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WH-QUESTIONS AND FOCUS*

0. INTRODUCTION

It has been argued over the years that the wh-phrase in a wh-question functions as the focus of the question. In this paper I argue that this is true only in a very small number of cases (such as echo-questions) and that in all other cases the focus of the question lies elsewhere. The analysis of focus in questions presented here will then be shown to enable explanations for the following phenomena: (1) the possibility of questioning in particular cases; (2) stress in questions and (3) scope in multiple wh-questions.

It is not difficult to recognize why the wh-phrase of a question (from now on the wh-phrase) might be thought of as the focus of the question. If, for example, the focus is thought of as being the non-presupposed constituent of the sentence, then the wh-phrase could be seen to qualify for this status. Take for example,

(1) Who gave the book to Mary?

It is generally suggested that the presupposition of questions such as (1) is (2):

(2) P1: someone gave the book to Mary.

Since it is also generally assumed that sentences must have at least one focus, it follows that the only constituent in (1) which is not part of (2) is the word/constituent *who*. This line of argumentation depends crucially on one's understanding of what presupposition and focus actually are. This issue will be discussed below.

Another line of argumentation concerning wh-phrases as focus is to be found in Rochemont (1978) and in Culicover and Rochemont (1983). Rochemont (1978) argues

> My proposal is that in WH questions, the only non-contrastive pronunciation is one in which the WH-phrase functions as the FOCUS of the sentence. Hence, it is reasonable to regard (80)
>
> (80) Who was Mary speaking to?
>
> as a request to the listener to supply the missing NP FOCUS in the sentence (81)
>
> (81) Mary was speaking to FOCUS (p. 36).

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He proceeds to argue that this analysis of wh-phrases as focus explains the appropriateness of the answers to (80) in (3) but not in (4) (Rochemont's examples and his number (82)–(83)):

(3)(a) Jack
(b) It was *Jack*
(c) It was *Jack* that Mary was speaking to.
(d) The person who Mary was speaking to was *Jack*.

(4)(a) *Mary* was speaking to Jack.
(b) It was *Mary* that was speaking to Jack.
(c) The person who was speaking to Jack was *Mary*.

Rochemont notes that wh-words do not bear stress in most cases. This is problematic for those theories which associate focus with stress. In Culivover and Rochemont (1983) a rather complex set of rules is invoked to avoid this complication.

Yet another incidence of the idea that the wh-phrase functions as focus, or as the "new information" of the question is found in Gunter (1966). Gunter presents the following dialogue (page 172, I have left out the intonation markers):

(5) *Context*: John ate the BEANS.
Responses: WHEN did John eat the beans.
When did John eat the BEANS.
When did John EAT the beans.

Gunter comments: "The information question word *when* in these responses would seem to be new information, yet it will not always be marked as such . . . ." There is a measure of hesitancy in Gunter's comment, due to the fact that accent, in his framework is generally associated with "new information". Wh-words provide an exception to this generalization here as well.

Before commenting on the above examples of the idea that wh-phrases are to be considered as foci, let me present a framework in which this is not the case. Chafe (1970) uses new information similarly to Gunter but states clearly that "it is only within an echo question that the combination of new and interrogative within a noun or verb can be found" (page 341). Chafe is then able to distinguish between echo questions and other wh-questions. In an echo-question such as the following

(6) Michael broke WHAT?

what is seen as representing a new element because "some lexical unit

already uttered is at issue, and the speaker is focusing his attention on this already (but inadequately) communicated item (page 340). In other kinds of wh-questions this is not the case. Therefore the problem of "new" but unstressed wh-phrases does not arise in Chafe's framework. Those cases (echo-questions) in which wh-phrases *are* stressed also follow nicely from the fact that these wh-phrases can naturally be seen as being new.[1]

Why is it then that some linguists believe that wh-phrases *do* function as focus or new information? The main reason seems to be a confusion between the function of the wh-phrase in the question and the function of the constituent which replaces it in the answer. No one would disagree that the focus in the answers of the following exchange must necessarily be *Jack*:

(7) *Q*: Who gave the book to Mary?
A: Jack gave the book to Mary.
Jack did.
Jack.

Regardless of whether the answer is a full one or an abbreviated one, the constituent which fills in for the wh-phrase (in this case *Jack*) will be assigned focus status by everyone (whether the notion *focus* is used or some other parallel expression such as *new*). However, it does not seem to me that it in any way follows from this that the function of the wh-phrase in the question must also be assigned focus status. Rochemont (1978) argues that the unacceptability of the following (his (78b) and (79b)) follows from the focus status of the wh-phrase:

(8) *Who did you see in the Collegian a picture of?

(9) *Which book did John notice yesterday an article in?

In Rochemont's view, these can be explained as a result of the conflict in assigning focus to the question and to the extraposed PP at the same time. We shall see below that these examples can be accounted for without recourse to the idea that wh-phrases are focii.[2]

Kemp (1977) uses the idea that "*x*-phrases may be semantically focused" to explain why wh-question phrases (*x*-phrases in his terminology) occur in focus slots (such as cleft-slots) in many languages. This correlation could follow from the semantic function of question words, but could equally well follow from the fact that the position of the question-word signals the locus of the answer and the answer (as everyone would agree) must necessarily be focused.

Another possible line of reasoning to be argued against was mentioned in the beginning, namely that the question in (7) presupposes everything but the wh-phrase. It follows, at least in a theory in which focus and presupposition are complementary, that the wh-phrase is left as the only candidate for focus. This line of reasoning depends crucially on one's particular definition of focus. If focus is defined as that which is not presupposed and if in the case of the question in (7), the *speaker* must presuppose that *someone gave the book to Mary* in order to pose the question, then it follows, as before, that the wh-phrase is focus. It is generally accepted that wh-questions have presuppositions such as the one proposed for (7) and that sequences such as (10) are anomalous:

(10) *Q*: Who gave the book to Mary?
A: Noone, she bought it herself.

Mittwoch (1979), for example, regards an answer such as the one in (10) as a "correction of the speech act performed in asking it (the question)" (p. 402), since a wh-question "presupposes that the set for which the WH-element stands is not empty, or, more informally, that there is an answer" (ibid).

Since one's view of whether the wh-phrase should be seen as focus or not clearly follows from theory internal definitions, I would like, in the following, to outline the theoretical framework within which I shall argue for the position that wh-phrases are in most cases not to be identified as the focus of the sentence.

1. Dominance as focus

The notion of Dominance has been developed in Erteschik-Shir (1973, 1979, 1981) and in Erteschik-Shir and Lappin (1979, 1983). Dominance is defined as follows:

> DOM: *A* constituent *c*, of a sentence *S*, is dominant in *S* if and only if the speaker intends to direct the attention of his/her hearer(s) to the intension of *c*, by uttering *S*.

This notion of dominance is meant to cover those cases for which focus is generally used, however it differs from focus (as it is usually understood) in two important ways:

A. The presupposition of a sentence is not the complement of its dominant constituent, and presupposition does not exclude dominance. In the following exchange between *A* and *B* the italicized complement of regret is both presupposed and dominant:[3]

(11) *A*: John regrets *that he quit his job.*
B: Yes I know. It has been filled and he can't go back.

B. Dominance is not defined in terms of nuclear stress assignment. Rather, it has been argued that primary sentence stress follows from the assignment of dominance. Thus, the following stress rule was employed to account for one variety of sentential stress (for an account of the other kind see below):

> *Sentential Stress Rule* (SSR): Place primary stress on the Dominant constituent of the sentence.[4]

The fact that dominance is defined in terms of speakers' intentions entails treating it as a discourse property which is assigned to a constituent in a context of conversation. However, not all constituents of a sentence can be assigned dominance with equal ease in a particular discourse context. In previous papers it was argued that for any sentence there is a network of dominance possibilities, only one of which is realized in actual discourse. For the definition of dominance to be applicable to actual cases, an operational test – the lie test – for determining the dominance possibilities of sentences has been devised. The procedure involves placing sentences in the context of a given actual discourse and then denying each one of the constituents being tested. If it is not possible to deny a particular constituent then that constituent would be excluded from dominance assignment. (It would also follow that the SSR would not apply to it.) For example,

(12) *A*: John gave a book to Mary.
B: That's a lie –
It was Bill. (tests the subject for dominance.)
He sold it to her. (tests the verb.)
It was a magazine. (tests the direct object.)
It wasn't to her. (tests the indirect object.)
He never managed to. (tests the whole VP.)
He has been in Europe for the last month. (the S.)

In (12), depending on the context, anyone of the syntactic constituents could be assigned dominance. In (13) this is not the case:

(13) *A*: John gave Mary a book.
B: *That's a lie – It wasn't her.

The test indicates that *Mary* cannot be dominant in any context since the response which exclusively denies *Mary* is not acceptable. *Mary* can,

however, be restrictively dominant. (The notion of restrictive dominance will be defined below.)

In the operational test the hearer's response refers exclusively to the constituent being examined for dominance. If the hearer's attention cannot be drawn to this constituent by the speaker, such an exclusive response is not possible. Another operational test which is frequently used to identify the focus of a sentence is to place the sentence to be examined as the answer to a wh-question. The constituent which fills in for the wh-question word in the answer is then identified as the focus of the response. This test is much more convenient, but was found not to be useful in identifying the network of dominance possibilities for the following reason: Dominance was originally defined in order to account for extraction phenomena, including wh-movement in questions. The condition on extraction presented in previous papers is

> *Dominance Condition*: An NP can only be extracted out of clauses which may be interpreted as Dominant, or out of phrases in which the NP may itself be Dominant.

It follows that those NPs which cannot be dominant can also not be extracted, which means, in effect, that no wh-question can be constructed to test their potential for dominance. Thus, if we wanted to examine the dominance possibilities in (13), the question we would have to construct to test whether *Mary* could be dominant here, would be (14):

(14) *Who did John give a book?

Using the ungrammaticality of (14) to argue that *Mary* is excluded from dominance assignment in (13) would be a circular endeavor.

Primary stress in sentences has also been used as an indication of focus and new information (as we have seen above). Since it was shown that two different rules are involved in the assignment of primary stress in sentences, one the SSR, defined above, the other the Restrictive Stress Rule, yet to be defined, which assigns stress to restrictively dominant items, it follows that primary stress cannot be directly identified with dominance. It is however the case that the stressed constituent of a sentence is also often dominant. Moreover, having argued for the Dominance Condition we might, for convenience, use the fact that a particular constituent cannot be extracted as an indication of its not being interpretable as being dominant.

Having briefly outlined some of the properties of dominance, let us examine what light this notion can shed on the distribution of con-

stituents which can be questioned. What is intended here is an examination of the explanatory power of the dominance condition with respect to questions. Answers generally parallel questions in form (non-abbreviated answers at least) and provide a value for the wh-phrase in the slot from which the wh-phrase originated. Therefore, unless the position of this slot were not potentially dominant, no answer, in which the dominant constituent must be the one which fills in for the wh-phrase in the question, could be given. Schematically:

$$\begin{array}{ll} Q: & \ldots\ldots[+\text{wh}]\ldots\ldots \\ & \quad +\text{DOM} \\ A: & \ldots\ldots[+\text{DOM}]\ldots\ldots \end{array}$$

This works since the position taken by the wh-phrase (more accurately, by its corresponding empty category) is potentially dominant and hence the answer can fill in for the wh-phrase in a slot which is naturally interpreted as being dominant as it must be in an answer to a wh-question.

However,

$$\begin{array}{ll} Q: & \ldots\ldots[+\text{wh}]\ldots\ldots \\ & \quad -\text{DOM} \\ A: & *\ldots\ldots[+\text{DOM}]\ldots\ldots \\ & \quad -\text{DOM} \end{array}$$

In this case the dominant answer to the wh-phrase occurs in a position which is not interpretable as being dominant and hence the answer is unacceptable. It follows that the question itself is also not wellformed since no acceptable answer to it can occur.

We are now in a position to examine the function of wh-phrases with respect to dominance. In other words is the wh-phrase dominant or not? Having looked into this issue we will proceed to examine primary stress in questions and see whether such stress in questions can be seen to follow from the SSR.

In order to test questions for dominance, a new procedure for this purpose must be defined, since the lie-test which tests for dominance in assertions is inappropriate: it does not make sense to respond to questions with "it's a lie." The following frame ought to do the job for questions.

(15) *A*: *Q*
B: That's a good question. *X* . . .

Here speaker *A* utters a question to be tested. *B* responds as above. *X*

refers to a constituent of *Q* about which something will be said by *B*. If *B* can respond in this manner, then it follows that *X* in *Q* can be interpreted as being dominant. This is so because if the hearer's (*B*'s) response can refer exclusively to the constituent being examined for dominance, then his/her attention must have been drawn to this constituent by speaker *A*'s question. If, on the other hand, the hearer's attention cannot be drawn to this constituent by the speaker, such an exclusive response is not possible. Another way of understanding how the test works is to consider the test as identifying a constituent as potentially dominant by transforming it into a topic of future discourse. Thus in *B*'s response *X* is the topic of the sentence following the lead "that's a good question." The dominant constituent represents a possible future topic of conversation in the hearer's immediate response.[5]

An application of this test would look as follows:

(16) *A*: Who gave books to the library?
B: That's a good question –
the library never gets anything (tests the indirect object)
books are scarce there (tests the direct object)
donations are a rare occasion these days (tests the verb)
giving books to the library is a good deed (tests the VP)
it's clear that someone must have given books to the library (tests the whole *S*)

Note that as in the assertion the question also does not allow the direct object to be dominant in the double object version:

(17) *A*: Who gave the library books?
B: ?That's a good question – the library never gets anything.

It is now possible to examine the issue as to whether the wh-phrase itself is dominant or not. It should be clear that none of the above cases exemplify questions in which the wh-phrase itself is dominant. It follows that wh-phrases are not necessarily dominant although they could be. Cases in which wh-phrases are dominant will be examined in Section 3B. Another example of a nondominant wh-phrase follows:

(18) Who gave birth on Friday?

In asking this question the speaker can be intending to draw the attention of his hearer to the fact that someone gave birth on Friday and the hearer is asked to fill in for the wh-phrase variable with a constant. However, it does not make sense to claim that the wh-phrase itself could be

dominant. According to the definition of dominance that would mean that the speaker intends to draw the attention of the hearer to the intension of {who}. What is the intension of a wh-phrase? The intension of a wh-phrase (i.e. the intension of a variable) equals the range of its possible values. This range is limited only by the intrinsic semantic features of the wh-phrase. In (18), for example, what is questioned must be +human. But attention is not drawn to the range of all possible values of *who* but to the range of its possible values within the context of the predicate defined by the open sentence in which it occurs. Here this context imposes a further semantic restriction on the possible values of the variable, namely that it ranges over the set of women – a proper subset of the set of humans defined by the wh-phrase itself. This example illustrates that the intension of the wh-phrase must be interpreted as being the range of possible values of the variable which it binds as determined by the semantic properties of the predicate which takes the variable as its argument. In other words, if we assume that the wh-phrase is dominant, then we assume that the range of possible values to which the attention of the hearer is drawn can be defined by it alone. However, as has just been shown, this is generally not possible. Hence, the hearer's attention will have to be drawn to the full question in order for the range of values to be properly defined, i.e., the whole question is dominant.

There is a class of cases represented by the well-known echo-question in which the wh-phrase actually is interpreted as being dominant. Here attention is drawn to the wh-phrase (and it is therefore stressed), but not to its intension as such. The attention of the hearer is drawn to the fact that a question is being asked. This follows naturally from the notion of dominance and the interpretation of wh-question words. The interpretation of question words must include some feature which reflects the fact that they signal that a question is being asked. If a question is used with a dominant wh-phrase (and the stress pattern which follows from such a choice) then the only natural interpretation would be a default reading in which {who} merely signals that this question feature holds. Such a question could only be uttered in the context of a discourse in which a sentence has previously occurred which fulfills the condition of being a possible answer to (18).[6] The dominance of the question word thus indicates that of the constituents uttered in the previous sentence the hearer requests the repetition of the one replaced by the question-word. Dominance assignment in wh-questions is thus independent of their presupposition.

The Dominance Condition (DC) has been used to explain questioning out of a number of different structures. (14) was an example of how the

DC blocks questioning of constituents which cannot be dominant. For a detailed analysis of a variety of such cases including the problem of extracting and questioning out of embedded questions see Erteschik-Shir (1973) and Erteschik-Shir and Lappin (1979). Examples similar to Rochemont's (5) and (6) were analysed in Erteschik-Shir (1981). However, before summarizing the analysis presented there it is useful to examine the parallel assertions:

(19) You saw in the Collegian a *picture of John.*

(20) John noticed yesterday *an article in this book.*

The italicised constituents are postposed heavy NPs. Heavy NPs are interpreted dominantly, necessarily so in postposed position. *John* and *this book* cannot by themselves be interpreted as being dominant and hence could not be extracted according to the DC.

A similar example:

(21) *Who did John see a picture in the Collegian of?

In the source

(22) John saw a picture in the Collegian *of Peter.*

The italicized phrase was argued in Erteschik-Shir to be an "Afterthought" which is not part of the intonation of the preceding sentence and is separated from it by a pause. Since afterthoughts are not part of the preceding sentence structurally or in discourse terms, no syntactic rule such as wh-movement can extract a constituent from the afterthought and place it in the preceding sentence. The existence of afterthoughts is, of course, in no way inconsistent with the notion of dominance. On the contrary – afterthoughts are conditioned by dominance: they can only occur after sentences which have themselves a dominant constituent.

2. Dominance and stress in questions

Having found an appropriate test for dominance which operates on the same principles as the lie test, we can proceed to analyze sentence stress in questions. We will illustrate that the SSR need not be modified to account for questions. Stress in questions will thus follow from dominance assignment and the application of the SSR. In Erteschik-Shir and Lappin (1983) the SSR was introduced. The rule simply assigns sentence stress to that part of the dominant constituent which is stressed by the phonological rules of word stress. It was proposed that when the

SSR applies to complex constituents such as whole VPs or sentences then the entire constituent is stressed, with secondary stress indicating the beginning of a dominant constituent, and primary stress signalling its completion. (Again, secondary and primary stress will be assigned to the first .and last sub-constituents, respectively, of the dominant phrase which are stressed by the phonology.) The pattern of distributing stress to a complex constituent under the SSR was referred to as the stress DOME. The following stress assignments were thus achieved (the brackets indicate the parameters of the dominant constituent):

(23)
1
(a) John gave a book to Mary.
dom
1
(b) John gave a book to Mary.
dom
1
(c) John gave a book to Mary.
dom
1
(d) John gave a book to Mary.
dom
2 1
(e) John ⟨gave a book to Mary⟩.
dom
2 1
(f) ⟨John gave a book to Mary⟩.
dom

The explanation given for the DOME pattern of stress assignment is that primary stress is assigned to each of the major sub-constituents of the dominant constituent, and rhythm rules subsequently lower the intermediate primary stresses, leaving initial and final stress peaks. This idea is supported by the fact that when speakers are interested in emphasizing a particular constituent *c*, they generally pronounce each sub-constituent of *c* slowly and assign roughly equal, heavy stress to each of these sub-constituents. Emphasis is seen as the paradigm case of dominance.[7]

The same exact principles of stress assignment will apply to the parallel questions in (12) according to the respective dominance assignments:

(24) 1

(a) Who gave a book to Mary?
dom

1

(b) Who gave a book to Mary?
dom

1

(c) Who gave a book to Mary?
dom

1

(d) Who gave a book to Mary?
dom

2 1

(e) Who ⟨gave a book to Mary⟩?
dom

2 1

(f) ⟨Who gave a book to Mary⟩?
dom

The answer to all these variations of the question could in all cases be *Bill*, but the context of the question itself will vary in each case.

(a) must be interpreted as an echo question, for it is only in such questions that the wh-phrase itself can be dominant and hence stressed. For the relevant argumentation see the discussion of echo-questions following (18) and the section on Restrictive Dominance below.

(b) is appropriate in a context in which for some reason the act of giving needs drawing attention to, for example if it is surprising that anything was actually *given* to anybody.

(c) similarly is suitable in a context in which *books* are in some way unusual, etc.

(f) is in some sense the unmarked case, since this is the stress pattern assigned when the whole question is dominant, i.e. all the subconstituents of the sentence are equal in terms of the attention drawn to them. This is also the stress pattern assigned by Culicover and Rochemont (1983) to wh-questions, for example, their (31):

(25) 2 1

(a) Who was talking to Bill?

2 1

(b) Which girl did John meet in Rome?

2 1

(c) Who decided to leave early?

However, in the framework outlined here, sentence stress in questions follows automatically from dominance assignment and the SSR which was developed for assigning stress in assertions.

The next section will discuss the results of stressing a constituent which does not allow dominance assignment as in (13). It will be shown that this is possible in a certain kind of well-defined context.

3A. Restrictive dominance

Both the dominance condition on extraction and the SSR are based on the assumption that there is exactly one dominant constituent per sentence. If this were the complete theory, sentences with more than one primary stress would be excluded, and we clearly do have sentences like

(26) 1 1
John ate the fish.

The number of primary stresses in sentences is only limited by the number of constituents:

(27) 1 1 1
John ate the fish at the table.

How are sentences of this sort accounted for by the theory of dominance?

In Erteschik-Shir and Lappin (1982) the notion of restrictive dominance was introduced as follows:

> DOM: (Restrictive) *A* set α which the speaker specifies by means of his/her utterance of the sentence *S*, is Dominant, if the constituents of *S* corresponding to members of (or the elements of *n*-tuples contained in α) are marked +Conjunction, +Disjunction, or +Contrast.

This definition followed from the following observations: It was recognized that there is an intuitive connection between what has traditionally been called contrastive stress and two other kinds of stress patterns: the list type enumeration and lists of disjunctive enumeration. Examples of each follow:

(28) 1 1
(a) I invited John (not Mary) to the party.
1 1 1
(b) I invited John, Mary, and Sam to the party.
1 1
(c) I invited either John or Mary to the party.

Both conjunctive and disjunctive enumeration involve specification of sets. Similarly, in the case of contrast, a speaker selects a particular element in opposition to a specified set of possible entities.[8] In contrasting this element with members of the set, he is, in effect, picking it out as the negation or complement of that set. More accurately, the unit set of the selected entity is the complement of the contrast set. The contrast set can, itself, be explicitly indicated in the sentence, as it is in (28a), for example. However, unlike sets defined conjunctively or disjunctively, the contrast set can be implicitly supplied by the context of discourse. (29) is synonomous with (28a):

(29) 1
I invited John to the party.

(29) can also be uttered in a context in which no contrast is intended. It is therefore ambiguous between a restrictive and non-restrictive dominant reading. This ambiguity is apparent only when such sentences are considered out of context. They can be disambiguated by asking a question of the form 'as opposed to Wh-*X*?', where 'Wh-*X*' takes as its value a wh expression or phrase appropriate to the stressed expression in the sentence. If the speaker can answer this question by indicating a contrast class, the stress assignment in the sentence must be interpreted as contrastive. If the question is inappropriate, or the speaker can only reply 'as opposed to anything else', then the stressed constituent is dominant in the non-contrastive sense.

What the three types of cases illustrated in (28) have in common is that each one corresponds to an operation which a speaker performs on a finite set. The restrictive dominance assignment rule is based on the idea that the pragmatic features +Conjunction, +Disjunction, and +Contrast are assigned by speakers to the constituents of a sentence figuring in these operations in a context of discourse. What is dominant in such cases is not each individual stressed constituent, but rather the restrictive set defined by the sentence. For example in

(30) 1 1 1 1 1 1
(a) John married Sally, Bill married Janet, and Sam married Sue.
1 1 1 1
(b) Either John married Sally, or Bill married Janet.
1 1
(c) You are wrong in claiming that Bill married Janet.
1 1
I'm certain that John married Sally.

In these cases the speaker wishes to draw the attention of his/her hearer to the sets of ordered n-tuples consisting of husband-bride pairs.

Sentences with restrictive dominance are stressed by the Restrictive Stress Rule:

RSR: If a constituent C_i in a sentence S is marked
(i) +Conjunction or
(ii) +Disjunction or
(iii) +Contrast

then C_i is assigned primary heavy stress in S.

The notion of contrast as restrictive dominance presented here is closely related to Chafe's (1976) notion of focus of contrast:

> ... the speaker assumes that a limited number of candidates is available in the addressee's mind .... Often the number is one, often it is larger, but when it is unlimited the sentence fails to be contrastive (p. 34).

Chafe continues to say that when a sentence has more than one focus of contrast as in

1 1
(31) Ronald made the hamburgers.

Then "it is the pairing of these candidates for these roles that is being asserted" (p. 35).[9]

3B. Multiple wh-questions and restrictive dominance

The concept of restrictive dominance provides us with the necessary tools to account for various aspects of multiple wh-questions. Let us start with a simple case:

(32) Who ate what?

The theory of dominance distribution claims that only one constituent can be dominant in a sentence. Moreover, I have claimed here that the distribution of wh-phrases is defined by dominance possibilities. Therefore, there should be no way to interpret the question in (32) as two separate and independent questions since that would imply that two constituents can be dominant separately. Multiple wh-questions such as (32) must therefore belong to the class that is interpreted restrictively in the sense described above. The theory outlined here predicts that the only possible context for a multiple-wh question such as (32) is one in

which a set of people is known to have eaten a set of foods. The question asks for a pairing of people to foods. A likely answer would be:

(33) John ate the fish, Peter the meat and Susan the cake.

What is dominant in the answer are the pairings ⟨John, fish⟩, ⟨Peter, meat⟩, and ⟨Susan, cake⟩. (The definite article is not required here. Its appearance depends on independent conditions on definiteness and follows from how the set of foods have been defined in the context.) Notice also that multiple wh-questions, like their answers, are stressed by the RSR:

(34) 1 1
Who ate what?

This very special class of questions is therefore another case (in addition to echo-questions, etc.) in which the wh-phrases themselves are stressed, but it is important to note that even here what is dominant is not each wh-phrase on its own but rather their pairing. As in the case of echo-questions, the only reason we can talk about dominance of a wh-phrase is that they are restricted to occur in a context in which (for each one) a set of possible answers is specified.

Does the theory allow for restrictive questions of this sort with only one wh-phrase? Clearly, yes. Just as sentences with one stressed constituent can be ambiguous between a (regular) dominant reading and a restrictively dominant one, so questions with only one wh-phrase are ambiguous in the same way. Let me illustrate such a case. If in a bowl there are five apples, I leave the room and return later to find only four, I may ask:

(35) Who ate the apple?

Whether this question is restrictive or not depends on the following added context: If I have no idea who has been in the room since I left and therefore the set of possible candidates for an answer is unspecified, then the question is all dominant and stress is assigned according to the SSR as explained above

(36) 2 1
Who ate the apple?

If, however, I know for a fact that the three people who were sitting in the room when I left are the only ones who have been in the room and are therefore the only possible candidates for the role of apple-eaters, then the question becomes restrictive and in effect asks the hearer to

pick one of the three as an answer to the question (as opposed to picking one out of an unlimited number of possibilities). We then get stress by the RSR (which indicates that stress disambiguates in these cases):

(37) 1
Who ate the apple?

Certain wh-phrases lend themselves to a restrictive reading, for example, which *X*, which one of you, what man. This fact is used by speakers to disambiguate between restrictive and nonrestrictive readings. I might then have phrased the restrictive version of my question (37):

(38) Which one of you ate the apple.

And here only a restrictive reading would have been possible. Most wh-phrases although possibly conducive to one or the other reading remain ambiguous.

Another characteristic of restrictive questions as opposed to non-restrictive ones is that questioning is not limited by the dominance constraint. But that follows from the fact that restrictively dominant constituents can occur freely and are only conditioned by the relevant context. It is therefore quite possible to stress constituents to which regular dominance could not be assigned. However, their stress could not have been assigned by the SSR since they are not potentially dominant, and must therefore have arisen as the result of an application of the RSR. The latter stress rule forces the sentence to have a restrictive interpretation. For example,

(39) 1
John gave Mary a book.

This could only be interpreted in a context in which Mary is being contrasted with someone else. Similarly, we can get

(40) 1 1 1 1
John gave Mary a book, Peter gave Susan one, ...

And finally we can get both

(41)(a) Who did you give what?
(b) What did you give who?[10]

Notice how these compare with the following:

(42)(a) *Who did you give the book? (see (14))
(b) What did you give Mary?

Bolinger (1978, p. 138) points out that (41b) is less acceptable than (41a). The point here is that (41b) is a "violation" of the dominance condition and would not be acceptable at all were it not for the enforced restrictive reading.

The issue as to which wh-phrase gets moved in multiple wh-questions has opened a number of different lines of investigation. The structural constraint of Crossover was suggested as a partial explanation in Kuno and Robinson (1972). This was refuted in Bolinger (1978, f.ex. 41b above). An interesting development of this issue was presented in Kuno (1982).[11] Kuno summarizes his observation as follows (his (9)):

Sorting Key Hypothesis: In a multiple wh-word question, the fronted wh-word represents the key for sorting relevant pieces of information in the answer.

He illustrates as follows (his (7), (8) and (10)):

(43)(a) Which of these climactic conditions occur in which countries?
(b) In which countries do which of these climactic conditions occur?

(44)(a) *Typhoons* occur in Japan, Korea and China; *hurricanes* occur in ....
(b) In *Japan*, typhoons and early-summer rain spells occur; in *Thailand*, they have monsoons and tornadoes; ....

The unmarked answer for (43a) is (44a) in which the sorting key matches that of the moved wh-phrase (climactic conditions.) Similarly, Kuno argues, for (43b) and (44b). Kuno provides many more examples, and finally concludes that "claiming that the fronted wh-expression is used as a sorting key is equivalent to claiming that the fronted wh-expression has a higher scope than the stranded wh-expression." Here I disagree with Kuno and hold with Bolinger (1978) that a fronted wh-phrase in the multiple wh-question can be seen as belonging to the topic part of the question. Kuno rejects this view due to the fact that indefinite NPs cannot correspond to sorting keys and therefore are not suitable candidates for topichood. Reinhart (1981) argues convincingly that specific indefinites are not excluded as topics and also defines topics in a way that is in effect a formalization of the idea of the sorting key notion rather than an alternative notion:[12]

Sentence topics, within this view, are one of the means available in the language to organize, or classify the information exchanged in linguistic communication – they are signals for how to construct the context set, or under which entries to classify the new proposition.

This is the basic intuition behind her formalization:

> To say that a sentence S uttered in a context C is about α_1, i.e., that the pair $\langle \alpha_1, \phi \rangle$ of $PPA_{(S)}$ is selected in C, is to say, first, that, if possible the proposition ϕ expressed in S will be assessed by the hearer in C with respect to the subset of propositions already listed in the context set under α_1, and second, that if ϕ is not rejected it will be added to the context set under the entry α_1. (p. 81)

Note furthermore that discourse anaphoricity takes on a special guise when we are dealing with restrictive dominance.

I have argued that a restrictive question can only occur in a context in which a set of possible referents are assumed as possible answers. Hence, in the answers to these questions, the NPs that answer the fronted wh-phrase, belongs to a set of possible answers already defined by the discourse. In this sense it is therefore anaphoric and a good candidate for topichood. Let me illustrate with the following discourse:

(45) *S*: Which criminals committed which crimes?
H: The one with the beard committed murder and the other five are accused of armed robbery.

(46) *S*: Which crime was committed by which criminals?
H: Murder was committed by the ones in the cell over there, and armed robbery by the rest.

In order for the questions in both (45) and (46) to make sense they must both be uttered in a context in which a set of criminals and a set of crimes are assumed. However, as can be seen by the answers, it is not the case that each particular criminal, nor each particular crime must be discourse anaphoric. This is true of both cases. They differ however in exactly the way Kuno would predict. In (45) the sorting key requested by the speaker is that of criminals and the answer in (46) would not be suitable. In (46) it is the other way around. Kuno adds that it is possible in cases such as (46) where the sorting key of crimes may not be the normal one (unless *H* is a policeman, lawyer or judge?) for *H* to switch and answer with the answer in (45). What is happening in such a case is that the respondent is in a sense disagreeing with the sorting key selected by the questioner when this is a marked one. In general, however, sorting keys are consistent over question-answer pairs.[13]

What we have seen so far is that the issue of which wh-phrase is fronted in multiple wh-questions can be resolved by recourse to the notions of restrictive dominance and topic.[14]

Bechhoffer (1976) (as quoted by Kuno (1982)) observes the following differences:[15]

(47) Speaker *A*: Tell me who hit who(m).
Speaker *B*: (a) Tom hit Bill.
(b) Tom hit Bill and Jim hit Tony.

(48) Speaker *A*: Tell me who went to Europe when
Speaker *B*: (a) *Tom went last year.
(b) Tom went last year, and Bill went this year.

Bechhoffer relates this distinction to the fact that *when* is optional in (48), whereas the two wh-phrases in (49) are obligatory constituents. I would like to argue that (48a) becomes acceptable just in case a previous context is supplied which enables a restrictive reading of this answer. Note first that (47a) although seemingly nonrestrictive cannot be an answer to the question in (47) unless it appears in a context in which there are a number of candidates for the role of hitting and a number of candidates for the role of being hit. In such a context, the full list of hitters and hittees might be the expected answer. Consider now the context in which the issue is whether *Tom hit Bill* or whether *Bill hit Tom* and only one of them has been hit. The set of hitters are ⟨Tom, Bill⟩ and the set of hittees are ⟨Bill, Tom⟩. The answer *Tom hit Bill* is therefore restrictive and contrasted with the other possible answer in this context namely that *Bill hit Tom*. This answer is normally considered to be a *contradiction*. Contradiction constitutes a special case of restrictive dominance in which one pairing is selected as opposed to another possible one as defined by the context. In (48) such a context might be somewhat harder to imagine and that is probably why Bechhoffer excluded it altogether. Let us attempt it anyway: Whether John gets to go to Europe this year depends on whether it is his turn. Tom and he have been taking turns for several years. Peter wants to settle the argument and asks the question (48). The context we have set up provides us with a set of people ⟨John, Tom⟩ and the set of previous years (since this turntaking presumably has not being taking place forever, it is unlikely that this set is unlimited). With this context in mind it seems to me that the answer in (48a) is quite acceptable, meaning – Tom (not John) went last year (and not the year previous to that one). This answer gets Tom and John out of their argument by making it clear that it is now John's turn. The point of this aside was to show that the syntactic optionality of certain constituents is not what determines the kinds of possible answers they can naturally have, but rather their occurrence in a context which allows for a natural restrictive reading. Optionality of constituents may play an ancilliary role. It is less likely that a context provides us with a set of possible times or places when time and place

adverbs are not subcategorized for, than having a context in which sets of possible subjects and objects are specified.[16]

Another issue which must be resolved before our discussion of scope of wh-phrases in multiple wh-questions, is whether every wh-phrase actually "asks". Bolinger (1978) relates to this question. According to Bolinger, the fact that certain wh-phrases (what, where and when) are ambiguous between an interogative and a relative use accounts for the ambiguity of the following multiple wh-question:

(49) Who told them where we bought which books?

If *where* is interpreted as a relative, the question can be paraphrased *Who told them the store where we bought which books*? If it is interpreted interrogatively we get *Who told them where, if anywhere, we bought which books*? Bolinger's paraphrase of the interrogative interpretation with *if anywhere* contradicts the view presented here that multiple wh-questions must be interpreted restrictively, in other words, *where* must be interpreted as "where out of a limited set of places". This is still an interrogative as opposed to relative interpretation and Bolinger's main point holds.

Bolinger uses this same point to explain Langacker's (1974) data:

(50) Who remembers where we bought what?

(51) ?Who remembers what we bought where?

Bolinger argues that it is the ambiguity of *what* in (51) between an interrogative and a relative use that causes the unacceptability. As evidence he presents the following

(52) *Who remembers the things that we bought where?

(53) Who remembers what things we bought where?

(52) is unambiguously relative and (53) is unambiguously interrogative. The idea is that under an interrogative reading (51) should be good, whereas under the relative reading it should be bad (like (53)). Its questionability results from a confusion between the two readings. That explanation might hold if (50) were equally questionable, since similar data might be supplied:

(54) *Who remembers the places that we bought what?

(55) Who remembers which places we bought what?

But (50) is considered to be better than (51). We might fall back on our

analysis of restrictive questions for the explanation. Examine the form of possible answers to the two questions:

(56) John remembers the store (where) we bought the pants and Susan remembers the one we bought the skirt.

(57) John remembers the clothes we bought in Woolworths and Susan the ones we bought in Macy's.

It seems that the problem may be simply that it is harder to construct a sensible context for (57) and therefore for (51). The issue is then not one of scope as Langacker would have it.

Lasnik and Saito (1984) account for contrasts such as these in terms of governed and ungoverned positions. Their theory, however, does not extend to this case which classifies with examples mentioned in their notes 10 and 12 for which they do not account. The restrictive reading explanation developed in this and the following section neatly explains exactly those cases that are problematic for Lasnik and Saito. In particular, the notion of "absorption" adopted from Higginbotham and May (1981) which applies to multiple *wh*'s in the same Comp at LF when they are semantically parallel follows from a restrictive dominance analysis. The semantic parallelism required is exactly that the wh-words involved lend themselves to a common restrictive interpretation.

The fact that (52) and (54) are totally unacceptable remains to be explained. Bolinger argues convincingly that the notion of clausematiness cannot be called upon to solve this problem. After all the wh-phrases in (50) are not clausemates and still the question is acceptable. The answer lies in the fact that definite relative clauses such as *the things that we bought where*, for example, cannot be interpreted with a variable *where* inside the relative clause. This is a contradiction in terms between the function of relative clauses (which is to define their head) and the function of question-words (which is to ask).

To conclude, question words which seem not to "ask" are actually relatives. The ambiguity between the two cases arises when the subordinate clauses in question occur as complements of verbs which can take both kinds of complements. Such verbs are *remember* and *tell*.

3C. Scope in multiple wh-questions

I will now argue that so-called scope ambiguities in multiple wh-questions are directly derivable from restrictive dominance assignment. As an example, take the following classic case:

(58) Who remembers where we bought which book?

The ambiguity of this question has been thought to be due to a possible narrow scope reading of *which book* and a wide scope reading of it. The former interpretation would allow an answer such as

(59) John remembers where we bought which book.

The latter could be answered

(60) John remembers where we bought *Aspects* and Peter remembers where we bought *Syntactic structures*.

This ambiguity will be seen to follow directly from two possible dominance assignments rather than different scope assignments. The rule of LF (Logical Form) which moves the wh-phrase *which book* to COMP position in either the embedded or the matrix clause to render the two interpretations will then not be needed. Dominance assignments of this sentence are:

(61) 2 1
(i) ⟨Who remembers where we bought which book⟩
1
(ii) Who ⟨remembers⟩ where we bought which book
1 1
(iii) ⟨Who⟩ remembers where we bought ⟨which book⟩

The brackets indicate the dominant constituents. In (i) and (ii) there is one dominant constituent, in (i) it is the whole sentence, and in (ii) it is the verb of the main clause. In (iii) the two wh-phrases are restrictively dominant. It is this reading which allows the so-called wide scope answer which in effect renders a pairing of the answers to ⟨who, which book⟩. Moreover, the question with this intended interpretation could only be uttered in a context in which a limited number of people and a limited number of books were present. It is interesting to note that all the proposed "wide-scope" answers to multiple wh-questions involve a listing such as (60). The wide scope reading is thus clearly identified with what I call a restrictive context. Since it follows from restrictive dominance assignment (in a (61iii), say) that the constituents marked as being restrictively dominant must be interpreted as occurring in a context in which each one belongs to a specified set and further that the sentence itself involves a pairing (or n-tupling) of elements of the sets in question, the correct interpretation will automatically follow. What I am suggesting, then, is doing away with scope assignments altogether and

deriving the various interpretations directly from the different kinds of dominance assignment, which, as we have seen above are needed independently of scope. The so called narrow scope reading will be derived from any non-restrictive dominance assignment. In (61ii) the whole question is dominant and it therefore gets an interpretation just like any single-wh-question which is sentence dominant. The final wh-phrase *which book* does not "ask" since it is not assigned restrictive dominance. One might ask why it is that the initial wh-word *who* "asks" even though it is not restrictively dominant either. This is simply the result of question interpretation. The fronted wh-word always "asks" in questions. An additional wh-phrase can achieve "asking" status only if it, together with the fronted wh-phrase, are restrictively dominant. Similarly, in (61ii) in which the matrix verb is dominant and hence stressed: the embedded clause is nondominant and functions as the same clause does in an assertion such as (59). Note that in order to ask questions (61i) and (61ii) it is not necessary to assume a context with a restricted set of people, books, etc. Assume a case in which masses of books are received in the mail, no one has any idea how many are yet to come, and they all have to be returned. It is not known who might have been involved in the book orders, but in order to return the books the source of each one must be known. Both the nonrestrictive questions (but not the restrictive one) would be appropriate in such a context. In the answer *John does*, John is not being selected from a list of possible candidates for remembering as in the restrictive case. There is, however, yet another possibility:

(62) 1
⟨Who⟩ remembers where we bought which book?

We have mentioned that single stressed wh-words can be interpreted as echo questions, etc. but it should now be clear that there is also the possibility of a restrictive interpretation. If we assume the nonrestrictive context just described with one modification – there *is* a set of likely candidates for the job of remembering where we bought which book. Since restrictive dominance assignment does not depend on there being more than one wh-word stressed, (62) is not excluded from a restrictive interpretation.

Hirschbühler (1978) raises a large number of interesting questions concerning scope in questions. I will not outline his approach which involves a detailed semantics for questions. Instead I would like to test the present analysis on two issues for which no solution is provided. Both appear in Hirschbühler's Chapter V. The first one has to do with the unacceptability of

(63) *Who is it that bought what?

Hirschbühler states the relevant generalization as follows: "an unmoved wh-phrase cannot have scope over a sentence over which a clefted wh-phrase has scope." He adds that this is probably "due to some semantic consequence of clefting." I would like to argue that it is the interaction between the function of clefting in terms of dominance and the dominance analysis of questions which explains this generalization. It is not hard to show that the embedded clause in the cleft cannot be dominant (I leave it to the reader to apply the dominance test). It follows that no wh-word (non-echo) can occur in this clause unless it is interpreted restrictively. In order to get a restrictive interpretation of an unmoved wh-word it has to be paired off with another restrictive wh-phrase. But the clefted *who* cannot be part of a restrictive pair. This follows from the function of clefting. The clefted NP must always be interpreted as being dominant (the clefted NP is traditionally known as the focus of the cleft). The only remaining question is whether the clefted NP can also be restrictively dominant. It seems that it can. In

(64) 1
It was John who bought the book.

John can be selected from a restricted set, but note that the following is quite bad:

(65) 1 1
*It was John who bought the book, and it was
1 1
Mary who bought the magazine, ...

It follows that the clefted NP must be dominant by itself (whether restrictively or not), but that it cannot participate in a restrictive pairing. (63) is therefore bad for the same reason that (65) is.

Hirschbühler adds the following data:

(66) 1
Who is it that knows where we bought what?

(67) 1
(a) It's John (that knows where we bought what).
(b) *Well, it's John that knows where we brought the table and Fred that knows where we bought the sofa.

Notice that the restrictive interpretation is out as predicted by the above

analysis. In (66) *who* is dominant (restrictively?) by itself, as behooves a cleft, and the restrictive answer in (b) is not possible.

What is then the explanation for Hirshbühler's (47)

(68) 1 1
Who knows where it is that we bought what?

for which only a restrictive answer is possible:

(69)(a) Well, John knows where it is that we bought *Aspects*, and Peter knows where it is that we bought *Syntactic Structures*.
(b) *John knows where it is that we bought what.

We have assumed so far that all *it*-clefts have focused NP must be dominant, restrictively or otherwise. This is, however, not the case for all kinds of *it*-clefts. Prince (1978) clearly separates between Stressed Focus *it*-clefts and Informative-Presupposition *it*-clefts. The former kind have the intonation and function described above, i.e. the focus is stressed (the clause is not) and the focus must be interpreted as being dominant. Prince identifies the latter as follows:

> First, unlike stressed-focus *it*-clefts, they have normally (vs. weakly) stressed *that*-clauses. Second, they generally have a short and anaphoric focus, which, in my data, is either a (subject) NP or an adverbial, generally of time, place, or reason.... Third, in such sentences, that/wh- is not deletable. (p. 899)

We might then distinguish the following:

(70) 1
It was here (that) we lost the book.

(71) 1
It was here that/*ϕ we lost the book.

(70) exemplifies the Stressed-Focus cleft and (71) the Informative-Presupposition kind. In the former the clefted element is dominant, in the latter dominance resides in the clause. Now, note the following:

(72) 1
It was here that we lost the book and it was
1
over there that we lost the money.

It turns out that in this kind of cleft nothing prevents restrictively dominant elements inside the clause. (68) belongs to the category of Informative-Presupposition Clefts. This follows from the fact that *where* is a relative as opposed to an interrogative (see the discussion of Bolinger's idea above) and is therefore easily identifiable as an anaphoric

adverbial. In this kind of cleft the clause is dominant, in this case restrictively dominant since there are two wh-phrases in the sentence. Therefore we get the answer in (69a). (69b) is impossible since that would render the clefted clause *that we bought what* non-dominant. The clefts in (63) to (66) cannot be interpreted in this fashion since the focused constituents in these cases do not qualify as being anaphoric – they are interrogative (embedded under *wonder* or actually fronted). As Hirschbühler predicted, with an understanding of clefts an explanation of his data follows. It should be emphasized that we have made use of Prince's functional approach to clefts, not a semantic one as Hirschbühler would have it.

The second unresolved issus that Hirschbühler points out is that the narrow scope reading of the following question is bad:

(73) Who remembers how to interpret which of these formulas?

(74) *Peter remembers how to interpret which of these formulas.

(p. 225, (4a and b)). This problem can be solved in a very similar fashion to the one above by means of an analysis in terms of dominance. The partitive wh-phrase *which of these formulas* demands a restrictive context. As was mentioned above certain wh-phrases will lend themselves more or less to a restrictive or non-restrictive reading. In this case only a restrictive context is possible. *Which one of these formulas*, independently of the rest of the sentence, can only be uttered in a context in which a fixed set of formulas is assumed. A restrictive reading of an unmoved wh-phrase has already been seen to be the source of the so-called wide scope reading. Since *which one of these formulas* must be interpreted restrictively, it follows that only an answer such as (75) is appropriate:

(75) Well, Peter has forgotten how to interpret formula 11, and Paul how to interpret formula 14, and Mary how to interpret formula 17.

(Similar to Hirschbühler's 58, p. 100) i.e. a restrictive answer.

Hirschbühler further notes the following difference:

(76) *How do we interpret which of these formulas?

(77) Who can interpret which of these formulas?

About (77) (Hirschbühler's (57)) he says the following:

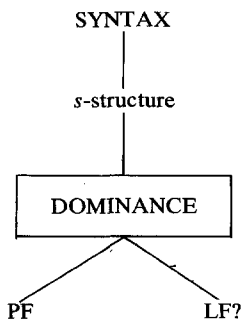
> (57) must for example be considered in a situation where there are a certain number of formulas on the blackboard and a certain number of students, and it is known that for each formula exactly one student understands it, but the appropriate pairing is not known. (p. 100)

I would not go as far as to say that for each formula it is the case that exactly one student understands it, but only that the appropriate pairing is not known. What is described here is clearly a restrictive context. The reason (76) is bad is not a mystery, but rather the result of the fact that *how* cannot be restrictively paired, the reason being that one would have to assume a fixed set of ways to interpret the formulas in advance, and it would be hard to construct such a context. Not impossible, however – assume that the formulas in question have three and only three possible ways to be interpreted (a strange assumption, I admit), then and only then (76) could work.

In this section I have argued that rules assigning scope to wh-phrases in multiple wh-questions are superfluous. The various "scope" readings are actually to be derived from the different dominance assignments. In particular the wide scope of embedded wh-phrases results from restrictive dominance readings in the appropriate contexts. This account would make superfluous the need for movement of wh-phrases (not moved in *s*-structure) to COMP in LF in order to account for scope in multiple wh-questions.

It remains for further investigation whether the same can be said for all other cases in which scope readings have been accounted for by movement rules in LF. In particular the issue of quantifier scope should be examined along similar lines. If, as I hope to show in future research, all cases of scope assignment follow from dominance assignment, then one of the major raison d'etre of LF will be gone. We might then be left with a model of grammar including a dominance assignment component, but missing the LF leg. Semantic interpretation would then plug in directly to the dominance component which also inputs into PF (Phonological Form).

Before concluding it might be beneficial to indicate how the theory of dominance outlined here would fit into a theory of grammar. The following schema indicates the place of a special component which assigns dominance.



The dominance assignment component has been introduced into the model of grammar outlined by Chomsky (1982). The point of this sketch is not necessarily to argue for this particular model of grammar, but rather to show how dominance assignment does not contradict the basic principles of such a model. In particular, there is no contradiction between the idea that dominance plays a major role in the components of syntax, Phonological Form (PF) and Logical Form (LF) and the idea of the autonomy of each of these components. This result is achieved in the following manner. The component of dominance assignment operates on the output of the syntax, the *s*-structure, in this model. Dominance is assigned to a constituent freely. The component then includes a dominance filter which will, for example, reject derivations in which extraction has occurred, but dominance has been assigned to a constituent which prevents the locus of extraction from being interpreted dominantly. Such a derivation would violate the Dominance Condition mentioned above. The output of this component will have the form of wellformed *s*-structures with dominance marked on the relevant constituents. These structures will be assigned PF- and LF-representations by the relevant components. The rule of sentence stress mentioned above will assign stress within the component of PF according to the dominance assigned by the dominance component. The model including a dominance assignment component is extremely simple. It has, however, been the firm opinion of most linguists working within generative frameworks that notions such as dominance, being pragmatic (having to do with speakers' intentions) and having to do with discourse (relating to the issue of which two sentences naturally follow each other in discourse) ought not be part of a model of grammar which deals only with sentence grammer. Since it is the case that this notion plays a pervasive role in sentence grammar as well as in discourse it is hard to see how such a stand can be maintained.

To summarize briefly, it has been shown that an analysis of wh-questions in terms of dominance has been fruitful. First, it was pointed out that wh-words are not necessarily the focus of questions, on the contrary, this is only so in echo questions and the like. In restrictive questions the wh-words participate together as a dominant *n*-tuple, but each one separately is not dominant. When there is one restrictively dominant wh-phrase in a question it again is not dominant or focus of such a question; it is rather the selection of an unspecified subset of a fixed set (a contrast) that is called for. Second, wh-movement (in questions) was seen to follow from the dominance condition and the different stress assignments in questions were seen to follow from the same stress rules needed for assertions. Third, the distinction between regular

dominance and restrictive dominance was applied to questions. Finally the various readings of multiple wh-questions (so-called wide and narrow scope readings) were argued to follow from dominance assignment.

NOTES

* I would like to thank Shalom Lappin for much invaluable discussion and Ruth Manor, Anita Mittwoch, Malcah Yaeger-Dror, Alice ter Meulen and an anonymous reviewer for helpful comments at various stages of preparation of this paper.

[1] Williams (1978) implies that wh-phrases are the focus of questions in that they as opposed to relative wh-phrases can be stressed. We shall see below that wh-phrases are stressed in restrictive questions. All the examples presented by Williams belong to this category due to the fact that they are conjunctions.

[2] See also Erteschik-Shir (1981) for an analysis of similar cases.

[3] For a similar argument concerning new/old (given) information, see Erteschik-Shir and Lappin (1983).

[4] For a detailed examination of the relevance of dominance to stress, see Erteschik-Shir and Lappin (1983).

[5] The other possible topic is the topic of the question itself. For an account of the occurrence of sentence-topics in discourse see Erteschik-Shir and Polanyi (in preparation).

[6] This analysis holds for both kinds of echo questions; those that request clarification due to not hearing the previous utterance well and those that express astonishment or indignation concerning the previous utterance.

[7] See Erteschik-Shir and Lappin (1983) for a more detailed discussion of the precise stress assignments as well as a comparison to other approaches for stress assignment. For a discussion of the interaction between definiteness of noun phrases and dominance see Erteschik (1979).

[8] The notion of a specified set needs clarification. In cases of enumerative and disjunctive listing, the set is specified by the actual listing of it. In cases of contrast this is not necessarily the case. The set in question is context defined. (28a) is contrastive (without *not Mary*) if it is assumed that *John* is picked out of a set of potential candidates for being invited. (If such a set is not available *John* is no longer contrastive.) This set I refer to as a "specified" set.

[9] Chafe's other notions differ from mine. For example, his notion of new is only vaguely similar to the notion of dominance.

[10] Replacing *what* with *which book* will strengthen the restrictive reading as mentioned in the context of (34).

[11] Kuno, in the same paper, analyses scope of question and negation morphemes in Japanese and concludes that these morphemes "extend to an element that does not immediately precede them if it is not a fill-in-the-blank focus, but a multiple-choice focus." Kuno's fill-in-the-blank focus is parallel to dominance and his multiple-choice focus parallels restrictive dominance. It is therefore no surprise that scope in the latter differs from scope in the former. The issue of scope of wh-phrases in English will be developed below.

[12] For a definition of PPA – Possible Pragmatic Assertions – see Reinhart's paper. What is of import here is to note that a well-defined notion of topic is consistent with the view that Kuno's sorting keys, despite his view to the contrary, are indeed sentence topics.

[13] Hirschbühler (1978, p. 64) discusses some examples of Wachowicz (1974, p. 41) which can be explained by this approach:

(i) Tell me which error was noticed by which girl.
(ii) Tell me which girl noticed which error.

If in (i) errors are used as the sorting key of the answer, then for each error at least one girl gets paired off. Intuitively we have a list of errors and it is our function to get the girls paired off with them. The opposite goes for (ii). The fact that speakers may differ on these follows from whether they find the sorting key stipulated by the question natural.

[14] Kuno (1982) also remarks (footnote 5) that the particle *wa* which normally marks themes (topics?), is difficult to use on the NPs which answer the fronted wh-phrase in multiple wh-questions. This could be a result, not of this NP not being a topic, but rather of its property of being part of pair of NPs which together are restrictively dominant as defined above. Under this view *-wa* can only be used comfortably on NPs which are topic in non restrictive sentences. It seems that this "conflict" (the NP functioning both as topic and as part of a dominant pair) is responsible for the fact that *wa* is not totally unacceptable in these cases.

[15] I am excluding from discussion here Bechhoffer's cases with conjoined wh-phrases.

[16] Hirschbühler criticizes Wachowicz (1974) for a similar approach to multiple wh-questions as mine. In particular he maintains that multiple wh-questions are not different in nature from nonmultiple ones, since it is not necessarily the case that multiple wh-questions require multiple answers as Wachowicz would have it. Wachowicz exempts contradictions from this requirement. In the theory presented here single answers are permitted as responses to multiple wh-questions as long as the context of the question is restrictive. I refer the reader to Hirschbühler who gives such contexts for a number of interesting cases.

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