

To doubt whether

Lauri Karttunen  
University of Texas at Austin

As observed in Karttunen 1977, all types of subordinate questions occur in virtually the same syntactic environments. Verbs that embed whether-questions generally also embed wh-questions, and vice versa. The verb doubt in one of the few exceptions; it only embeds whether-questions. (Whether can be replaced by if in colloquial English.)

- (1) I doubt whether they serve breakfast.
- (2) \*I doubt what they serve for breakfast.

Another apparent peculiarity is that only yes/no whether-questions can occur as complements of doubt, disjunctive questions are excluded. This can be seen by considering examples like (3), (4), and (5).

- (3) Do they serve tea or coffee?
- (4) I wonder whether they serve tea or coffee.
- (5) I doubt whether they serve tea or coffee.

In its written form, the direct question in (3) is ambiguous. It can be read either as a yes/no question (cf. "Do they serve either tea or coffee?") or as a disjunctive question (cf. "Do they serve tea or do they serve coffee?"). The corresponding subordinate question in (4) shows the same ambiguity. On the yes/no reading (4) says that I wish to know the truth value of the sentence "They serve tea or coffee." On the disjunctive reading (4) implicates that I believe that either tea or coffee is being served and says that I would like to know which. In the light of this, it is very curious that there is no such ambiguity in (5). (5) simply says that I am not prepared to believe that they serve tea or coffee. This seems to correspond to the yes/no reading of (4); it is quite impossible to interpret (5) as containing a disjunctive whether-clause.

So far we have established the following: (i) doubt does not embed wh-questions, (ii) doubt does not embed disjunctive whether-questions. A third peculiarity is that, in (1) and (5), whether cannot be expanded to whether or not, although the latter in general is an optional variant of whether in yes/no questions. In the following I will argue that the embedded whether-clauses in (1) and (5) are not genuine subordinate questions at all.

First of all, note that in these sentences whether can be replaced by that with no change in meaning: (1) and (5) are synonymous with (6) and (7), respectively.

- (6) I doubt that they serve breakfast.
- (7) I doubt that they serve tea or coffee.

(There are dialects of English where doubt that means "suspect that." In these dialects (1)-(5) and (6)-(7) obviously differ in meaning.) This interchangeability of whether and that after doubt is quite exceptional. No other verb that embeds both questions and that-clauses behaves like doubt in this respect. (The only other exceptions I know of are constructions like be not sure, be dubious.) For example, (8) and (9) clearly mean something different.

(8) Only she knows whether they serve breakfast.

(9) Only she knows that they serve breakfast.

The main reason, however, for not regarding the whether-clauses in (1) and (5) as genuine embedded questions is a semantic one. According to the model-theoretic interpretation of questions proposed in Karttunen 1977 and Karttunen and Peters 1976, subordinate questions denote sets of propositions. For instance, under this theory whether they serve breakfast denotes, in a world *i*, the unit set containing either the proposition that they serve breakfast or the proposition that they don't serve breakfast, depending on which of these is true in *i*. This type of semantic value, which seems to work for all other question embedding verbs, is inappropriate for explicating the meaning of the doubt whether construction. (1) plainly does not mean that the speaker stands in a relation of disbelief to whichever of the two alternative propositions is the true one; it means that he doesn't believe the proposition that they serve breakfast. Unless the whether-clause in (1) is interpreted as expressing that proposition, there is no way to get the meaning to come out right.

In the light of this, it is significant that doubt does not embed either wh-questions or disjunctive whether-questions. Otherwise the facts would be difficult to explain. Admittedly it is a bit suspect to say, as we are forced to do, that in (1) and (5) whether is just a funny variant of that. Fortunately this is not the only instance of an interrogative complementizer filling in for that. Examples like the following show that how can also play the role of that in some contexts. Note that (10) is ambiguous between an "in which manner"- and a "that"-reading.

(10) They told me how they serve breakfast every morning.

Although the proposed solution seems well-motivated for English, it does not explain why the same phenomenon shows up in other languages. Why is it that the Finnish translation of (1) also contains an embedded clause which semantically is a that-clause but syntactically looks like a subordinate yes/no question?

#### References

- Karttunen, Lauri (1977) "Syntax and Semantics of Questions," Linguistics and Philosophy 1:1 3-44.  
Karttunen, Lauri and Stanley Peters (1976) "What Indirect Questions Conventionally Implicate," CLS 12 381-97.