

WH-COMPLEMENTIZERS

I. INTRODUCTION

In this paper¹ I will argue:

- A. that *wh*-predicate complements (so-called embedded or indirect questions) must be distinguished as containing two different complementizers at the deep structure level, which I call *wh-Q* and *wh-that*.
- B. that predicate complements introduced by the surface complementizer *that* must be distinguished as involving different deep structure complementizers, *that* and *wh-that*.

The following examples illustrate the distribution of complementizers that I will be trying to establish:

- (1) I wonder where John went. (*wh-Q*)
- (2) I know where John went. (*wh-that*)

In other words, I will be arguing that not all so-called embedded questions or indirect questions involve a *Q*-morpheme.

I will also argue that there are two different deep structure complementizers in, e.g.:

- (3) I know that John went home. (*wh-that*)
- (4) I believe that John went home. (*that*)²

Finally, I will argue (though it is a consequence of the claims A and B above):

- C. that there is a single deep structure complementizer in (2) and (3) above, namely *wh-that*.

These claims are of course *prima facie* implausible, for complementizers which appear to be the same are distinguished and complementizers which appear to be different are assimilated.

II. WH-Q VERSUS WH-THAT

It is fairly recently that linguists have come to treat wh-predicate complements as all being the same. For example, Katz and Postal do not claim that all wh-predicate complements have a Q-morpheme.³ But since the time of that book, the idea that all wh-predicate complements are questions has become so entrenched⁴ that it is built into linguistic terminology: wh-predicate complements are commonly referred to as indirect or embedded questions (though sometimes these expressions appear within quotation marks).

The shift to assimilating all wh-predicate complements is not unmotivated. Non-embedded questions sometimes (if not always) begin with a wh-word (who, when, why, where, etc.) and the same movement rules which move a wh-morpheme into sentence initial position in a question apparently can be used to move a wh-morpheme to the front of an embedded sentence (perhaps into COMP position), and more controversially, to the front of relative clauses.

On the other hand, there are many ways in which the wh-complements embedded under *wonder* (and *ask*) behave like questions, whereas wh-complements embedded under e.g., *know* (*realize*, *discover*) do not.

A. Sentences with "ever"

The word *ever* is restricted to question and negative contexts.⁵

- (5) I don't ever go there.
- (6) *I ever go there.
- (7) Have you ever been to St. Louis?
- (8) *You have ever been to St. Louis.

Apparently, the presence of a *Q* or *Neg* in the matrix sentence suffices to provide a context for *ever* in the embedded sentence:

- (9) Do you think that he will ever do it?
- (10) I don't know how he ever did it.
- (11) *I know how he ever did it.

It is crucial that *x-know-wh-y* does not provide a context for *ever*. For on the view that *know-wh-* is an embedded question construction, (11) should have been grammatical. On the other hand, *wonder* provides a context for *ever* without a *neg* or sentence initial *Q*:

- (12) I wonder how he ever did it.

B. Sentences with “any”

Words of the *any* family (e.g., *any*, *anyone*, *anywhere*) require a *Neg* or *Q* context:⁶

- (13) I haven’t seen anyone today.
 (14) *I have seen anyone today.
 (15) Has he seen anyone today?
 (16) *He has seen anyone today.

As in the examples with *ever* above, a *Neg* or *Q* in the matrix sentence provides a context for an *any*-word in the embedded sentence:

- (17) Do you know why anyone bothers to listen to him?
 (18) I don’t know why anyone bothers to listen to him.
 (19) *I know why anyone bothers to listen to him.

Again, whereas *x-know-wh-y* does not provide a context for *any*-words, *x-wonder-wh-y* does:

- (20) *I know why anyone bothers to listen to him.
 (21) I wonder why anyone bothers to listen to him.

C. ‘That is’ Expansion⁷

In conversation, a speaker will sometimes say something, and then say something more specific, or fill in particulars:

- (22) I now realize where that noise is coming from: {namely/that is} {(I now realize that) it’s coming from} the trunk.
 (23) I know what you bought: {namely/that is} {(I know that) you bought} a watch.

Wonder, on the other hand, does not work in this way. Rather, its complement “expands” into a *disjunction of questions*:

- (24) I wonder what he wants: {namely/that is} {does he want/is it} a watch, or a sweater, or etc?

As we see, the expansion of *wonder wh-* is interrogative, whereas this is

not true for *know wh-*. Incidentally, *don't know wh-* behaves like *wonder wh-* and not like *know wh-*.

- (25) I don't know what he wants: {namely/that is} {does he want/is it} a watch, or a sweater, or etc?

D. *An Argument from the Semantics of Wh-complements*

If we think of knowing, believing and wondering as mental states, they are mental states which have *contents*. To know, believe or wonder is to know or believe or wonder *something*. We can think of the complements of these verbs as giving the contents of the mental states. Thus, when I say that I know that John is tall, I am giving the content of my mental state of knowing, viz., that John is tall. When I say that I know how tall John is, I am *indicating* the content of my knowledge, though not giving it.

On the other hand, to *wonder* is to have a question in one's mind. Put another way, the content of the mental state of wondering is a question. For example, to wonder how tall John is is to have in mind the question of how tall John is.

The intuitive difference between what it is to know and what it is to wonder dovetails nearly with the view that *wonder wh-* is an embedded question construction whereas *know wh-* is not. The intuitive idea that to wonder is to have a question in one's mind whereas to know is not is left unexplained and indeed somewhat mysterious on the view that *know*, as well as *wonder*, takes an embedded question as a complement.

E. "The Answer to the Question 'Wh. .'"

One might be tempted to argue that the meaning of *I know where John went* (= 2 above) can be rendered as

- (26) I know the answer to the question "Where did John go?"

and that therefore (2) contains an embedded question after all. Obviously there is a semantic connection between (2) and (26). Indeed, (2) and (26) are synonymous. But to know *the answer to the question 'wh. .'* is to know *what the answer is*. That is, the phrase *the answer to the question 'wh. .'* itself behaves very much like (and may ultimately have to be analyzed as being) a *wh-*construction when it appears as a sentential predicate complement (cf., note 9), and so this analysis leaves the problem precisely where it began: the nature of *wh-*constructions.

Several writers have fallen into this trap in their discussion of the semantics of wh-predicate complements. For example, Bresnan (1972) writes (p. 63):

'Embedded questions' would be interpreted as in (7b):

- (7b) *She asked which one you liked* = She asked [you liked WH (that) one; undetermined reference of *that*] i.e., 'She asked the reference of *x* in *you liked x one*'

But the phrase *the reference of x* in this analysis must be understood not as a referring expression, but rather as itself a wh-phrase, i.e., as equivalent to 'what the reference of *x* is'. Thus it is vacuous as an *analysis* of how wh-words function. (It must be noted, however, that Bresnan is not misled by this formulation. She treats wh-predicate complements as open sentences, i.e., as sentences containing an unbound variable or variables. I find nothing to disagree with in this way of conceiving of them.)

Karttunen (1977) makes an analogous mistake in his discussion of wh-constructions. He writes (p. 16):

... I choose to make questions denote the set of propositions expressed by their *true* answers. ... For example, a sentence like

Who is elected depends on who is running.

obviously says that the true answer to the question in the subject position depends on the true answer to the question in the object position.

I have no quarrel with the claim that

- (27) Who is elected depends on who is running.

is equivalent in meaning to:

- (28) The true answer to the question "Who is elected?" depends on the true answer to the question "Who is running?"

But once again, there is an element of vacuity in this analysis if it is meant to show how wh-constructions work. For the phrase *the true answer* in (28) must be understood not as a definite description which denotes some proposition, but as itself syntactically a wh-expression. The phrase *the true answer* as it occurs in (28) must be read 'what the true answer is'. If we read *the true answer* as it occurs in (28) as a definite description, nonsense results. This can be seen by substituting for the phrase *the true answer* in (28) an expression which is a definite description, for example, *the proposition which Smith just expressed*. But when we substitute such an expression into the frame _____ depends on _____, nonsense results.⁸

- (29) *The proposition which Smith just expressed depends on the proposition which Jones just expressed.

(There is a way of reading (29), though it is somewhat awkward:

- (30) Which proposition Smith just expressed depends on which proposition Jones just expressed.

But this only shows that one way of reading an expression of the form "the so and so" is as a wh-construction.)

What has gone wrong can perhaps best be brought out by an analogy. The phrase *the true answer* is ambiguous like the phrase *his telephone number*. Consider:

- (31) *His telephone number* has no threes in it.

- (32) I told John *his telephone number*.

We can say that the phrase *his telephone number* in (31) denotes a certain number, e.g., the (telephone) number 942-7509, which indeed has no threes in it. But in (32) the phrase *his telephone number* does not so denote a number. Rather it means:

- (33) I told John *what his telephone number is*.

Hence the ungrammaticality of

- (34) *I told John (the number) 942-7509.

In saying that wh-expressions denote true propositions, Karttunen has made two mistakes. He has, as it were, analyzed (33) as meaning (32) (which is acceptable as a paraphrase but vacuous as an analysis) and then taken (32) as though it contained the same expression as (31) (which is neither vacuous nor acceptable as an analysis). This is not so easily seen in Karttunen's analysis because he is using the phrase *the true answer* which he takes to denote a proposition or set of proposition, whereas I have used the phrase *his telephone number*. But the ambiguity is the same.

As in the case of my criticism of Bresnan, a qualification is in order. Karttunen is laying the groundwork for giving an analysis of wh-constructions in Montague Grammar. I find it plausible to analyse wh-constructions as open sentences which in turn can be viewed as functions to propositions or perhaps "truths". But, to put it crudely, in Montague Grammar *every* expression denotes *something*; if nothing else, it denotes a function. So in such a *theory*, the phrase *his telephone number* as it occurs in (32) denotes, say, a function to a proposition. But even so, a

distinction needs to be made. The phrase *his telephone number* in (32) does not denote in the same way that it does in (31). Or, to put it another way, the phrase *his telephone number* in (32) is not a definite description. In exactly the same way, *the true answer* in (28) is not a definite description which picks out or refers to a proposition or set of propositions, though there may be a perfectly acceptable theory in which it denotes, say, a function to a set of true propositions. Even so, the mere fact that (28) is a paraphrase of (27) does not constitute an argument for that theory (though we would hope that our ultimate grammar would predict the synonymy of (28) and (27)). And since the expression *the true answer to the question* as it occurs in (28) is not a definite description referring to the answer to some question, it is hard to see how the fact that (27) can be paraphrased as (28) constitutes an argument for the claim that wh-constructions are embedded questions.

Still, (27) and (28) *are* synonymous. And (28) does contain the notion “question”. Does this not show that wh-constructions *somehow* involve question (and/or their answers)?

Even this weaker claim does not stand up. First, although (27) and (28) are synonymous, it is not true that in general wh-predicate complements can be rendered in the form “the answer to the question ‘X’”. For example, this will not work for

(35) I explained how (why) he did it.

which does not mean

(36) I explained the answer to the question, “How (why) did he do it?”

and

(37) I observed how he did it.

does not mean

(38) I observed the answer to the question, “How did he do it?”

And, most interestingly,

(39) I wonder how he did it.

does not mean

(40) *I wonder the answer to the question, “How did he do it?”⁹

Secondly, though there is certainly a relationship of synonymy between *I know where John went* and *I know the answer to the question “Where did*

John go?” there are analogous renderings of *I know where John went* which make no mention of questions. For example, the meaning of *I know where John went* is captured just as well (though hardly idiomatically) by

- (41) I know the value which, when plugged in for X (location) in “I know that John went X (location)” yields a true sentence.

Since there is no mention of any question in this gloss, the fact that there can be a gloss of the form “the answer to the question . . .” provides less than compelling reason to suppose that *wh*-constructions are questions. And there are other such glosses. For example, one could give as a gloss of *I know where John went* the following:

- (42) I know the utterance which satisfies the imperative “Tell me where John went.”

Would this show that *I know where John went* contains an embedded imperative?

F. *An Alternative*

Though I have been arguing that a distinction must be made between the *wh*-complementizer which contains (or is) *Q* and that which does (is) not, one could take instead the view that there is a class of *interrogative verbs* which includes *wonder* and *ask*, and that it is a *lexical feature*, say +*Q*, which provides the context for *any* and *ever*. On this view, there is only one *wh*-complementizer, and it is not interrogative.

There are advantages to this way of handling the data. First, the class of verbs which provide a context for *any* and *ever* is small and it is more reasonable to handle “special” verbs by subcategorization features where this can be done, rather than to propose a complementizer which only occurs with two or three verbs. Secondly, there is a class of sentential verbs which are intuitively negative in character, such as *deny* and *refuse*, and which provide a context for *any* and *ever*:

- (43) *He admitted ever having been there.
 (44) He denied ever having been there.
 (45) *He agreed to have anything to do with it.
 (46) He refused to have anything to do with it.

If one acknowledged a class of negative verbs which provide a context

for *any* and *ever* without a special complementizer, it would seem ad hoc to treat the interrogative verbs in a different way.

This proposal does away entirely with the notion of an embedded question. But perhaps this should not be a cause for lamenting, for the notion of an "embedded question" is conceptually suspect to begin with. The notion of a question is a notion which belongs to the level of speech acts. Its sisters are such things as commands, requests, claims, promises, assertions, admissions, etc. In other words, it is a sentence as uttered in a context with a particular force which is a question, and not e.g., a form of words or a deep structure, much less part of a deep structure.

Nothing in the proposal to eliminate altogether the notion of an embedded question need effect the semantics of embedded wh-constructions, such as discussed in theories like that of Karttunen (1977). Embedded wh-constructions can be treated as open sentences which in turn can be treated as functions to truth. Matrix sentences which would usually be associated with asking a question, such as:

(47) It is raining?

could also be treated as such functions.

G. Summary

I have argued that so-called embedded questions do not generally display evidence of a Q-morpheme. However, the complements of a small class of verbs, including *wonder* and *ask*, indicate the presence of *Q* somewhere in the environment. Two ways of handling the data are proposed. The first is to distinguish between two wh-complementizers: *Wh-Q* and *wh-that*. *Wh-Q* would go with such verbs as *wonder* and *ask* while *wh-that* would go with such verbs as *know*, *discover*, *reveal*, etc. The alternative is simply to abandon the notion of an *embedded question* altogether and instead mark the 'interrogative' verbs as having a *Q* feature which governs their complements.

III. WH-THAT VERSUS THAT

In this section I will argue that there are two distinct deep structure complementizers underlying surface sentential predicate complements beginning with *that*.

A. *Wh-movement rules for 'know', 'believe', and 'tell'*

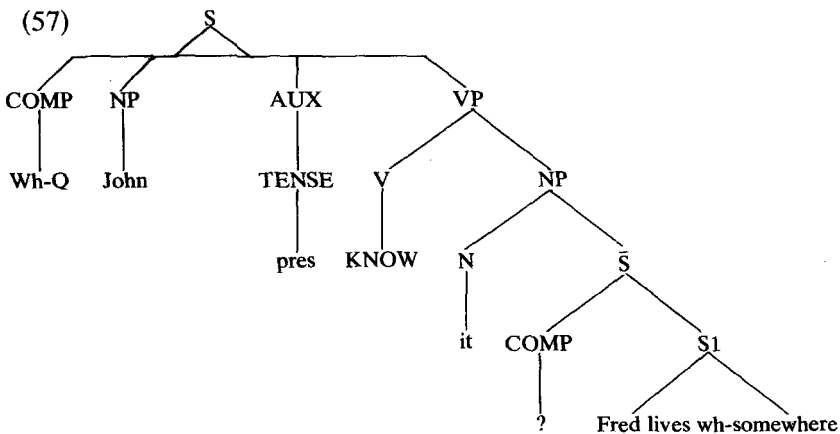
The behavior of *wh-movement* is different for the three verbs *know*, *believe* and *tell*, as the following examples illustrate:

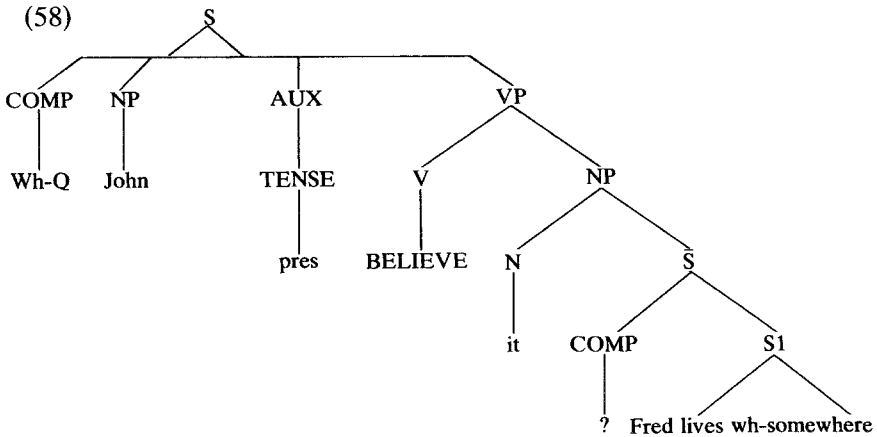
- (48) John knows *where* Fred lives.
 (49) **Where* does John know (that) Fred lives?¹⁰
 (50) *John believes *where* Fred lives.¹¹
 (51) *Where* does John believe (that) Fred lives?
 (52) John told Sam *where* Fred lives.
 (53) *Where* did John tell Sam (that) Fred lives?

On the other hand, all three of these verbs can appear with the complementizer *that*:

- (54) John know (that) Fred lives in Cleveland.
 (55) John believes (that) Fred lives in Cleveland.
 (56) John told Sam (that) Fred lives in Cleveland.

Let us begin by comparing *know* with *believe*. Consider the following two parallel deep structures:





Though these deep structures differ only in the main verb, they must not be allowed to produce similar surface structures. From (57), we want it to be possible to derive

(59) Does John know where Fred lives?

but not

(60) *Where does John know (that) Fred lives?

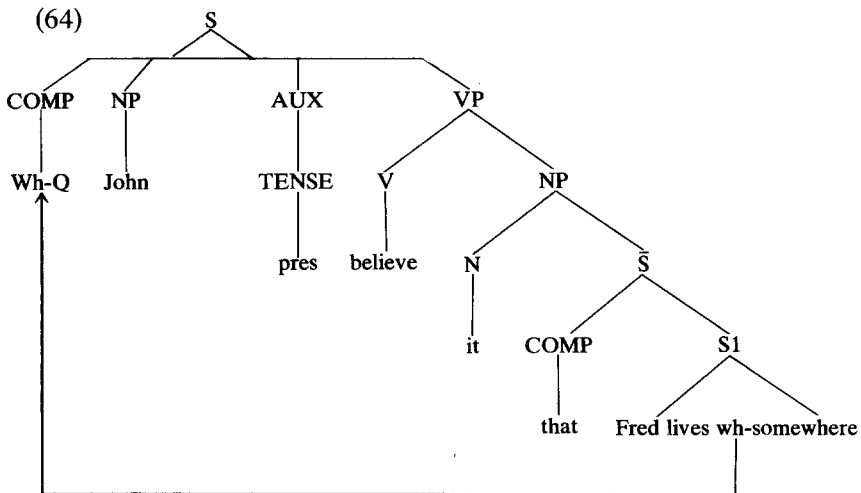
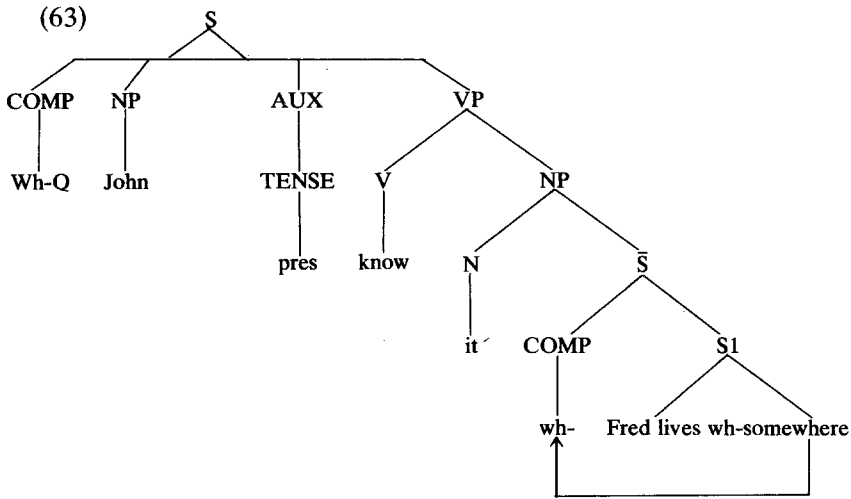
On the other hand, from (58) it should be possible, via suitable transformation rules, to derive

(61) Where does John believe (that) Fred lives?

but not

(62) *Does John believe where Fred lives?¹²

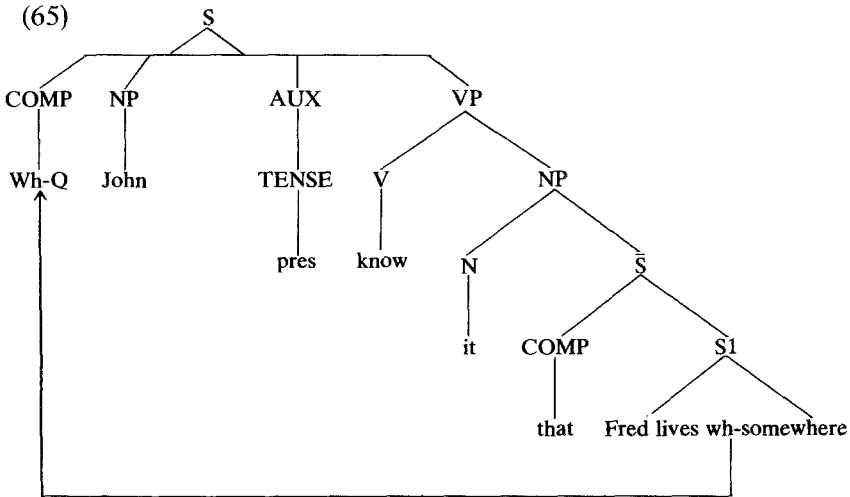
The natural place to look for a way of handling this difference is in the COMP position under bar-S. If we put *wh-* into COMP position in (57) and *that* into COMP in (58), we could easily get the desired results. Wh-fronting can be viewed as moving *wh-something*, *wh-someone*, etc. leftward to the first *wh-complementizer*. In the case of an embedded sentence governed by *know* it moves only to the front of the embedded sentence ((63) below). In the case of *believe* ((64) below) it moves *out* of the embedded sentence (past the embedded complementizer) to the front of the matrix sentence:



Furthermore, it seems reasonable to prohibit (by strict subcategorization) *believe* from ever taking *wh-* as a COMP, so the ungrammatical (62) would never be generated.

However, a serious problem remains. As traditionally conceived, *know* not only takes *wh-* as a complementizer, but also *that*, as in *John knows (that) Fred lives in Cleveland*. On the assumption that *know* can take *that* in deep structure, there seems to be no way to block the production of **Where does John know (that) Fred lives?* The reason why things go wrong is this. Since *know* can presumably take *that* as a complementizer,

we would expect that we could insert *that* into COMP position under bar-S in (57) above. But if we do this, wh-movement would proceed exactly like it does in the case of *believe* in (64), yielding the ungrammatical **Where does John know that Fred lives*.



*Where does John know (that) Fred lives?¹³

The solution¹⁴ I propose is that the surface complementizer *that* arises from two different deep structure complementizers: *that* and *wh-that*.¹⁵ *Believe* takes the complementizer *that*; *know* takes *wh-that*; *tell* is subcategorized to take either. The principles that govern wh-movement are:¹⁶

- (66)(a) Wh-movement is cyclic.
- (b) Wh-movement is triggered only by wh-Q or wh-that.
- (c) Wh-fronting moves wh-somewhere, wh-something, etc., leftward to the first wh- under COMP and no further.
- (d) Wh-someone, wh-something, etc., can only occur in the context of a wh-complementizer (wh-that or wh-Q). However, a wh-complementizer can occur without a wh-something or, etc.

Let us illustrate the way these rules work with a few examples. In the case of

(67) John knows wh-that Fred lives wh-somewhere

wh-that attracts wh-somewhere yielding

(68) John knows *where* Fred lives.

Know can also take a complementizer which does *not* contain a wh-morpheme like wh-someone or wh-somewhere:

(69) John knows wh-that Fred lives in Cleveland.

Here there is no wh-proform to be attracted by wh-that. When this occurs, wh-that surfaces as *that* (and is sometimes deletable). This is the source of *that* in *know that*.

Finally, we can deal with our problem cases (cf. (59)–(62)).

(70) Wh-Q John knows wh-that Fred lives wh-somewhere

produces

(71) Does John know where Fred lives?

and not

(72) *Where does John know (that) Fred lives?

because wh-somewhere moves to wh-that. On the other hand,

(73) Wh-Q John believes that Fred lives wh-somewhere

produces

(74) Where does John believe (that) Fred lives?

but not

(75) *Does John believe where Fred lives?

because *wh-somewhere*, failing to find a wh-word in the embedded COMP, moves all the way to the sentence initial *wh-Q*. (*Wh-Q*, when it is sentence initial and unfused with a wh-something or, etc., triggers subject-auxiliary inversion and quietly disappears.)

B. *Tell*

The verb *tell* behaves on the one hand like *know* (and not *believe*) in that it can take wh-complements:

(76) John knows *where* Fred lives.

(77) *John believes *where* Fred lives.

(78) John told Sam *where* Fred lives.

On the other hand, *tell* behaves like *believe* (and not like *know*) in that a sentence with *tell* can have an embedded wh-word fronted all the way to sentence initial position:

- (79) **Where* does John know (that) Fred lives?
 (80) *Where* does John believe (that) Fred lives?
 (81) *Where* did John tell Sam (that) Fred lives?

The puzzling behavior of *tell* is predicted by the view that whereas *know* is subcategorized for *wh-that* but not *that*, and whereas *believe* is subcategorized for *that* but not *wh-that*, *tell* is subcategorized for both. When *tell* occurs with *that* it behaves like *believe*. When it occurs with *wh-that* it behaves like *know*.

The hypothesis that there are two deep structure sources for the surface *that* provides a means not only of accounting for the relevant body of syntactic data (viz., that *wh-movement* is different for the three verbs *know*, *believe* and *tell*) but also with a way of accounting for the fact that *tell* behaves *semantically* in two quite different ways: on the one hand like *know* and on the other like *believe*. In some constructions, *tell* means something like “inform” or “reveal”:

- (82) I told him where he could get some gas.
 (83) I told him who had started the rumors.

Here *tell* behaves semantically like *know* in that it is in a certain respect a factive verb. In these examples, it is understood that what I told him is the case. On the other hand, *tell* can mean something like “claim” or “state”:

- (84) I told him that the station on the corner was open (through I knew that it wasn't).

Here *tell* is non-factive, like *believe*. There is no implication that what I told him is the case. Similarly,

- (85) Tell him where it is!

is an imperative to tell the truth, whereas

- (86) Tell him that it is in the cupboard!

is not.

(Notice that in the case of *know*, there is an implication of truth both in the case of a surface *wh-complement* (e.g., *know where it is*) and in the case of a surface *that complement* (e.g., *know that it is in the cupboard*). On the view that the complementizer is really the same in both cases, namely *wh-that*, this is exactly what one would expect.

(Karttunen (1977) notices the difference in the truth implications between *tell wh-* and *tell that*. Indeed, he uses this difference in support

of the claim that “embedded questions” should be thought of as denoting a set of true propositions. But he fails to notice that both *know wh-* and *know that* have a truth implication. How is he to explain the truth implication of *know that*? His analysis of *wh*-constructions could perhaps be saved on this point if he were to accept the proposal that *know* always takes a *wh*-complementizer at the deep structure level. However, Karttunen may not be willing to pay the price that he would have to pay to take this route. For if *know* always takes a deep structure *wh*-complementizer, and the *wh*-complementizer is (which it is, on this view) an embedded question, then it follows that the deep structure of *know that p* contains an embedded question . . . a rather unwelcome result.)

All that is needed to put some order into this array of observations is the hypothesis that *wh-that* marks a factive construction (i.e., carries a truth implication) whereas *that* simpliciter in deep structure does not mark a factive construction.¹⁷ Since *know* is only subcategorized to take *wh-that*, and *tell* can take either *wh-that* or *that*, *know* is always factive whereas *tell* is sometimes factive and sometimes not.

If surface *that* has two deep structure sources, *that* and *wh-that*, and if *tell* sometimes takes one and sometimes the other, it would follow that *tell that* is ambiguous. If it is further argued that *wh-that* carries a truth implication, whereas the deep structure *that* does not, the ambiguity should show up in one sense of *tell that* where there is a truth implication and another sense where there is none. And in fact, *tell that* is ambiguous in just this way. As is common with ambiguity, context helps to determine in what way the ambiguous expression is to be taken. For example, imagine that a meeting has been moved up to an earlier time, and all the participants are present except Fred. After a short wait, the chairman asks:

- (87) Didn't anyone tell Fred that the meeting time had been changed?

Here, it would be clear from the context that *tell* was being used in the sense of *inform*, i.e., as having a truth implication. Indeed, dictionaries routinely have a separate entry for this sense of the verb *tell*.

Both the “state” sense and the “inform” sense of *tell* are speech act senses of *tell*. But there is a non-speech act sense of *tell* as well. In this sense, *tell* means something like “discern” or “detect”. An example of this sense is:

- (88) John could *tell* (that) Fred had put the money in the cupboard.
 (89) John could *tell* where Fred had put the money.

In both these examples, there is unambiguously a truth implication to the effect that what John could “tell” was in fact the case. In short, this sense of *tell* behaves just like verbs of the *known* family in that it is always factive. Further, just like *know*, the “discern” sense of *tell* does not permit wh-fronting into sentence initial position:

- (90) *Where could John tell (that) Fred had put the money?

We have seen the pattern before. The verb *tell* in the sense of “discern” in unambiguous with respect to truth implication, and does not permit wh-fronting into sentence initial position. Thus it has the deep structure complementizer *wh-that*. On the other hand, in the case of the speech act *tell*, there are two different senses (the “state” sense and the “inform” sense). Thus there can be wh-fronting into sentence initial position, with no truth implication, or the wh-fronting can remain at the embedded level, and carries a truth implication. The explanation is that there is an ambiguity in the case of the speech act *tell* which arises from the fact that there can be two different deep-structure complementizers, *wh-that* and *that*.

C. Comparison with Chomsky

Chomsky’s theory of complementation centers on two papers, Chomsky (1973) and Chomsky and Lasnik (1977). To make a full comparison would be a lengthy undertaking, but for our purposes we can get along with a brief sketch of his proposal. Chomsky distinguishes two wh-morphemes, which he calls +wh and –wh. The former is a Q morpheme, following Bresnan (1970). The latter produces, in certain circumstances, relative clauses. In the wrong circumstances it produces uninterpretable sentences, and in yet another circumstance it is the source of surface *that*. *Wonder* is lexically +wh. *Believe* is –wh. *Tell* can be +wh or –wh. So far this sounds not too different from my schema. But there are crucial differences. In Chomsky’s system

- (91) John believes (that) Fred put the money in the cupboard.

arises from

- (92) John believes –wh Fred put the money in the cupboard.

by a rule which converts –wh to that in appropriate circumstances. So far so good. But what about *know*? Chomsky and Lasnik (1977) classify *know* as taking +wh or –wh (p. 445), but let us consider all possibilities:

- (a) *Know* takes +wh only (like *wonder*)
- (b) *Know* takes –wh only (like *believe*)
- (c) *Know* takes +wh or –wh (like *tell*)

If *know* takes +wh only, like *wonder*, then there is no way to generate

- (93) John knows that Fred put the money in the cupboard.

since *that* on Chomsky's view comes from –wh. If *know* takes –wh only, like *believe*, then (93) can be generated, but so too can

- (94) *Where does John know (that) Fred put the money?

And if *know* can take either +wh or –wh, like *tell*, then it can take –wh, and so on again (94) will be generated. Further, there would be no account of the fact that *know* always has a truth presupposition but *tell* does not.

The same sort of difficulties arise for Chomsky's view in the face of the speech act vs. non-speech act senses of *tell*. The speech act senses of *tell* have a truth implying and a non truth implying occurrence, whereas the non-speech act sense only has a truth implying occurrence (and no wh-fronting to sentence initial position). Since, on Chomsky's view, all "that's" have a single deep structure source, –wh, he has no way of accounting for this particular panoply of properties.¹⁸

D. *Wh-Q Reconsidered*

In section II, we suggested that many of the Q related properties of sentences with the verb *wonder* or *ask*, such as allowing *any* and *ever*, could be handled simply by marking these verbs as +interrogative, or some such feature. The reason for doing this is that this class of verbs is very small, and hardly seems to warrant a complementizer all to itself. However, at that time nothing was said about wh-movement with these verbs. It turns out the wh-movement for verbs such as *wonder* and *ask* is restricted in just the way that it is for the *know* family. Wh-fronting is not permitted into sentence initial position:

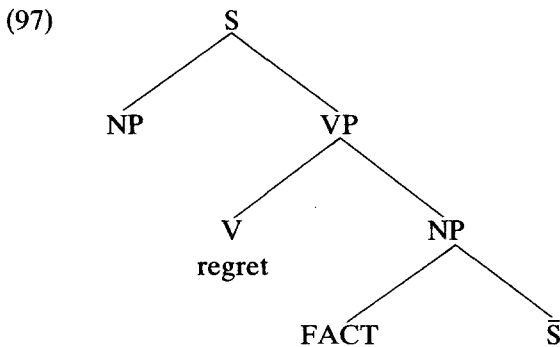
- (95) *Where does John wonder that he put the money?
- (96) *Who did John ask (that) put the money in the cupboard?

If we go back to a three complementizer system, wh-Q, wh-that, and that, then we can handle wh-movement with one rule, namely, that the wh-word (wh-something or, etc.) moves leftward until the first wh-comp,

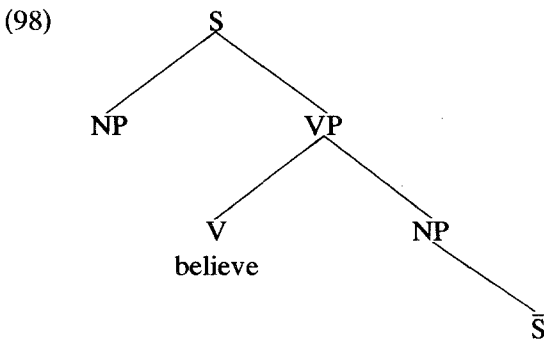
where it fuses with the wh-complementizer. Furthermore, such a view would have the advantage of relating the wh-movement rules for interrogative verbs to their other interrogative characteristics, somewhat like the wh-movement rules for verbs of the *know* family were connected with their truth-presupposition.¹⁹

E. *Factives*

Verbs whose matrix sentences presuppose the truth of their complements, such as *know* and *realize*, were called *factives* in a 1970 study by the linguists Paul and Carol Kiparsky.²⁰ In their analysis, they focus on *regret* and *resent* and postulate, as an account of their semantic behavior, an underlying head noun, *FACT*, in deep structure. Schematically, the deep structure of sentences with a factive verb like *regret* would look something like this:



The deep structure of a sentence governed by a non-factive verb would, on the other hand, look something like this:



They also postulate an optional Fact-Deletion transformation. When this transformation operates, we get a sentence like:

(99) John regrets that he hurt your feelings.

When it does not, we get:

(100) John regrets the fact that he hurt your feelings.

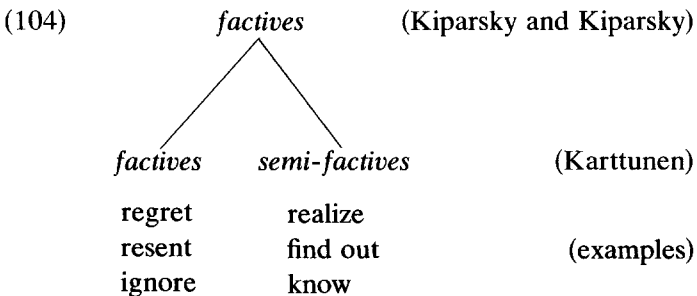
There is a problem with this as a general analysis of the so-called factive verbs. Many of the truth presupposing verbs never appear with the *the fact* construction. Examples are:

(101) *John knows the fact that he hurt your feelings.

(102) *John realizes the fact that he hurt your feelings.

(103) *John found out the fact that he hurt your feelings.

Kiparsky and Kiparsky²¹ note this in a footnote near the beginning of their paper; that is, they note that some factives do not appear with the *the fact* construction (and are hence syntactically non-factive) even though they signal a truth-presupposition (i.e., are semantically factive). They are surprisingly unconcerned by this anomaly, and it never comes up again in the paper. In a later paper, Lauri Karttunen²² argued that there is a difference in the way that the presupposition of truth behaves with some of the so-called factives and the way it behaves with others. On the basis of this difference, he proposed to divide the class of factives into two groups: the *true* factives, which he calls *factives*, and *semi-factives*. This can be summarized more prespicuously by a diagram:



Although conceding that there may be good reason to divide the truth-presupposing verbs into two classes in this way, Stalnaker²³ argued that the verbs did not divide in any systematic way in terms of presupposition. And indeed, there *are* other reasons for maintaining Karttunen's division between factive and semi-factives.

Wh-words are sometimes wh-complementizers and sometimes free relatives. Sentences containing a wh-word are sometimes ambiguous between the two. An example is

(105) I discovered *what John discovered*.

Read one way it could be paraphrased as:

(106) John discovered something, and I discovered *that thing which John discovered*.

But read another way, it means something like:

(107) There is something which John discovered, and I discovered *that* he discovered it (or, I discovered *what it was* that John discovered).

In (106), John and I discovered the same thing. In (107), we discovered different things. In reading (105) as having the sense of (106), the word *what* in (105) is behaving like a relative pronoun without an antecedent, i.e., a free relative. But whereas Karttunen's semi-factives can take either wh-complements or free relative constructions, *factives only take free relative constructions*. This can be seen by comparing Karttunen's factives with verbs which only take non-sentential objects, such as *eat* or *hand over*. Obviously, such verbs don't take wh-complementizer constructions, which are sentential. Thus, there is no possibility of ambiguity in a sentence like:

(108) He ate *what* was put in front of him.

This is clearly a free relative construction. Some wh-words apparently never have a free relative reading. *Whether* and *which N* are examples. Hence

(109) *He ate *whether* the apple was in front of him.

(110) *He handed over *which apple* was in front of him.

are ungrammatical. The wh-words which are never free relatives also cannot co-occur with *factives*, as the following examples illustrate:

(111) *I (don't) regret *whether* I did it.

(112) *I (don't) regret *which cup* I bought.

If factives could take wh-constructions, we would expect these sentences to be grammatical.

Suppose one were to propose (though I have my doubts) that a sentence like

(113) I regret *what I did*.

is a deletion product of something like:

(114) I regret (that fact) (that I did) *what I did*.

or

(115) I regret (having done) *what I did*.

Even on such an analysis, *what I did* in (114) and (115), being the object of *do*, are obviously relative clause constructions, not complementizer constructions. Hence *what I did* in (113) still comes out a free relative.

There is yet another reason for maintaining the distinction between *factives* and *semi-factives* along the lines of Karttunen's proposal. We have already noted that Karttunen's *factives* take (or in some cases require) the head noun phrase *the fact*. But the *factives* co-occur with other head noun phrase constructions as well, whereas the *semi-factives* do not:

fact

(116) I resent the implication that he
suggestion
has not been entirely honest.

fact

(117) *I know the implication that he
suggestion
has not been entirely honest.

The *factives* take other complements which the *semi-factives* do not:

my behavior.

(118) I regret my lack of concern.
my indecisiveness.

my behavior.

(119) *I know my lack of concern.
my indecisiveness.

To recap, we have found that there are three differences between *factives* and *semi-factives*:

- (a) The *factives* co-occur indifferently with *that p* or *the fact that p*, whereas the *semi-factives* resist the second construction.
- (b) Wh-constructions following a *factive* only receive a free relative reading, and never a wh-complementizer reading.
- (c) *Factives*, but not *semi-factives*, take head-noun constructions like *the implication that* and *the suggestion that*, as well as such

noun phrases as *my behavior*, *my lack of concern*, *my indecisiveness*.

In light of these conclusions, the factives require special treatment vis-à-vis the complementizer system I am proposing. For although “true” factives such as *resent* and *regret* presuppose the truth of their complements, it cannot be in virtue of taking the *wh-that* complementizer, since these verbs only take the free-relative *wh*-words. But if they take *that* simpliciter, which carries no implication of truth, then how do we explain the presupposition of truth in these sentences?

The answer is that factives, which take as complements such NP’s as *your behavior*, *his lack of concern*, also take head-noun constructions such as *the suggestion that*, *the implication that*, *the fact that*. The *that* in the head-noun constructions is *that* simpliciter, and as such does not carry a truth implication. However, factives *do* presuppose the *existence* of their objects (and as such are non-intentional). Thus,

(120) I regret the implication that you have been less than honest.

does not presuppose that you have been less than honest, but *does* presuppose that there has been such as implication (in something that was done or said). Likewise,

(121) I regret the fact that I have taken the matter so lightly.

presupposes the “existence” of the fact in question.²⁴ Truth comes into the picture because for there to be such a fact, the proposition in question must be true. But this is because of the meaning of “fact”, not because of the complementizer; “implication” and “suggestion” do not require this. Finally, the last piece in the puzzle. The head-noun “the fact” is special in that it is deletable, whereas others such as “the implication” or “the suggestion” are not. Thus, when we see a true factive verb without a head-noun, we know that it is a deletion product of “the fact”, the *existence* of which is presupposed by the sentence. The *truth* of the *proposition* (which expresses the content of the fact in question) is thus (only) indirectly presupposed.

F. Summary

In this section I have argued that the surface complementizer *that* has two deep structure sources, *that* and *wh-that*. The former always occurs with *believe*, and the latter always occurs with *know*. *Tell* (as a speech act verb) can take either. This hypothesis is seen to be the simplest way to

account for differences between these three verbs vis-à-vis wh-movement as well as the semantic fact that *know* always implies the truth of its complement, *believe* never does and *tell* (in the speech act sense) sometimes does.

Further, the results of this section constitute an independent argument for adopting one or other of the proposals made in section II rejecting the view that all wh-predicate complements are embedded questions. For if *know* always has a wh-complementizer in deep structure (as was argued in this section) and if one treats all wh-sentential predicate complements as embedded questions (as Bresnan and Chomsky do) then one would have to reate, e.g.,

(122) John knows (that) Fred lives in Cleveland.

as containing an *embedded question*. Few, I think, would want to maintain a complementizer system which had this as an implication.

NOTES

¹ An earlier draft of this paper appeared in 1977 in an in-house collection called *Explorations in Language and Linguistics* edited by Robert Rodman.

² Emonds (1976) argues that *that* appears as a result of a transformation and is inserted into an empty complementizer position. Though I will speak throughout of a deep structure complementizer *that*, I could just as easily have spoken of an empty COMP node at the deep structure level which is filled by *that* by transformation. Such a *that* is still to be distinguished from the *that* which has a *wh*-marking in deep structure (*my wh-that*).

³ Katz and Postal (1964, p. 110).

⁴ Largely due to Baker (1968, 1970).

⁵ See Katz and Postal (1964, p. 88). There are other contexts which support *ever*, such as 'If I ever catch you . . .'. I will neglect these, as they do not bear on my argument.

⁶ Again, for the purposes of this discussion, I ignore (a) conditional and certain modal contexts, such as 'If anyone doubts this, . . .' or 'I can beat anyone at . . .'; (b) *any*-words followed by a relative clause, such as 'Anyone who is a friend of his . . .'

⁷ I credit the argument in this section to Vendler (1972, p. 110).

⁸ Nonsense, not gibberish. The sentence says that a certain proposition depends on a certain other proposition.

⁹ There is a large class of expressions of the form *Det NP* which are systematically equivalent to constructions of the form *what Det NP is* in, for example, *know* and *tell* contexts. That is, I know *Det NP* = I know *what Det NP is*, where *Det NP* = the cause of the explosion, the explanation, his name, the color of his car, his telephone number, his birthdate, the meaning of the word tenebrific, the departure time, the answer, etc.

The generalization implicit in these examples is that there are a number of nouns which, together with the definite article, co-occur with verbs which take wh-complements, such as *know* and *tell*. This is noticed and discussed in Baker (1968). But Baker fails to notice that these *Det NP* constructions systematically resist the context *wonder*. This difference between *know* and *wonder* could be handled by marking such NPs as +*wh-that* (rather than +*wh-Q*) in a grammar where *know* takes *wh-that* but *wonder* takes *wh-Q*.

¹⁰ Other verbs in the *know* family:

- i. *Where did John FORGET (that) Fred put the money?
- ii. *Where did John FIND OUT (that) Fred put the money?
- iii. *Where could John SEE (that) Fred put the money?
- iv. *Where did John LEARN (that) Fred put the money?
- v. ?Where did John REVEAL (that) Fred put the money?
- vi. ?Where did John REALIZE (that) Fred put the money?

¹¹ Other verbs in the *believe* family:

- i. *John CLAIMS where Fred put the money.
- ii. *John THINKS where Fred put the money.
- iii. *John SUSPECTS where Fred put the money.
- iv. *John SUPPOSED where Fred put the money.
- v. ?John SUGGESTED where Fred put the money.

¹² There is a dialect of American English (which I call Lamod- 'L.A. mod') in which this sentence is grammatical along with such sentences as

- i. Do you believe what that guy is wearing?
- ii. I don't believe what that guy is wearing.

However, in this dialect *believe* takes what appears to be a wh-complement only in questions and negative contexts:

- iii. *I believe what that guy is wearing.

It is thus puzzling how the *believe wh*-sentences get generated in this dialect. Perhaps in the end these wh-constructions in Lamod should be viewed as free relatives rather than wh-complementizers (cf., *I don't believe the clothes that guy is wearing*). In fact, *believe* in Lamod behaves for all the world like a factive verb (Kiparsky and Kiparsky, 1970). We will be in a better position to make this comparison after we have taken a look at the factives, which we will do in section E below. For now, suffice it to say that it is not surprising that a new, projectible use of an expression should come about by grafting onto it an already existing syntax.

¹³ Some sentences not very different from this one are grammatical, if clumsy, for example "Where does the F.B.I. know that Fred has lived?" (I owe this example to Jane English.) Another example is "*Who does Fred know Lynnelle's first husband was?" vs. "Who does Fred know Lynnelle has dated?" The pattern seems to be that "good" cases involve a *number* of things to be known, where the knower may know some but not know others. Thus the F.B.I. may know some of the places where Fred has lived, but not others; Fred may know some of the people Lynnelle has dated, but not all. This suggests that the "good" cases involve an implicit contrast between what is actually known and what is not, and hence exemplify the same grammaticality-producing phenomenon as contrastive stress.

¹⁴ See Vendler (1972, chap. V) for independent arguments for a similar conclusion. See also Jones (1975) for a criticism of Vendler's arguments. The arguments given here are not effected by Jones' criticisms.

¹⁵ Or alternatively, following Emonds (1976), an empty node on the one hand and *wh-that* on the other, the former being filled by *that* by transformation.

¹⁶ Ultimately, the rules for wh-movement will have to be made much more complicated to handle cases where there are several wh-words in a single sentence (cf. Kuno and Robinson, 1972 and Rodman, 1975). How the view that verbs of the *know* family always have a wh-complementizer in deep structure will interact with the rules for multiple wh-constructions will not be dealt with in this paper.

¹⁷ In a later section, I will invoke the distinction made by Karttunen (1971) between factives and semifactives. Verbs of the *know* class will there be distinguished from "true" factives such as *resent* and *regret*. Until then, the reader should take the term "factive" or

“factive verb” as meaning simply a verb whose complement must be true in order for the whole sentence to be true.

¹⁸ The proposals being made in this paper involve taking verbs of the *know* family as always having a wh-complementizer in deep structure which surfaces as *that* when bar-S does not contain an wh-expression. This proposal would require us to abandon a rule of interpretation proposed by Chomsky (1973, p. 281): “A +wh COMP is interpreted only when it contains a wh-phrase.” However, we would want to keep such a rule for wh-Q. Alternatively, if we opt for a system of complementizers which does not distinguish between wh-Q and wh-that (as in the proposal in Part II, G above) it would be necessary to build in a subcategorization feature of co-occurrence restriction for the interrogative verbs which would require them to take only complements which contain a wh-phrase.

¹⁹ I have been discussing complement selection in terms of verbs being subcategorized to go with certain complementizers. I see no reason why my findings could not in principle be incorporated into a grammar which makes use of the notion of “semantic frames” (Grimshaw, 1979), though the data I am concerned with here does not require such a notion. Grimshaw recognizes the semantic types Proposition (P), Question (Q) and Exclamative (E). It is not clear whether my *wh-that* would require a separate semantic frame or not. *You know how much he contributes* is ambiguous between an exclamative and a non-exclamative reading. But the wh-movement rules are the same whether it is given an exclamative reading or not. Do both readings take the same complementizer (wh-that) but different semantic frames? Perhaps this is the simplest way of handling it. Embedded exclamations can also co-occur without any wh-form, apparent or hidden, e.g., *I think that he’s such a fool or I would guess that he’s quite a ball player*. Here the complementizer is *that* while the semantic frame is (Grimshaw’s) E; in *I think that he’s a ball player*, the semantic frame is P. The question of whether or not the truth of the complement is presupposed thus seems to hang on what the complementizer is, and not the semantic frame (for example, on whether the sentence contains an embedded exclamation).

²⁰ Kiparsky, P. and Kiparsky, C. (1970).

²¹ *ibid.*, p. 348.

²² Karttunen, L. (1971).

²³ Stalnaker, R. (1974).

²⁴ See Vendler, Zeno (1972). Though we disagree on most points of detail, the influence of Vendler’s work of this section is considerable.

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