce (C) and (B) rather than (D) and (A). However, in the former case--when they do have some bananas--they much prefer to produce "yes, we do" instead of "yes". Here the two distinctions join forces, for the tag is specifically correlated with PD. For the hearer, "yes, we do" should be just as ambiguous as "yes", meaning either "yes, we do have some bananas" or "yes, we do have no bananas". But this is not the case. The former

interpretation is greatly preferred. There is less hesitation about producing or interpreting "yes, we do", meaning "we do have bananas", than for any of (A)-(D).

In conclusion, then, we have seen that when the two distinctions conflict, the positive-negative one takes precedence. However, agreement-disagreement retains its influence, and the two interact to produce a hierarchy of degrees of grammaticality/acceptability. The answers discussed fall into the following best-worst order: Yes, we do; (B); (C); (A); (D).

In this section, we have seen that when difficulties arise in answering questions, they are usually worst for the answer expressing positive disagreement. Later on in this chapter we will consider in greater detail several of the topics that have been brought up in this section; in particular, it will be shown that the difficulties involved in PD are in a sense universal, and influence the system of minimal answers to questions in every language. We will also consider further the grammatical rules that produce "yes" and "no" at the heads of answers, and the factors which govern the choice.

V.2 Possible Question-Answering Systems In the last section I showed that of the four types of minimal answers, PD raises the most problems in English. It is specially restricted in that its tag may not delete. Thus the system of minimal answers to yes-no questions in English may be represented as follows:

	Agreement	Disagreement
Positive	yes	yes, tag
Negative	no	no

NA and ND use the same form, but PA and PD do not.

PA, PD, NA, and ND are the four basic categories in answering systems for yes-no questions in all languages.¹ The English arrangement of the system, in which only NA and ND use the same form, is wide-spread in the languages of the world, but it is not the only possible arrangement. A few languages which do use this arrangement are listed below.

GERMAN

	Agreement	Disagreement
Positive	ja	doch
Negative	nein	nein

FRENCH

	Agreement	Disagreement
Positive	oui	si
Negative	non	non

SCANDANAVIAN

	Agreement	Disagreement
Positive	ja	ju or jo
Negative	nei	nei

RUSSIAN

	Agreement	Disagreement
Positive	da	--
Negative	n'et	n'et

In Russian, NA and ND merge, PA has a special word, and PD requires some sort of emphatic circumlocution, the word for PA alone being insufficient, just as in English. Thus these systems are all essentially the same.

The reason PD so often has to have a special word is that it is the most semantically difficult or marked² of the four

categories. First let me explain what I mean by semantic difficulty.

Given that sentences have both syntactic form and semantic content, semantic difficulty is made up of the following: 1) semantic content, 2) incongruity of syntactic form and semantic content. We will regard disagreement as having semantic content, while agreement does not.³ Thus we must assign ND and PD each one unit of semantic difficulty on account of their content. We will regard negativity as being congruous with disagreement, and positivity with agreement, while negativity is not congruous with agreement nor is positivity with disagreement. Thus we must assign NA and PD each one unit of semantic difficulty on account of their incongruity of form and content. This leaves PD, with two units of difficulty, the most difficult category.

Let me try to defend this definition of semantic difficulty by comparing it^{to} an alternative definition, namely, one which says that semantic difficulty is simply made up of semantic content (disagreement) and syntactic form (negativity). This would make ND the most difficult category. The immediate argument for the definition we have chosen is that it gives the desired result--namely, that PD is the most difficult category, which we saw to be the case in the last section. But I think that there is a deeper reason. Saying that disagreement is marked is a fairly normal sort of semantic rule. There is no doubt that the act of disagreeing is more marked than the act

of agreeing. It constitutes a departure from what is expected. But agreement and disagreement are the semantic content of positive and negative. When this content has been extracted out and marked as being difficult or not, it is not surprising that utterances are not further marked, redundantly, as it were, for merely being negative in form. If a question is negative in form, the easy answer is the one that is also negative in form. Thus our second definition of difficulty would have little semantic justification.

The second component of semantic difficulty--incongruity of form and content--is just a way of expressing the semantic link among negativity, rejection, denial, and disagreement, as opposed to positivity, acceptance, acquiescence, and agreement.

The notion of semantic difficulty has two uses. I predict that 1) the more semantically difficult a category, the later it will be acquired and used by children, and 2) semantically difficult categories will be the last to collapse morphologically or grammatically with other categories. My first contention is supported by the fact that children learn to use PA and ND sooner than they learn to use NA, and in particular PD. The data in Bellugi's thesis (1967), show this clearly.

When children first start using "yes" and "no" as answers, "yes" is used for PA, "no" for ND. NA is usually implied rather than expressed, and PD is expressed by an affirmative sentence, without "yes". The following examples are all from or slightly before Bellugi's period B (*ibid.*).

PA: Adult: Are you going to be little?

Adam: Yes.

Adult: When?

Adam: Friday.

Adult: Would you like to have your lunch right now?

Eve: Yeah.

ND: Mother: Is that my grape juice?

Eve: No, that Eve grape juice.

Father: Can I have my money back?

Sarah: No, my money.

NA: Mother: Your pencil didn't break.

Eve: Only Fraser's.

Mother: Oh, we don't have any bread, Eve.

Eve: We hab buy some.

PD: Mother: Oh, I don't think you like the water.

Sarah: I like water.

Mother: You don't know how to swim.

Sarah: I how swim.

Bellugi herself points out that PD is the last category acquired. She says, of PD, "The mother says 'Oh, it doesn't'. The child counters with 'Yes, it does'. This is rare in the early periods. The children are much more likely to ignore, persist behaviorally, or implore, than they are to disagree verbally." This statement does not apply to ND, which is acquired rather early.

Now let me elaborate on my second contention--that semantically difficult categories will be the last to collapse morphologically or grammatically with other categories. This means that we can make some preliminary hypotheses about what question-answering

systems are possible--i.e., which ones could turn up in a human language and which could not. There are fifteen possible arrangements of the four categories, as follows (dashes mean that the terms they join are all represented by the same form):

- A. PA; PD; NA; ND low probability
- B. PA; PD; NA-ND very high probability
- C. NA; ND; PA-PD very low probability
- D. PD; ND; PA-NA very high probability
- E. PA; NA; PD-ND very low probability
- F. PA; ND; PD-NA impossible
- G. PD; NA; PA-ND impossible
- H. PA-PD; NA-ND high probability
- I. PA-NA; PD-ND high probability
- J. PA-ND; PD-NA impossible
- K. PA; PD-NA-ND impossible
- L. PD; PA-NA-ND impossible
- M. NA; PA-PD-ND impossible
- N. ND; PA-PD-NA impossible
- O. PA-PD-NA-ND impossible

Let me again point out what the four categories mean:

positive question $\left\{ \begin{array}{l} \text{positive answer: PA} \\ \text{negative answer: ND} \end{array} \right.$

negative question $\left\{ \begin{array}{l} \text{positive answer: PD} \\ \text{negative answer: NA} \end{array} \right.$

Now, it is obvious that no language will express all four categories in exactly the same way, for this would rob answers of all semantic content other than "I respond" or some such. So (O) is not a possible system. Similarly, no language will express three of the categories in exactly the same way, for this would mean that although one type of question (positive or negative) would have two possible answers (agreeing and disagreeing), the other type of question (negative or positive) would have only one answer--again, an impermissible loss of semantic content. So (K), (L), (M), and (N) are impossible systems. By the same token, PD and NA cannot merge, for then negative questions would have only one answer, and PA and ND cannot merge, for then positive questions would have only one answer. So (J), (F), and (G) are impossible systems.

This leaves us with seven interesting systems--(A), (B), (C), (D), (E), (H), and (I). All of them are possible. Because PD is the most semantically difficult category, we predict that it will be the category least likely to merge with another. It will be more likely to merge with a category if the other two have merged than if they have not. On the other hand, a system with no mergers is a bit inefficient, conveying more information than is really necessary. These factors give roughly the following hierarchy: (B) and (D) are the least difficult systems, (H) and (I) are next, then (A), and (C) and (E) are the most difficult or least likely to occur.

Actually, most systems will be more complex than indicated, making different distinctions in different ways. In English, for instance, the distinction made in (I) correlates with the mild-sharp intonation distinction, the distinction made in (H) is made morphologically, and the additional distinction made in (B) is made by the syntactic rule of tag deletion.

Hebrew is like English in this respect. Morphologically, its system is as in (H), but the fact that full reduction is not possible for PD makes its system more like (B). In answer to "Ha'im hu ba?", "Is he coming", one would say either "Ken" (PA) or "Lo" (ND). But in answer to "Ha'im hu lo ba?", "Isn't he coming?", one would have to say either "Lo" (NA) or "Hu ken ba" (PD), "Yes, he is coming". The system would be represented as follows, where dashes indicate that "ken" alone is not sufficient.⁴

	HEBREW	
	Agreement	Disagreement
Positive	ken	--ken--
Negative	lo	lo

This sort of interaction of syntax and morphology is also possible with (I)-type systems. This is the situation in Japanese.⁵ Here agreement, whether positive or negative, is expressed by "hai", disagreement by "iie".⁶ However, PD, as we would predict, is the most difficult category. This is shown by the fact that, in 1-3 below, one may use either the single words "hai" or "iie", or a longer answer. But in ⁴ "iie" alone seems rather insufficient, and the longer answer is much preferred.

- (41) Kyoo-wa atu-i des-u ne.
It's hot today, isn't it.
1. Hai (soo des-u ne). (PA)
Right (it's hot today)
 2. Iie (atuku-wa arimasen). (ND)
Wrong (it isn't hot today).
- (42) Kyoo-wa atuku-na-i des-u me.
It isn't hot today, is it.
3. Hai (soo des-u ne). (NA)
Right (it isn't hot today).
 4. Iie kyoo-wa atu-i des-u. (PD)
Wrong, it is hot today.

Thus Japanese is morphologically an (I)-type system, but, with the additional restrictions on deletion, it is more like a (D)-type system.

A clearer example of a (D)-type system is provided by Latvian. Latvian repeats the verb in all categories, but also adds particles for PD and ND.⁷

	LATVIAN	
	Agreement	Disagreement
Positive	V	V gan
Negative	negV	negV vis

A clearer example of an (I)-type system is that of Hidatsa.⁸

	HIDATSA	
	Agreement	Disagreement
Positive	ē	reca c
Negative	ē	reca c

Icelandic provides an example of a question-answering system that has changed radically. In thirteenth-century Old Icelandic, the system was as follows:

	OLD ICELANDIC	
	Agreement	Disagreement
Positive	ja	nei
Negative	ja	nei

Here PA and NA have merged, as have ND and PD. This is like the situation in Japanese--an (I)-type system, morphologically. The fact that PD is the most marked category is reflected by the fact that a special word "jaur" or "jur" came to be used for it in the fifteenth century. This precipitated the switch to the modern system, in the sixteenth century.⁹ The modern system is just like that of the other Scandanavian languages, where NA and ND have merged, while PA and PD each have special words. That is, it is a (B)-type system. The change, then, was from an (I)-type system to a (D)-type system to a (B)-type system, so that each step involved a change in only one category.

Leslau (1962) gives the question-answering systems of five Ethiopian languages. These are interesting because they show that a great variety of different system types are possible within a group of fairly closely related languages.

	AMHARIC	
	Agreement	Disagreement
Positive	awon	yälläm
Negative	awon	yälläm

TIGRINYA

	Agreement	Disagreement
Positive	? wwa	? bba
Negative	yallan	yallan

HARARI

	Agreement	Disagreement
Positive	i	V
Negative	i	me?

CHAHA

	Agreement	Disagreement
Positive	nk	V
Negative	e	ba

SODDO

	Agreement	Disagreement
Positive	i	yalla
Negative	aw	yalla

(V means that no particle is used; rather, the verb is repeated, without the negative.) The Amharic system is of type (I), like Japanese and Old Icelandic. The Tigrinya system is of type (B), like French and German. The Harari system is of type (D), like Latvian. The Chaha system is of type (A)--the first system of this relatively improbable type that we have encountered so far. All four categories are expressed differently. Another example of this type, as pointed out by Guðmundsson (1970), was sixteenth century English.

ENGLISH (16th Century)

	Agreement	Disagreement
Positive	yea	yes
Negative	no	nay

Thus English has changed from a relatively difficult (A)-type system to a less difficult (H)-type system. A remnant of the old

system may be seen in the fact that "yeah" is an optional variant of "yes" in modern English only in the case of PA, not PD, and "nah" or "naw" is a variant of "no" for ND. It is interesting that it is the answers to negative questions ("yes" and "no") that have survived.

The fifth Ethiopian language, Soddo, has a highly marked (E)-type system. PD and ND are merged, and PA and NA each have special words. Our definition of semantic difficulty predicts that in the vast majority of cases, if any category has a special word, PD will have one. It looks as if Soddo started with the same system as Amharic, then borrowed Harari's word for PA. Since I cannot check the facts, all I can do is suggest that this, and all (E)-type systems, are probably highly unstable.

I have found no examples at all of the equally improbable (C)-type system.

This brief survey of occurring question-answering systems gives some inductive confirmation to my ranking of the system types in terms of probability. (B), (D), (H), and (I)-types are all fairly common, (A)-types less so, and (C) and (E)-types are virtually non-existent.¹⁰

I pointed out earlier that intonational, morphological, and syntactic factors interact in question-answering systems, and that English, with its somewhat marked (H)-type morphological system, became, through interaction with a syntactic rule, an unmarked (B)-type system. Now, answers are a rather unique

morphological system, in that answers often occur as complete sentences, in and of themselves. This is not the case with most other morphological systems. For instance, the system of noun inflections interacts not only with the systems of determiner inflections and adjective inflections, but also with facts about word order. The system of verbal inflections interacts very closely with the system of pronouns and the rules deleting them. We see that, while we must sometimes take one syntactic rule into account in determining how difficult a language's question-answering system is, making predictions about mergers in case systems is much more complicated. This is because there are many more potential ways of preserving a necessary distinction. For instance, nominative and accusative forms may merge because word order preserves the distinction between them. Topicalization permutes their order, but, as Ross pointed out (personal communication), there is sometimes a special restriction barring Topicalization in just those cases where it would produce an ambiguous sentence.

However, I think there still might be other grammatical systems, where word order is not a factor, where the notion of semantic difficulty might apply. Let us develop a somewhat hypothetical example. Suppose, as seems not unreasonable, that we could justify the following two statements: 1) specificity has semantic content, while non-specificity does not, and 2) definiteness and specificity are congruent, indefiniteness and

non-specificity are congruent, and the other combinations are not. These conventions would mean that, of four possible determiner types--specific definites (SD), non-specific definites (ND), specific indefinites (SI), and non-specific indefinites (NI), SI's would be the most marked. The consequence of this, if my predictions are correct, would be that if any language had a three-determiner system, based on specificity and definiteness, one of the three determiners would be used only for SI's.

As I pointed out, this is just a hypothetical example. I am not sure whether, in fact, it is specificity or definiteness that has semantic content. Moreover, I have little information as to what sorts of determiner systems actually occur. I merely wish to suggest that my analysis of question-answering systems is not totally ungeneralizable.

As a matter of fact, there is a dialect of English which supports my contention that SI's are the most difficult, and will tend to develop their own determiner. This dialect takes the word "this", which, in its normal use as the proximate demonstrative, is stressed, as in (43), and uses it, unstressed, as the SI determiner, as in (44) and (45).

- (43) This man reads a lot of books.
 (44) This man I know reads a lot of books.
 (45) There is this man bothering me.
 (46) *There is this man bothering me.

The fact that There-Insertion can operate on sentences with unstressed "this" shows that it is indefinite.

For this dialect, then, English is a three-determiner system, with "the" for SD's and ND's, "a" for NI's, and "this" for SI's, having developed from a two-determiner "the"- "a" system.

V.3 Conditioning of Positivity-Negativity I have shown that the rules determining agreement and disagreement are rather simple-minded, straightforward, formal syntactic matching rules. The realities of the semantic situation, which do not always accord with those of the syntactic situation, enter in only at the level of degrees of grammaticality. The rules, then, determining whether an answer is agreeing or disagreeing are as follows, where Sneg means sentential negation.

(47) α Sneg question, $-\alpha$ Sneg answer \rightarrow disagreement

(48) α Sneg question, α Sneg answer \rightarrow agreement

The rules which determine whether an answer is positive or negative, i.e., whether the sentential answer should be preceded by and reducible to "yes" or "no", is equally straightforward but allows latitude in a different way. The straightforward part is: the answer is negative if it has a sentential negation in its topmost clause, positive if it does not. The rules are (49) and (50).

(49) Sneg answer \rightarrow negative

(50) $-\text{Sneg} (= \emptyset)$ answer \rightarrow positive

According to these rules, the proper answers to the following questions are the two written beneath them.

(51) Q. Do you like nobody?

N. No (I like nobody) [or] (I don't like anybody).

P. ?Yes, I like somebody.

(52) Q. Does nobody like you?

N. No (nobody likes me).

P. ?Yes, somebody likes me.

(53) Q. Don't you like anybody?

N. No (I don't like anybody).

P. ?Yes, I like somebody.

(54) Q. Doesn't anybody like you?

N. No (nobody likes me).

P. ?Yes, somebody likes me.

There is, however, a second set of rules determining positivity and negativity, which often gives results contradictory to the first set ((49) and (50)). There are several reasons for the existence of this second set of rules. One reason is that the PD answers above are even more unwieldy than is usual, because they require not just the subtraction of a negative, but also the operation of an 'any \rightarrow some' rule which involves a semantic change as well as a syntactic one.

A second reason is that the first set of rules treats all of the above questions as negative questions, with no real

difference between (51) and (53) or (52) and (54). In other words, any negative that can be is interpreted as a sentential negation, and all questions with *Snegs* are negative. However, it is well-known that many negatives in English are ambiguous as to scope. There is a reason for having both (51) and (53). The second set of rules takes these facts into account, and says that an answer is positive if there is no discourse sentential negation, negative if there is.

Here I must explain what I mean by discourse sentential negation. In a set of related sentences, the first sentence is an instance of discourse sentential negation if only the obligatory negative placement rules have applied to it. The obligatory rules are the one that attaches negatives to the AUX and the one that incorporates negatives into indefinites which precede the AUX. Since the second rule follows Subject-AUX Inversion, the first of the two rules is the only one that will apply to yes-no questions. Consequently, only negative yes-no questions (those with a negative attached to the AUX) are instances of discourse sentential negation. This means that (55) but not (56) is an instance of discourse sentential negation.

(55) Isn't anybody home?

(56) Is nobody home?

Now, in determining whether the second sentence (the answer) is an instance of discourse sentential negation, the first

sentence (the question) must be taken into account. Any negative which did not count as a discourse sentential negation in the first sentence does not count as one in the second, either. Any negative which did count counts in the second sentence as well, and is re-placed by the two obligatory rules. This means that "Nobody is home" is an instance of discourse sentential negation, and so introduced by "no", in (57A) but not (58A).

(57) Q. Isn't anybody home?

A. No, nobody is home.

(58) Q. Is nobody home?

A. Yes, nobody is home.

If this distinction seems a bit ephemeral, notice the marked unnaturalness of (60A) as opposed to (59A). Both are supposedly derived from (61). But in (60A), the "yes" forces the conclusion that the first negative ("no dogs") is not discourse sentential and so cannot be dissociated from the constituent to which it is attached, as it has been in the second clause. However, (59B) and (60B), derived from (62), are equally acceptable, because the second clause is ambiguous, and the negative can be interpreted as discourse sentential or not, as required.

(59) Q. Don't any dogs like you?

A. No, and neither do any cats.

B. No, and no cats do either.

- (60) Q. Do no dogs like you?
 A. ?*Yes, and neither do any cats.
 B. Yes, and no cats do either.
- (61) No dogs like me, and neither do any cats.
 (62) No dogs like me, and no cats do either.

I have made the definition of discourse sentential negation dependent on the distinction between obligatory and optional negative placement rules. I said that in both first and second instances of discourse sentential negation, only the obligatory rules applied. When an optional rule applies in a question, the question is still acceptable, but it is not an instance of discourse sentential negation, and an answer with the negative in the same place is not one, either.¹¹

With the explanation of discourse sentential negation that has been given, the second set of rules determining positivity and negativity can be given as (63) and (64).

- (63) DSneg answer \rightarrow negative
 (64) -DSneg (= \emptyset) answer \rightarrow positive

These rules have some of the same problems with double negations as the first set of rules. They can easily enough handle examples like (65A). Here a DSneg and a non-DSneg co-exist, giving, by (63), a negative answer.

(65) Q. Do you like nobody?

A. No, I don't like nobody.

But consider an example like (66). In (66N), the DSneg that has been added to indicate disagreement has no way of moving onto the AUX (perhaps because of a crossover constraint), and so the reduced "no" answer is a bit strange, when interpreted according to (63). (66M) represents its meaning. In (66M), the DSneg and the non-DSneg have cancelled each other, but the "no" remains.

(66) Q. Does nobody like you?

P. Yes (nobody likes me).

N. ?No (not (nobody likes me)) ~~→~~ Nobody doesn't like me.

M. No, somebody likes me.

These examples show that, since they are generated in different positions, DSnegs and non-DSnegs may coexist in one S, at least in deep structure, before the negative placement rules start operating, and that the choice of "yes" and "no" is based on these early structures. However, two DSnegs may not coexist on the same S. There is only one "slot" to be filled, and it may only be filled once. Having two DSnegs on one S would be equivalent to having two "that" complementizers on one S, or two "the" determiners on one NP.

The way to "negate" a sentence with a DSneg is to take away the DSneg--to delete it. This results in a positive sentence, according to (64)--a sentence which takes "yes". This is what

has happened in (67P).

(67) Q. Doesn't anybody like you?

N. No (not (anybody likes me)) \Rightarrow Nobody likes me.

M. *(not not (anybody likes me)) \Rightarrow (\emptyset (anybody likes me)) \Rightarrow

P. ?Yes, somebody likes me.

Here again, (67P) is just as strange as (53P) and (54P), and for the same reason. The switch from "anybody" to "somebody" is not really a smooth and automatic one. That is, although a double negative implies a positive and vice versa, they are not completely equivalent linguistically. (68) seems to me much less tautologous than (69).

(68) It is not the case that nobody likes me. Somebody likes me.

(69) I haven't ever seen such a mess. Never have I seen such a mess.

Naturally, the switch from double negative to positive is easiest when a positive polarity item is involved; hardest when a negative polarity item is involved, as in (67). It is also more difficult when both negatives are, or would have been, DSnegs than when one or both are non-DSnegs. Thus the problem arises in fewer cases with the second set of rules.

I have given examples to show how the two sets of rules determining positivity and negativity work, even in the most

difficult cases. We have seen that, as with agreement and disagreement, the times when confusion arises have to do with the questioner's bias. The two sets of rules conflict only in a subclass of the cases when the normal opposite bias of a question is reversed. Specifically, they conflict only in the answers to questions containing negatives which are ambiguous as to whether or not they are sentential negatives. In these instances, if we consider only questions with AUX-attached negatives to be negative, it is the first set of rules that acts like a positive-negative system, and the second set acts like an agreement-disagreement system. Elsewhere, both sets act like positive-negative answering systems.

V.4 Types of Negation and Answering Systems Navajo is like English in vacillating between a positive-negative answering system and an agreement-disagreement system.¹² There, however, the favored system is agreement-disagreement. The paradigm is as follows:

- | | | |
|---------|-----------------------------|---------------------|
| (70) Q. | Ch'ée'ísh díníyáʔ | Are you tired? |
| A. | Aoo', ch'ée'h déyá. | Yes, I am tired. |
| | Dooda, doo ch'ée'h déyáada. | No, I'm not tired. |
| (71) Q. | Doosh ch'ée'h díníyáadaʔ | Aren't you tired? |
| A. | Aoo', doo ch'ée'h déyáada. | Yes, I'm not tired. |
| | Dooda, ch'ée'h déyá. | No, I'm tired. |
| A'. | Aoo', ch'ée'h déyá. | Yes, I'm tired. |
| | Dooda, doo ch'ée'h déyáada. | No, I'm not tired. |

The (A) answers are favored over the (A') answers.

It is interesting that Navajo has only sentential negation. One may ask "Isn't anybody coming?" but not "Is nobody coming?". The same is true of Japanese, which also has an agreement-disagreement system. The same is true of Hidatsa, which also has an agreement-disagreement system. I think that further research will bear out my finding that languages with only sentential negation tend to have agreement-disagreement systems, and languages with both sentential and NP negation tend to have positive-negative systems. The latter tendency is stronger than the former, for I know of counterexamples, such as Finnish, to the former. I think the closest thing to a universal here is (72), which may also be phrased as in (73).

- (72) Only languages with only sentential negation can have agreement-disagreement question-answering systems.
- (73) Languages with both sentential and NP negation cannot have agreement-disagreement question-answering systems.

A reason for these results might be suggested by the second set of rules for determining positivity and negativity in the last section. There we saw that when negatives not attached to the AUX are not regarded as sentential negatives, the system becomes more like an agreement-disagreement system. When a language has only sentential negation, it is always clear whether a question is negative or positive, i.e., whether it does or does

not contain a sentential negation. And only when this is the case is an agreement-disagreement system a possible option.

In this chapter, we have seen that PD is the most semantically difficult of minimal answers to yes-no questions. This difficulty is reflected in many ways, showing that the way formal systems are constructed, and the order in which children acquire and use them, are both influenced by semantic considerations. We have also seen that one formal system, such as negation, may determine the shape of another, such as the question-answering system.

V.5 Conclusion We have examined two sorts of sources for questions, and seen that one is needed for rhetorical questions (Chapter II), and another for normal questions (Chapters III and IV). We have explored the relationship between yes-no questions and their answers in terms of syntactic agreement and the markedness of answers (Chapter V), and in terms of semantic agreement and what might be called the markedness or bias of questions (Chapter III). In justifying a source for WH rhetorical questions and in explaining the difference in function of A and B accents, we found it necessary to postulate a TH marker (Chapter I) with properties parallel to and as far-reaching as those of WH and negation, raising questions such as functional sentence perspective, the nature of anaphoricity, parallelism among base rules, and feeding relationships among transformations.

Footnotes to Chapter V

1. This simply means that all languages have both negative and positive questions, and both types of questions have both negative and positive answers. Thus when we have a positive answer to a positive question, the answer expresses PA; when we have a negative answer to a positive question, the answer expresses ND; when we have a positive answer to a negative question, the answer expresses PD; and when we have a negative answer to a negative question, the answer expresses NA.
2. The notion of semantic difficulty could very easily be expressed in terms of markedness. We would use the following two linking conventions:

- (i) [u disagreement] --> [-disagreement]
- (ii) [u negativity] --> [negativity / [disagreement]]

The notion of morphological markedness is not the same as that of phonological markedness. That is to say, they have different consequences. A phoneme that is highly unmarked is more likely to occur in the phonemic system of a language than a highly marked phoneme. Similarly for systems and sub-systems. As Chomsky and Halle put it (Chomsky and Halle, 1968, p. 411): "We would expect, naturally, that systems which are simpler, in this sense [less highly marked], will be more generally found among the languages of the world, will be more likely to develop through historical change, etc." Let us illustrate with a small hypothetical system.

p b f v

Voice u m u m

Continuant u u m m

Here /v/ is the most marked segment. Phonological markedness theory predicts that /v/ is the segment least likely, of these four, to occur in the phonemic inventory of a language. That is, if a language uses only three of these consonants, the three will almost always be /p/, /b/, and /f/.

Now consider a parallel morphological system. We will use question-answering systems as an example.

PA NA ND PD

Disagreement u u m m

Neg. and disagr. Match u m u m

Here PD is the most marked category. If this were a phonological system, markedness theory would predict that PD would be the category least likely to occur--that is, some languages would distinguish NA and ND but not PA and PD, and some languages would distinguish PA and NA but not PD and ND. But since this is a morphological system, our predictions are just the opposite--namely, some languages will distinguish

PA and PD but not NA and ND (this is the situation in French and German), and some languages will distinguish PD and ND but not PA and NA (this is the case in Harari). And these two types of systems will be less "expensive" than the two previously mentioned.

The reason for the difference between phonological markedness and morphological markedness is probably something like the following: phonological markedness reflects ease of articulation or deviation from the neutral position. Thus the neutral position for speech is with raised velum, and nasals, where the velum is lowered, are marked for nasality. Now, some deviations are more difficult to produce than others (delayed release is more difficult than voicing for consonants), certain combinations of deviations are more difficult than others, and cumulative deviations are more difficult than single deviations. But the important point is that the correlation of increased intelligibility with increased deviation is not sufficient to override the factor of ease of articulation. That is, it is easier to hear the difference between /p/ and /b/ than that between /p/ and /t/. But the greater intelligibility of the former system is not sufficient to override the advantages of the ease of articulation of the latter system.

In morphological systems, markedness reflects not articulatory difficulty but semantic difficulty. Of course, semantic neutrality is even harder to determine than articulatory neutrality, and I admit to having little basis other than intuition for considering third person more neutral than first, singular more neutral than plural, positive more neutral than negative, agreeing more neutral than disagreeing, etc. However, it is, for instance, difficult to imagine a language in which the great majority of predicates are semantically negative, and positive notions must be expressed by adding a positivizing word or particle to the corresponding negative predicate.

But if my assumptions about semantic neutrality are correct, then in the morphological system under discussion, PD is the category which is semantically most complex. Therefore, it conveys the most information. This does not mean that we will avoid expressing it if possible, but rather that it is the category which most needs to be explicitly expressed. In other words, here the correlation of increased semantic complexity with increased intelligibility is sufficient to override the desirability of a less marked system.

3. I have pointed out that what I mean by agreement is that the negativity of question and answer are the same, and by disagreement, that they are different. Thus an agreeing answer to a yes-no question is phrased in the same way as the question,

save for Subject-AUX Inversion, and a disagreeing answer differs from the question only by virtue of this rule and the addition (to a question which has none) or deletion (from a question which has one) of a sentential negation. This is true regardless of whether the questioner is really expecting a positive or a negative answer. In English, a question like "Haven't you written some books?" expects a positive answer, yet a positive answer still counts as disagreement and should take the form "Yes, I have". I admit that the tag is less obligatory here than in the positive answer to "Haven't you written any books?", which expects a negative answer, but a plain "Yes" answer to the first question is still insufficient. In Swedish, for instance, the situation is quite parallel. Negative questions often clearly expect positive answers, but, in these cases, positive answers still take the PD form "jo" rather than the PA form "ja". This is a matter of degrees of grammaticality.

It may be objected that, since what I call disagreement is syntactic disagreement, and not necessarily semantic disagreement, saying that disagreement has semantic content is not really justified. Those readers to whom this seems a serious objection may substitute "difficulty" for "semantic difficulty" and "incongruity of question and answer", or more specifically, "negativity switch between question and answer" for "semantic content" in the argument which follows.

4. I am indebted to Nomi Erteschik for these examples.
5. I am indebted to Minoru Nakau for my Japanese data.
6. For a more detailed analysis see Kuno (1970a, Note 8).
7. These examples are from Valdis Zeps.
8. I am indebted to G. Hubert Matthews for information on Hidatsa.
9. All of this information is taken from Guðmundsson (1970).
10. It will be suggested in section V.4 that the way a language forms and interprets its questions has some influence on what type of question-answering system ends up being chosen.
11. Difficulties arise when a negative is differently placed, by the application or inapplication of optional rules, in the question and answer. The result is that the answers are somewhat acceptable, but cannot reduce in the usual ways. Any negative present in the answer but not the question must be introduced as and come from a DSneg. This is the case in (1A), where an optional rule has nevertheless applied, with

the result that (iA) cannot reduce to (iB), although (iiA) can reduce to (iiB).

(i) Q. Do you like anybody?

A. ?No, I like nobody. →

B. No, I do.

(ii) Q. Do you like nobody?

A. Yes, I like nobody. →

B. Yes, I do.

Reduction is not quite as terrible, but still bad, when a non-DSneg is differently placed in the question and in the answer, as in (iii).

(iii) Q. Do you like nobody?

A. ?Yes, I don't like anybody. →

B. Yes, I don't.

12. I am indebted to Ken Hale and Paul Platero for information on Navajo.

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BIOGRAPHICAL NOTE

Emily Norwood Pope was born on November 26, 1946 in Chelsea, Massachusetts. In 1948 her family moved to Vancouver, Washington. She graduated from Hudson's Bay High School in Vancouver in 1964. In 1966 her family moved to Juneau, Alaska. She received her A.B. from Radcliffe College in June, 1968, and in August, 1968, she married William Rance Pope of Great Falls, Montana. She completed the requirements for a Ph.D. in linguistics at the Massachusetts Institute of Technology in May, 1972. Her publications include:

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