

A NOTE ON MULTIPLE QUESTIONS (I)

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I. Introduction

Concerning the concept of iterated multiple questions, lots of linguists are discussing the problem whether iterated multiple questions really have an ambiguous meaning or not.

In this paper, I want to consider the concept proposed by Baker¹, Kuno & Robinson², and Hirschbühler³. These four linguists seem to me to deal with the recent problems about the iterated multiple questions; the ambiguity of iterated multiple questions, the scope of *wh*-phrase, and so on. After looking over the concept of the four linguists, I want to consider the problem whether the position of the *wh*-phrase may influence the degree of specificity. Furthermore, the number of *wh*-phrase may influence the degree of specificity or may not.

II. General Survey of Baker's Approach

Baker's approach seems to be generally accepted; in particular, the concept of an abstract question morpheme is generally accepted. However, the interpretation of iterated multiple questions needs a little modification.

Concerning the generative-transformational description of questions, the concept proposed by Katz & Postal is considered the basic and general description of questions. Roughly speaking, they settled the concept that English direct questions contain an abstract question morpheme in the deep structure, and that such an abstract question morpheme has both a syntactic and semantic justification.

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1. C. L. Baker, "Notes on the Description of English Questions: The Role of an Abstract Question Morpheme," *Foundations of Language* 6, 1970, pp. 197-219.
 2. S. Kuno & J. Robinson, "Multiple Wh Questions," *Linguistic Inquiry* 3, 1972, pp. 463-487.
 3. P. Hirschbühler, "The Ambiguity of Iterated Multiple Questions," *Linguistic Inquiry* 12, 1981, pp. 135-146.

Baker tried to re-evaluate the concept of an abstract question morpheme and showed a different position. Baker claims as follows:

This position may be summarized in the following two statements: (a) a clause-initial morpheme *Q*, having something other than a performative reading, should be assumed for indirect as well as direct questions in English; (b) such a morpheme, when it occurs in questions introduced by *who*, *what*, and so forth, must “bind” one or more noun phrases in the position of the tree which it commands.⁴

To manifest the character of an abstract question morpheme, it is necessary to show the difference between Katz & Postal’s “*Q*” and Baker’s “*Q*”.

The analysis of question morpheme proposed by Katz & Postal does not seem to settle a universal form in the underlying structure. In the underlying structures, the question morpheme of the direct questions is completely different from that of the indirect questions. Roughly speaking, the interpretation of the question morpheme suggested by Katz & Postal is as follows:

(T1) # + (Q), X, Noun Phrase, Y
 1 2 3 4 ⇒ 1, 3, 2, 4 (optional except where 1 does not contain *Q*)

where 3 dominates a sequence which begins with *wh*.

(T2) # + Q, X, Noun Phrase, Tense + $\left\{ \begin{array}{l} \text{null} \\ \text{have} \\ \text{be} \\ \text{Modal} \end{array} \right\} \left\{ \begin{array}{l} \text{Verb + Y} \\ Y \end{array} \right\}$
 1 2 3 2 4 2 2 2 5 2

⇒ 1, 2, 4, 3, 5 (obligatory where 2 is a Sentence Adverbial)

Rule (T1) brings Noun Phrase constituents dominating *wh* to the left of P-markers. It operates for relative phrases and certain complement phrases as well as questions . . .

Rule (T2) provides the shift of part of the Auxiliary constituent with the preceding Noun Phrase in cases of yes-no questions and cases where a *wh*-“questioned” constituent has been moved to the far left between *Q* and the subject Noun Phrase by Rule (T1). Rule (T2) is hence the reformulation in our terms of Chomsky’s Tq.⁵

(In this rule, subscripted brackets with identical numbers indicate that the compressed expressions may be expanded out only line by line. Hence, when the fourth term is Tense plus null, the fifth must be Verb plus Y; when the fourth is Tense plus *have*, *be* or *Modal*, the fifth must be Y.)⁶

4. C. L. Baker, “Notes on the Description of English Questions,” p. 197.

5. N. Chomsky, *Syntactic Structures*, Mouton & Co., The Hague, The Netherlands, 1957, p. 112.

6. J. Katz and P. Postal, *An Integrated Theory of Linguistic Description*, MIT Press, Cambridge, Massachusetts, 1964, pp. 104–107.

Against the analysis of Katz & Postal, Baker tried to revise the question morpheme “Q”; he claims that all English questions contain an initial question morpheme like SM (Sentence Modifier). From the point of semantic justification, such an initial question morpheme is necessary to account for the semantic difference between a given declarative and any closely related questions. Baker says about the existence of question morpheme as follows:

My first argument is that positing such a morpheme for English makes it possible to treat as significant the fact that the interrogative words such as *if* and *whether*, on the one hand, and those such as *who*, *what*, and *where*, on the other, are found in initial position in the clauses in which they occur. That such a situation is indeed significant, and not merely a matter of coincidence, is suggested rather strongly by the data on questions presented by Greenberg. Although Greenberg does not attempt specifically to state the relation between the position of *yes-no* particles and the position of other interrogative words, his data suggest that there is an exceedingly close relation between the two. First, all of the VSO languages studied in Greenberg’s survey had an initial *yes-no* particle, and likewise all of these languages placed question words in sentence initial position. On the other hand, those SOV languages which had particles positioned with reference to the sentence as a whole put them at the end of the sentence. Correspondingly, none of the SOV languages studied regularly moved other question-words to sentence-initial position. Although the data for SVO languages are more difficult to interpret, it appears that no language in the sample simultaneously marked its *yes-no* questions with a sentence-final particle and moved other question words to sentence-initial position.⁷

Therefore, the question morpheme is essential to account for the difference in the semantic justification.

When we consider the ambiguity of multiple questions, the concept of question morpheme seems to play an important role. Applying the concept proposed by Baker, the structure to decide the meaning of the sentence will clearly be shown. Baker points out the following sentences which involve *wh*-words:

Sentence (1) We discovered that the police know who Clyde shot.

Sentence (2) We discovered who the police know that Clyde shot.

To manifest the difference in their meaning, Baker claims that the addition of an identical conjunct to each will make clearer, pointing out the following sentence:

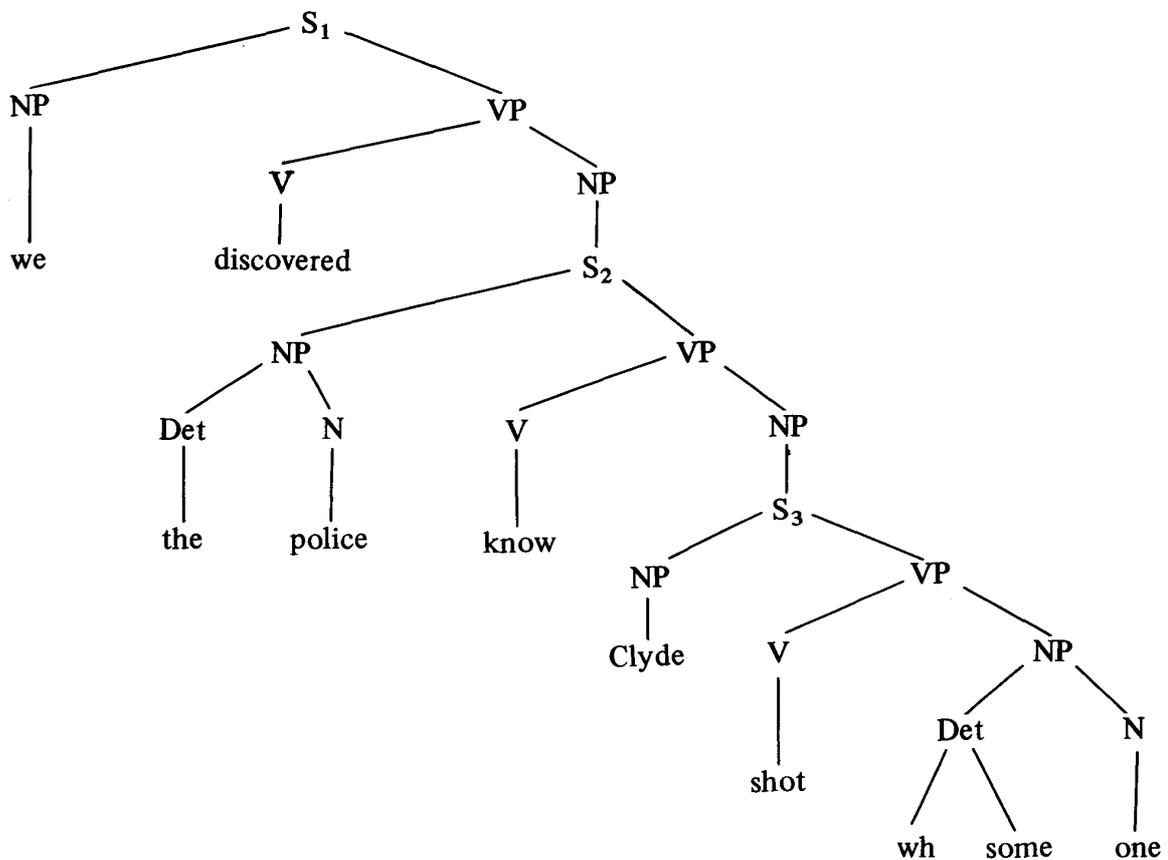
Sentence (3) We discovered that the police know who Clyde shot, and we also discovered that they don’t know whether he shot Egbert.

Sentence (4) We discovered who the police know Clyde shot, and we also discovered that they don’t know whether he shot Egbert.

7. C. L. Baker, “Notes on the Description of English Questions,” p. 207.

Sentence (3) can be understood as a contradiction, but Sentence (4) cannot be understood. For the purpose of representing the difference between Sentence (1) and Sentence (2), it is easy to know that we can't explain the difference by the analysis of indirect questions, simply generated *wh* in certain noun phrases. Based upon the analysis of indirect questions which simply generated *wh* in certain noun phrases, both Sentence (1) and Sentence (2) have the same underlying deep structure as follows:

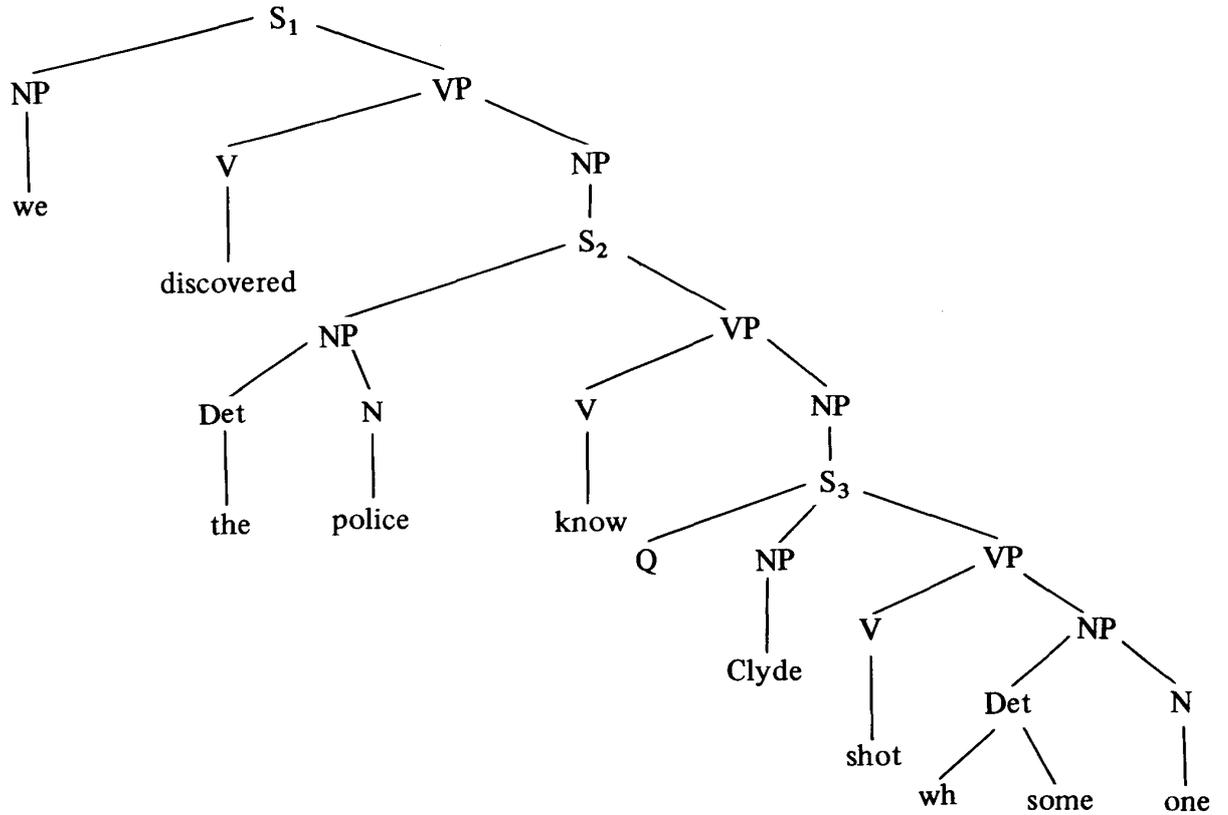
(5)



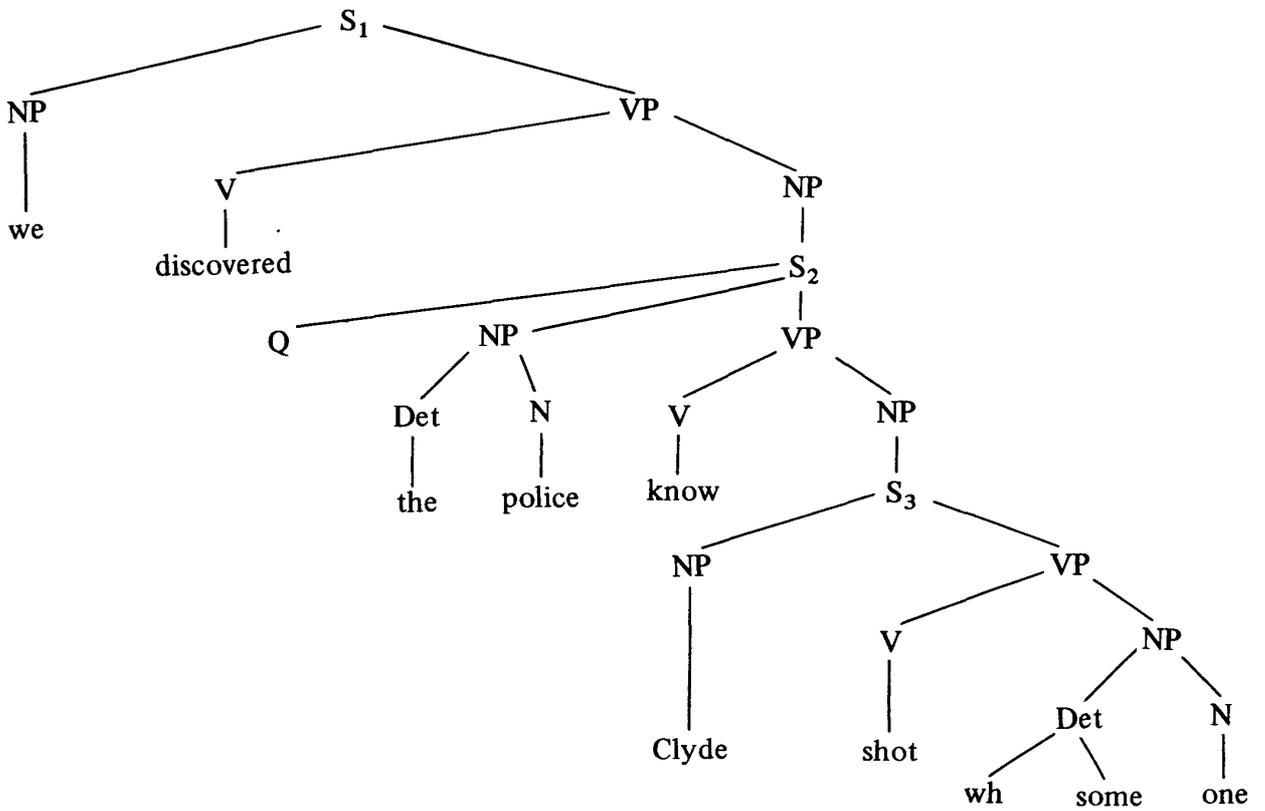
As mentioned above, both Sentence (1) and Sentence (2) share the same underlying structure, so that the semantic difference between Sentence (1) and Sentence (2) depends upon the movement rule for questions; the rule operated with respect to S_2 , or with respect to S_3 . Therefore, we cannot explain the semantic difference between them by the underlying analysis of indirect questions which simply generated *wh* in certain noun phrases.

However, we can easily explain the semantic difference by the underlying analysis of the sentence-initial Q. Applying the analysis of English in which a sentence-initial morpheme is posited, we can derive the two distinct underlying structures as follows:

(6)



(7)



From these two underlying structures, we can easily derive Sentence (1) and Sentence (2), respectively, by using the movement rule for questions as follows:

(8) Q X NP Y

1 2 3 4 \implies 1, 3+2, , 4

Condition: 3 > wh

The sentence-initial question morpheme posited in S_2 , or S_3 defines the meaning of the individual sentence; namely, the question morpheme defines the scope of *wh* words. As shown in the underlying structures, we can easily explain the semantic difference, using the sentence-initial question morpheme. Based upon the sentence-initial question morpheme, we cannot explain the further type of sentence, having the *wh*-word in the sentence-initial position. Therefore, Baker points out that the following sentence can be interpreted in two ways if we consider the possible answers.

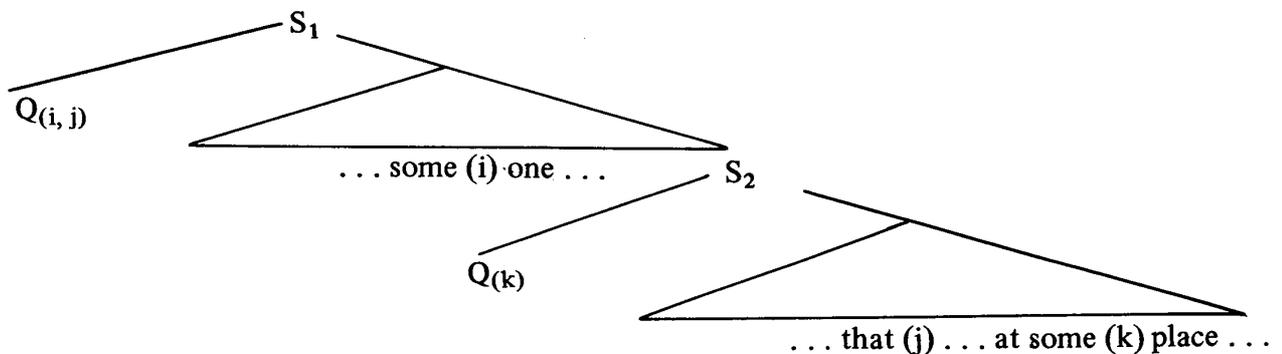
Sentence (9) Who remembers where we bought which book?

Sentence (10) John and Martha remember where we bought which book.

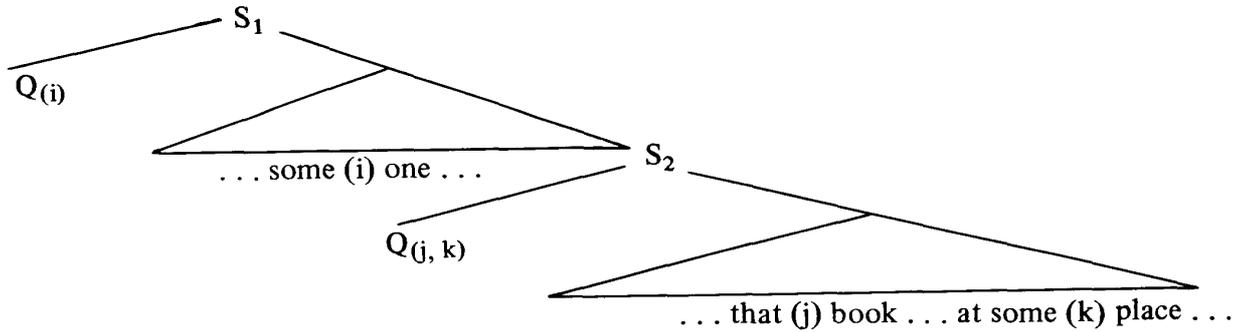
Sentence (11) John remembers where we bought the physics book and Martha and Ted remember where we bought *The Wizard of Oz*.

To explain the above possible answers, it is necessary that Q is conceived of as an operator. If we get an answer like Sentence (10), both *wh* may be understood as being associated with S_2 , and if we get an answer like Sentence (11), the phrase *which book* may be understood as being associated with S_1 . The distinct interpretations as shown by the possible answers will be described in the underlying structure, respectively.

(12)



(13)



If we interpret the underlying deep structure of Sentence (9) as (13), we can get a possible answer like Sentence (10). However, if we interpret the deep as (12), we can get a possible answer like Sentence (11).

Concerning the analysis of Baker, Hirschbühler claims that the analysis of Baker can be widely accepted, and against the analysis of Kuno & Robinson. He claims as follows:

Only *wh*-phrases associated with the root Q are part of the direct question and are to be replaced by the some value in the answer . . . In the more recent framework of Chomsky (1973; 1977; and subsequently), the (not fully developed) logical forms (LF) parallel to (3a) (= (13)) and (3b) (= (12)) are (4a) and (4b), respectively.

(4) a. { who x { x knows { which book y { where z { we bought y z } } } } }

b. { which book y { who x { x knows { where z { we bought y z } } } } }

Moved *wh*-phrases have scope over the clause to the front of which they are moved; unmoved ones have scope over a question clause headed by a *wh*-phrase which commands them.⁸

Concerning the interpretation of the iterated multiple questions, it is indeed true that Baker's analysis is generally accepted, though Kuno & Robinson suggested a different point of view, but a little modification seems to be necessary. Based upon the Baker's analysis, we cannot explain the inner character of *wh* words; Sentence (9), which contains three *wh*-words (*who*, *where*, *which*), is answered in two ways as Sentence (10) and Sentence (11). Considering the ambiguity of Sentence (9), some elements may influence upon the character of *wh*-words. There may be

8. P. Hirschbühler, "The Ambiguity of Iterated Multiple Questions," p. 136.

some relation between the position of *wh*-word and the inner character of *wh*-word. Furthermore, the specificity of iterated *wh*-questions may not be the same wherever they may appear. Indeed, the sentence-initial position have the strongest meaning of question, but we may not find the same degree of question meaning in the sentence-final position. The position of iterated questions may give a delicate different meaning to *wh*-words.

If we can define the scope of *wh*-words, we can more clearly explain the ambiguity of iterated questions. For the purpose of defining the scope of *wh*-words, the concept of cycle is very important. If the *wh*-words may appear in the higher cycle, the word may have a wider scope of question meaning. Therefore, Baker's analysis seems to be a little modification concerning the specificity, scope of *wh*-words, and its cycle.

III. General Survey of Kuno & Robinson's Approach

The approach of Kuno & Robinson has an attitude against Baker. By the analysis of Kuno & Robinson, such a sentence as Sentence (9) cannot be answered in two ways. To explain the interpretation of iterated multiple questions, Kuno & Robinson motivate the *Clause-Mate Constraint on Multiple Wh-words* as follows:

- (14) *The Clause Mate Constraint on Multiple Wh-words:*
Multiple *wh* words bound by the same Q must be clause mates at the time of application of Wh-Q Movements.⁹

Kuno & Robinson argue the analysis of Baker, mentioning the following sentence, which is similar to Sentence (9).

Sentence (15) Who knows where we bought these books?

In Sentence (15), the unmoved *wh*-phrase of Sentence (9) is replaced by a definite noun phrase, and the possible answers of Sentence (15) may be as follows:

Sentence (16) John does. (=John remembers where we bought these books.)

Sentence (17) John, Martha, and Ted do. (=John, Martha and Ted remember where we bought these books.)

Sentence (18) John remembers where we bought the physics book and Martha and Ted remember where we bought *The Wizard of Oz*.

In addition to these sentences, Kuno & Robinson mention the corresponding sentences as follows:

Sentence (19) Who bought these books?

9. S. Kuno & J. Robinson, "Multiple Wh Questions," p. 471.

Sentence (20) John did.

Sentence (21) John and Martha did.

Sentence (22) John bought the physics book and Martha bought the chemistry book.

Within the framework of Baker's analysis, it is impossible to consider that *these books* can have a question meaning; *these books* is bound by a question-morpheme.

The ambiguity of *wh*-phrases seems to depend upon the scope of *wh*-phrases. To explain the answer of Sentence (15), Kuno & Robinson explain as follows:

We hold that giving more information that is syntactically called for, namely giving constant values to *wh* words or other variables (such as *these books*) that are not bound by the matrix Q, is possible only when assigning constant values just to the matrix-Q-bound *wh* alone would constitute a counterfactual or inaccurate answer.¹⁰

To account for the hypothesis multiple iterated questions as Sentence (9) cannot be understood in two ways, Kuno & Robinson points out that the *Clause-Mate Constraint on Multiple Wh-words* as shown in (14) is essential. However, it is clear that the theory of *Clause-Mate Constraint on Multiple Wh-words* suggested by Kuno & Robinson is not sufficient as shown in the following well-formed questions that violate the constraint, as suggested by Hankamer.¹¹

Sentence (23) What I can't remember is *which recipe* requires that I buy *which spice*. *The Clause Mate Constraint* cannot explain the above sentence, so that some kind of constraint is necessary to account for the sentence which violate the *Clause Mate Constraint on Multiple Wh-words*. Therefore, a little modification has been made; the following reformulation seems to be more naturally accepted:

(24) *Scope of Unmoved Wh-Phrases:*

Unmoved *wh*-phrases must be bound by the first Q that commands them in surface structure.

As shown by Kuno & Robinson, the binding relationship of multiple *wh* words seems to remind us of the observation by Langaker.

Concerning the interpretation of the ambiguity, Hirschbühler points out the evidence that

10. *Ibid.*, p. 481.

11. J. Hankamer, "On WH-Indexing," in J. Aissen and J. Hankamer, eds., *Papers from the Fifth Meeting of the North Eastern Linguistic Society*, Department of Linguistics, Harvard University, Cambridge, Massachusetts, 1974, Sec. 2.1.

support the interpretation suggested by Baker. To decide whether his suggestion is correct or not, we need lots of explanation, so that I want to consider the hypothesis in the next paper, and, furthermore, I want to deal with the concept of specificity about multiple iterated questions.

(To be continued in the next number)

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