

# Semantic Constraints III: Semifactivity

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## 1. Puzzles of Semi-factive Predicates<sup>1</sup>

Kiparaky and Kiparsky (1971) discuss three syntactic characteristics of factive predicates that take factive object clauses, i.e., complement clauses that are presupposed to be true by the speaker of the sentence. First, they point out, only factive predicates can have as their objects the noun *fact* with a gerund or *that*-clause, as we see in grammaticality of the sentences in (1) with factive predicates and ungrammaticality of the sentences in (2) with non-factive predicates.

- (1) a. I want to *make clear* the fact that I don't intend to participate.  
b. You have to *keep in mind* the fact of his having proposed several alternatives.  
(2) a. \*I *assert* the fact that I don't intend to participate.  
b. \*We may *conclude* the fact of his having proposed several alternatives.

Second, gerunds can be objects of factive predicates, but not freely of non-factive predicates, as we see in grammaticality of the sentences in (3) with factive predicates and ungrammaticality of the sentences in (4) with non-factive predicates.

- (3) a. Everyone *ignored* Joan's being completely drunk.  
b. I *regret* having agreed to the proposal.  
c. I don't *mind* your saying so.  
(4) a. \*Everyone *supposed* Joan's being completely drunk.  
b. \*I *believe* having agreed to the proposal.  
c. \*I *maintain* your saying so.

Third, only non-factive predicates allow the accusative and infinitive construction, as we see in grammaticality of the sentences in (5) with non-factive predicates and ungrammaticality of the sentences in (6) with factive predicates.

- (5) a. I *believe* Mary to have been the one who did it.  
b. He *fancies* himself to be an expert in pottery.  
c. I *supposed* there to have been a mistake somewhere.  
(6) a. \*I *resent* Mary to have been the one who did it.

<sup>1</sup> According to Hooper (1975), semi-factive predicates in English are *know, realize, discover, find out, learn, note, notice, see, recognize, observe, perceive, recall, remember, reveal* and possibly *disclose*, and *mention*. These semi-factive predicates are not exactly alike in their semantic and syntactic characteristics, but they all describe processes of knowing or coming to know and share many syntactic behaviors. Rosenberg (1975) calls these semi-factive predicates 'cognitive' predicates. Green (1976 : 387) distinguishes *know* from other semi-factive predicates and calls it 'wishy-washy' factive predicate.

b. \*He *comprehends* himself to be an expert in pottery.

c. \*I *took into consideration* there to have been a mistake somewhere.

Thus Kiparsky and Kiparsky (1971) claim that there is clear systematic correlation between the semantic notion of factivity and its syntactic manifestations. They are, however, puzzled by the fact that verbs like *know*, *realize*, though semantically factive,<sup>2</sup> are syntactically non-factive as we see in (7) (Kiparsky and Kiparsky 1971:348 fn.)<sup>3</sup>.

(7) a. \*I know the fact that John is here.

b. \*I know John's being here.

c. I know him to be here.

Karttunen (1971) makes further observations on these exceptional factive predicates, which he has named 'semi-factive' predicates. Under negation, he observes, both full factive predicates like *regret* and semi-factive predicates like *realize* and *discover* maintain the factive interpretation of their complement clauses as we see in (8).

(8) a.  $\left. \begin{array}{l} \text{regret} \\ \text{realize} \\ \text{discover} \end{array} \right\}$  John didn't that he had not told the truth.  
 b.  $\left. \begin{array}{l} \text{regret} \\ \text{realize} \\ \text{discover} \end{array} \right\}$   
 c.

In questions, however, full factives like *regret* and possibly a semi-factive predicate *realize*<sup>4</sup>

<sup>2</sup> The fact that verbs like *know* are semantically factive is shown by contradictoriness or semantic anomaly of sentences like (i) (cf. Rosenberg 1975 : 477 for an explicit definition of presupposition).

(i) \*John knows that the train stops running at eleven thirty, but it runs all night long.

And cases like (20a, b), as discussed later, clearly show that other semi-factive predicates are semantically factive at least in a simple affirmative declarative sentence.

<sup>3</sup> For similar syntactic behaviors of other semi-factive predicates Bonney (1976:107) cites the following examples.

(i) \*John  $\left\{ \begin{array}{l} \text{realized} \\ \text{discovered} \end{array} \right\}$  the fact that Fred lied.

(ii) \*John  $\left\{ \begin{array}{l} \text{realized} \\ \text{discovered} \end{array} \right\}$  Fred's having lied.

(iii) John  $\left\{ \begin{array}{l} \text{?realized} \\ \text{discovered} \end{array} \right\}$  Fred to have lied.

Hooper (1975:119) also cites the following examples for the syntactic differences between factive and semi-factive predicates.

(iv) I  $\left\{ \begin{array}{l} \text{resent} \\ \text{regret} \end{array} \right\}$  the fact that the President did not grant them an interview.

(v) \*I  $\left\{ \begin{array}{l} \text{noticed} \\ \text{found out} \\ \text{realized} \end{array} \right\}$  the fact that the President did not grant them an interview.

(vi) Everyone  $\left\{ \begin{array}{l} \text{ignored} \\ \text{resented} \\ \text{deplored} \end{array} \right\}$  Joan's being completely drunk.

(vii) \*Everyone  $\left\{ \begin{array}{l} \text{realized} \\ \text{saw} \\ \text{discovered} \end{array} \right\}$  Joan's being completely drunk.

<sup>4</sup> The reason why *realize* works like *regret* as well as like *discover* in questions like (9) is that *realize* has both stative and inchoative uses as illustrated below.

(i) Joan has realized for a long time that the Smiths are partial towards Neptunians. (stative)

(ii) While I was waiting for the bus I realized I left the stereo on. (inchoative)

Apparently, in a stative sense *realize* works like *regret* whereas in an inchoative sense it works like *discover*. Such ambiguity does not arise in conditional sentences like (10b), where *realize* may only have an inchoative sense (cf. Rosenberg 1975 : 476).

still maintain the factive interpretation of their complement clauses whereas semi-factive predicates like *discover*, *find out*, *see*, etc., permit both factive and non-factive interpretations of their complement clauses as we see in (9).

- (9) a.  
 b. Did you  $\left\{ \begin{array}{l} \text{regret} \\ \text{realize} \\ \text{discover} \end{array} \right\}$  that you had not told the truth?  
 c.

In other words, (9a) and possibly (9b, c) commit the speaker to the view that the addressee has not told the truth, but (9c) can also be understood as a sincere request for information. In conditionals also, he observes, semi-factive predicates lose their factivity as we see in (10).

- (10) a.  
 b. If I  $\left\{ \begin{array}{l} \text{regret} \\ \text{realize} \\ \text{discover} \end{array} \right\}$  later that I have not told the truth, I will confess it to everyone.  
 c.

In (10a) the speaker admits that the complement of the conditional clause is true whereas in (10b, c) he only admits that there is a possibility that he has not told the truth, but he does not concede anything more than that.

And then he assumes that since a conditional sentence conversationally implies that, in the view of the speaker, it is at least possible for the antecedent, i.e., the conditional clause, to turn out to be true, (10a, b, c) conversationally imply (11a, b, c) respectively.

- (11) a.  
 b. It is possible that I will  $\left\{ \begin{array}{l} \text{regret} \\ \text{realize} \\ \text{discover} \end{array} \right\}$  later that I have not told the truth.  
 c.

He further assumes that (9a, b, c) also conversationally imply (11a, b, c) respectively. And, he argues, from the fact that it is possible that I may discover something I cannot conclude that this something is in fact the case. However, he further argues, for *regret*, *forget*, *resent*, and all the factives that take sentential objects this kind of reasoning is valid. Thus, he proposes to generalize the different behaviors of full factives and semi-factives in questions like (9) and conditionals like (10) by resorting to their different behaviors in sentences like (11) with the modal operator *possible*. In other words, he differentiates in terms of the modal operator 'M' the two different meaning postulates (12) and (13), which he posits for full factive predicates like *regret*, *resent*, *forget*, etc., and semi-factive predicates like *discover*, *realize*, *find out*, *notice*, *see*, etc., respectively.

- (12) a.  $(\forall x)(\forall s) [\text{discover}(x, s) \triangleright s]$   
 b.  $(\forall x)(\forall s) [\text{discover}(x, s) \triangleright s]$  } semi-factive predicates  
 (13) a.  $(\forall x)(\forall s) [M(\text{regret}(x, s)) \triangleright s]$   
 b.  $(\forall x)(\forall s) [M(\text{regret}(x, s)) \triangleright s]$  } full factive predicates

where  $x$  ranges over persons, and  $s$  ranges over sentences and predicates.  $p \triangleright q$ :  
 iff, whenever it is true that  $p$ , it is true that  $q$ . 'M' = 'it is possible that'.

What (12) and (13) say is essentially that under the modal operator 'M' full factive predicates maintain factivity whereas semi-factive predicates do not. Aside from the question whether it is correct to distinguish semi-factive predicates from full factive

predicates in terms of the 'possibility' modal operator 'M', the meaning postulates (12) and (13), as they stand, do not explain why semi-factive predicates differ from full factive predicates exactly in such a way as they do. They just describe the fact as observed, even if they are correct.

Oh (1974) points out inadequacies of Karttunen's (1971) above analysis on semifactivity. First of all, he shows that semi-factive predicates do not necessarily lose factivity in questions and conditionals by considering sentences like (14).

(14) a. I know that what John had said earlier was not true. But did he discover later that he had not told the truth?

b. I know that what I just said is not true. But if he (should) discover later that it isn't, I am sure he will call me.

The fact that the two sentences in (14a) constitute a natural sequence in discourse shows that the semi-factive predicate *discover* may not lose factivity in questions, for the complement clause of *discover* in (14a) is necessarily presupposed to be true by the speaker.<sup>5</sup> Similarly, the fact that the two sentences in (14b) constitute a natural sequence in discourse shows that the semi-factive predicate *discover* may not lose factivity in conditionals, for the complement clause of *discover* in (14b) is necessarily presupposed to be true by the speaker. Note, however, that the subject of the conditional clause in (14b) is not the same person as the speaker whereas the subject of the conditional clause in (10c) is. In fact, (15), where the subject of the conditional clause is the same person as the speaker, is anomalous.

(15) \*I know that what I just said is not true. But if I (should) discover later that it isn't, I will call you and let you know.

The anomaly of (15), however, is not because the semi-factive predicate *discover* has lost factivity in the context of conditional clause, as Karttunen (1971) might argue. It is in fact due to the inchoative nature of a semi-factive predicate like *discover*, as Oh (1974) argues. An inchoative verb has the presupposition that the asserted event or state did not exist before the time of change. If *discover* is analyzed as something like *come to know*, then the subject is supposed to be ignorant (=not know) until he comes to know. In (15), however, the subject of the conditional clause already knows that what he said is not true and therefore he cannot come to know (discover) the same later. Hence the anomaly of (15). This subject-speaker identity factor also explains why the complement clause of *discover* may not be interpreted factively in (10c) whereas it may be in (9c)<sup>6</sup>; that is, the subject-speaker identity condition is met in (10c), but not in (9c). On the other hand, note that (16a, b), the non-factive counterpart of (14a, b), are also well-

<sup>5</sup> The complement clause of *discover* in (9c) may also be interpreted as presupposed to be true by the speaker, as noted earlier, but it is not necessarily so as in (14a).

<sup>6</sup> Thus, Karttunen (1971) is mistaken even in assuming that (9c) and (10c) are equivalent with respect to factivity.

formed.

(16) a. I don't know whether what John had said earlier was true. But did he discover later that he had not told the truth?

b. I don't know whether what I just said is true. But if he (should) discover later that it isn't, I am sure he will call me.

The complement clauses of *discover* in (16a, b) have to be interpreted non-factively since presupposition of them is explicitly denied by the first sentence in each of (16a, b). Note also that (17), the non-factive counterpart of (15), is well-formed, which agrees with our earlier observation that when the subject-speaker identity condition is met semi-factive predicates may not have factive interpretation along with future adverbials like *later*.

(17) I don't know whether what I just said is true. But if I (should) discover later that it isn't, I will call you and let you know.

The complement clause of *discover* in (17) is necessarily non-factive since presupposition of it is explicitly denied by the first sentence in (17).

Oh's (1974) above arguments can be summed up as follows: semi-factive predicates permit both factive and non-factive interpretations of their complement clauses in questions and conditionals, except in certain specific environments, e.g., when the subject is the same person as the speaker along with a future adverbials like *later*. Oh (1974) further shows by considering sentences like (18a, b) that semi-factive predicates permit both factive and non-factive interpretations of their complement clauses even under negation.

(18) a. They haven't discovered that my aunt has cancer.

b. He hasn't discovered yet that he was fired.

Karttunen (1971) would assume that the complement clauses in (18) are necessarily factive as he did for (8b, c). But Oh (1974) argues that without knowing whether the aunt really has cancer or not we can say (18a) and that without knowing whether he was fired or not we can say (18b), as evidenced in (19a, b).

(19) a. They haven't discovered that my aunt has cancer and I don't know whether she has or not, either.

b. He hasn't discovered yet that he was fired and I don't know whether he was or not, either.

Thus far, we have seen that semi-factive predicates permit both factive and non-factive interpretations of their complement clauses in questions, conditionals and negative sentences. And one might think that semi-factive predicates are a special subset of the so-called 'indifferent' predicates,<sup>7</sup> which also permit both factive and non-factive interpretations of their complement clauses. In simple affirmative sentences, however, semi-factive predicates do not allow non-factive interpretations of their complement clauses as we see

<sup>7</sup> Kiparsky and Kiparsky (1971 : 360) define 'indifferent' predicates as 'verbs which occur indifferently with factive and non-factive complements, e.g. *anticipate, acknowledge, suspect, report, remember, emphasize, admit, deduce*.'

in (20) whereas indifferent predicates do as we see in (21).<sup>8</sup>

(20) a. \*They have discovered that my aunt has cancer but I am not sure whether she has or not.

b. \*He has discovered that he was fired but I am not sure whether he was or not.

(21) a. They have reported that my aunt has cancer but I am not sure whether she has or not.

b. He has reported that he was fired but I am not sure whether he was or not.

Another difference between semi-factive predicates and indifferent predicates can be seen in the difference in grammaticality between (22) and (23).

(22) a. \*They have discovered that my aunt has cancer but I know that she has not.

b. \*He has discovered that he was fired but I know that he was not.

(23) a. They have reported that my aunt has cancer but I know that she has not.

b. He has reported that he was fired but I know that he was not.

With indifferent predicates the speaker may have a view contradicting the complement of the sentence whereas with semi-factive predicates the speaker apparently may not. If we call cases like (20)–(21) the non-committal non-factive usage, then we may call cases like (22)–(23) the contradicting non-factive usage. (16a, b) show that the non-committal non-factive usage is permitted with semi-factive predicates in questions and conditionals. In questions the contradicting non-factive usage is not permitted with semi-factive predicates as we see in (24).

(24) \*I know that what John had said earlier was true. But did he discover later that he had not told the truth?

In conditionals, however, it seems that the contradicting non-factive usage is permitted with semi-factive predicates, as we see in (25).

(25) a. I know that what I just said is true. But if he should discover later that it isn't, I am sure he will call me.

b. I know that what I just said is true. But if I should discover later that it isn't, I will call you and let you know.

However, Oh (1974) points out, the degree of grammaticality of cases like (25a, b) seems to be in inverse proportion to the speaker's certainty of the truth of the complement; if the speaker is absolutely sure about his knowledge, then the sentence is ungrammatical, as we see in (26).

(26) \*I know that John failed in the exam. But if he/I should discover later that he passed it he/I will let you know.

<sup>8</sup> Oh (1974 : 519) claims that the only requirement for the legitimate use of semi-factive predicates is that the speaker does not have the commitment to the falsity of the complement. In (20a, b), however, the speaker does not have the commitment to the falsity of the complement and yet the semi-factive predicate *discover* is not legitimately used. Thus, Oh's above sweeping claim on semi-factive predicates is too strong.

Despite the above penetrating observations, Oh's (1974) conclusion that the only requirement for the legitimate use of semi-factive predicates is that the speaker does not have the commitment to the falsity of the complement is untenable as mentioned in footnote 8. What Oh (1974) has missed seems to be the fact that semi-factive predicates are semantically just like full factive predicates in simple affirmative declarative sentences as in (7), (20) and (22). In questions, conditionals and negative sentences semi-factive predicates are semantically more or less like indifferent predicates. The puzzle why that is the case remains also with Oh (1974).

Rosenberg (1975) points out further inadequacies of Karttunen's (1971) analysis on semi-factive predicates. Specifically Rosenberg (1975) argues that questions and conditionals cannot be used as test frames to distinguish semi-factive predicates from full factive predicates. For example, as for questions he considers sentences like (27a, b, c).

- (27) a. Did you discover that Joan was selling hot dogs at the ball game?  
 b. Did you discover Joan selling hot dogs at the ball game?  
 c. Did you discover Joan's selling (of) hot dogs at the ball game?

Before discussing Rosenberg's (1975) observations on (27a, b, c), note that he accepts (27c) as fully grammatical. Kiparsky and Kiparsky (1971) reject (7b) as ungrammatical and Bonney (1976 : 107) also rejects (28) as ungrammatical.

- (28) \*John discovered Fred's having lied.

What makes a difference in grammaticality between (27c) and (28)? It seems to be due to the difference in sentence type: (27c) is a question whereas (28) is a declarative sentence. Why that is the case is still another puzzle on semi-factive predicates. Returning to Rosenberg's (1975) observations on (27), he claims that in questions semi-factive predicates with gerundive complements as in (27c) are always fully factive whereas those with participial complements as in (27b) may be interpreted as either factive or non-factive. In other words, in questions gerundive complements of semi-factive predicates are always presupposed to be true by the speaker whereas participial complements of semi-factive predicates may or may not be presupposed to be true by the speaker. Semi-factive predicates with *that*-complements as in (27a), however, are the most problematic as far as factivity is concerned. That is, in questions with *that*-complements as in (27a) *discover* and *find out* permit both factive and non-factive interpretations of their complements while other semi-factive predicates like *see* and *notice* are uncertain, i.e., show considerable variation among speakers with respect to factivity. On the other hand, *know* and *be aware (of)* are always factive irrespective of complement types in question; that is, if *discover* is replaced by *know* or *be aware (of)* in (27a, b, c) the complements in all of the three sentences are presupposed to be true by the speaker. Thus, Rosenberg (1975) has made deeper observations than Karttunen (1971) on semi-factive predicates. But he is still far from approaching a systematic explanation for the seemingly arbitrary phenomena of semi-factive predicates discussed above.

Hooper (1975) claims that semi-factive predicates are what she calls 'assertive' predicates<sup>9</sup> whereas full factive predicates are what she calls 'non-assertive' predicates, and presents the following syntactic evidence for the claim. First of all, semi-factive predicates allow their complements to be preposed like other assertive predicates but full factives do not, as we see in (28) and (29).

(28) a. They discovered that it was difficult to make ends meet.

b. It was difficult to make ends meet, they discovered.

(29) a. They regretted that it was difficult to make ends meet.

b. \*It was difficult to make ends meet, they regretted.

It is assumed here that a rule like Complement Preposing derives *b*-sentences from *a*-sentences in (28) and (29). In (28), Hooper (1975) argues, the complement can be preposed since semi-factive predicates may be used parenthetically with their complements asserted, whereas in (29) the complement cannot be preposed since full factive predicates may not be used parenthetically and their complements are always presupposed rather than asserted. Second, semi-factive predicates are like assertive predicates in that a tag question may be formed from their complement sentences, whereas full factive predicates are not, as we see in (30) and (31).

(30) I see you have bought a new car, haven't you?

(31) \*I'm sorry it stopped snowing, didn't it?

Since complements of semi-factive predicates may be asserted, tag questions may be formed from them as in (30). Since complements of full factive predicates are always presupposed rather than asserted, tag questions may not be formed from them, as we see in (31). Third, semi-factive predicates are like assertive predicates in that they tolerate root transformations in their complements, whereas full factive predicates never tolerate them in their complements, as we see in (32)-(41).

(32) VP Preposing

a. Sally plans for Gary to marry her, and he *recognizes* that, whether he likes it or not, marry her he will.

b. \*Sally plans for Gary to marry her, and it *bothers* me that marry her he will.

(33) Negative Adverb Preposing

a. I *found out* that never before had he had to borrow money.

b. \*He was *surprised* that never in my life had I seen a hippopotamus.

(34) Directional Adverb Preposing

a. Tinker Bell *saw* that Wendy opened the window and in flew Peter Pan.

b. \*Wendy was *sorry* that she opened the window and in flew Peter Pan.

(35) Adjective Phrase Preposing

<sup>9</sup> Hooper (1975: 95) defines assertive predicates as follows: assertive predicates imply that the speaker or subject of the sentence has an affirmative opinion regarding the truth value of the complement proposition.

- a. The Public doesn't *realize* that even more corrupt is the Republican Party.  
 b. \*Harry was *annoyed* that even more corrupt was the Republican Party.
- (36) Participial Phrase Preposing  
 a. I *noticed* that playing in next month's concert would be Artur Rubinstein.  
 b. \*I *forgot* that playing in the concert was Artur Rubinstein.
- (37) Directional Phrase Preposing  
 a. The scout *discovered* that beyond the next hill stood a large fortress.  
 b. \*The guide was *surprised* that beyond the next hill stood a large fortress.
- (38) Subject Replacement.<sup>10</sup>  
 a. The boys finally *realized* that to read so many comic books is a waste of time.  
 b. \*It's *interesting* that for John to finish the pie took less than a minute.
- (39) Topicalization  
 a. We *saw* that each part he had examined carefully.  
 b. \*I *resent* the fact that each part he had to examine carefully.
- (40) Left Dislocation  
 a. I *discovered* that this book, it has all the recipes in it.  
 b. \*It's *strange* that this book, it has all the recipes in it.
- (41) Right Dislocation  
 a. The Mayor didn't *know* that it was bothering everyone, his big cigar,  
 b. \*Marvian *regretted* that he went to see it, that movie.

(32)-(41) illustrate applications of ten root transformations. The *a*-sentences, where the root transformations have applied to complements of semi-factive predicates, are well-formed. The *b*-sentences, where the root transformations have applied to complements of full factive predicates, are ill-formed or ungrammatical.<sup>11</sup>

The assumption that the semi-factive predicates may have their complements either presupposed or asserted as discussed above, Hooper (1975) argues, explains why semi-factive predicates permit both factive and nonfactive interpretations of their complements under negation and question, as we see in (8c) and (9c), which are repeated below.

(8) c. John didn't discover that he had not told the truth.

(9) c. Did you discover that you had not told the truth.

If the semi-factive predicate *discover* is parenthetically used and its complement is asserted, then the scope of negation or question falls on the complement and the complement

<sup>10</sup> Emonds (1970:79) argues that sentences like (i) are derived from sentences like (ii) by Subject Replacement, a root transformation.

(i) For the house to be painted would irritate him.

(ii) It would irritate him for the house to be painted.

<sup>11</sup> Some complicated cases like (i) which do not quite fit the pattern of (32)-(41) are discussed in Green (1976).

(i) a. \*I didn't realize that not a bite had she eaten.

b. \*I didn't realize that never before had prices been so high.

is interpreted as non-factive. If the semi-factive predicate *discover* is not parenthetically used but asserted while its complement is not asserted but presupposed, then the scope of negation or question falls on the verb *discover* and the complement is interpreted factive. A similar explanation is possible, she also argues, for the ungrammaticality of (42a, b, c) where the main verbs are semi-factive predicates and the grammaticality of (43a, b, c) where the main verbs are full factive predicates.

- (42) a. \*I don't realize the cat is outside.  
 b. \*I don't find that Sam is in the hospital.  
 c. \*I don't notice that it's started to rain.
- (43) a. I don't care that the cat is outside.  
 b. I'm not sorry that Sam is in the hospital.  
 c. I'm not surprised that it's started to rain.

Semi-factive predicates like *realize*, *find*, *notice*, etc., tend to have its parenthetical meaning when they are used in the first-person present tense, as we see in (44a, b).

- (44) a. I notice he has had a face lift, hasn't he?  
 b. I realize John is gullible, isn't he?

The absence of the complementizer *that* and the tag formation out of the complement clause in (44a, b) clearly indicate *I notice* and *I realize* are used parenthetically. Accordingly, we know that the semi-factive predicates in (42) are also used parenthetically and the scope of negation cannot fall on them. On the other hand, complements of semi-factive predicates in the negative of the first-person present tense tend to be presupposed, and thus the scope of negation cannot fall on them, either. Hence the ungrammaticality of (42a, b, c). Full factive predicates can never be used parenthetically while their complements are always presupposed rather than asserted, and the scope of negation falls on the factive predicates in cases like (43). Hence the grammaticality of (43a, b, c). Hooper concludes the arguments on semi-factive predicates with the following statement (Hooper 1975:120-1):

On almost every point, semi-factives have the the characteristics of assertive verbs rather than true factives. The only characteristic semi-factives share with true factives is that, on one reading at least, the truth of the complement is constant under negation and implied by the entire sentence. As I said earlier, the complement to a semi-factive fits the definition of a presupposition. If semi-factive complements are presupposed, then the semi-factives stand as a large class of exceptions to the claim that the factive characteristics are related to the semantic notion of presupposition. It seems more likely, however, that semi-factives are not presupposed in the same sense that true factives are presupposed. Perhaps, as Karttunen claims, such complements are 'weakly' presupposed, and such presupposition is not incompatible with assertion. For the purposes of classifying the characteristics of semi-factives, it seems more appropriate to call their complements assertions, since semi-factives share the syntactic characteristics of assertive predicates.

What she claims in this concluding remark is essentially that the presupposition associated

with semi-factive complements is such a special or 'weak' one that it would rather be classified as assertion. This claim remains most unsatisfactory as long as presupposition and assertion are two diagonally polarized notions.

## 2. For a Deeper Puzzle

A clear alternative to Hooper's (1975) above analysis is to view the presupposition/assertion phenomenon of semi-factive predicates as a phenomenon of straight ambiguity between presupposition and assertion rather than of degree of presupposition or assertion. We claim that semi-factive predicates are ambiguous between factive and assertive senses, i.e., their complements may be assumed to be presupposed by the speaker or asserted by the speaker or the subject, and that their ambiguity is resolved by grammatical or pragmatic contexts. For example, sentence (45) is ambiguous in that the complement may be interpreted as presupposed or asserted.<sup>12</sup>

(45) I notice that Santa has lost a lot of weight.

As (45) stands, the ambiguity between presupposition and assertion is to be resolved by pragmatic and/or discourse contexts. If (45) undergoes the operation of complement preposing, however, it is no longer ambiguous as we see in (46).

(46) Santa has lost a lot of weight, I notice.

The preposed complement in (46) is interpreted only as asserted. We can assume that for the derivation of sentences like (46) from those like (45) by a rule of Complement Preposing the underlying structure for the former should include the information that the complement is asserted. On the other hand, for the cases like (47), we have to assume that the underlying structure for sentences like (45) should include the information that the complement is presupposed to be true by the speaker so that the grammaticality of sentences like (47) can be systematically characterized.

(47) Now, I notice that Santa has lost a lot of weight, which has been known to everyone.

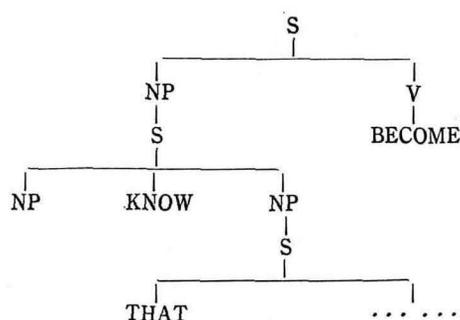
Thus we claim that we have to assume two different underlying structures for (45), one for cases like (46) and another for cases like (47). The two different underlying structures may be differentiated by positing two different prelexical structures for semi-factive predicates as shown in (48a, b).<sup>13</sup>

Note that the only difference between (48a, b) is the prelexical complementizer: *THAT* in (48a) and *WHETHER* in (48b). We assume that *THAT* leads a presupposed complement whereas *WHETHER* leads an asserted complement. This assumption is in part

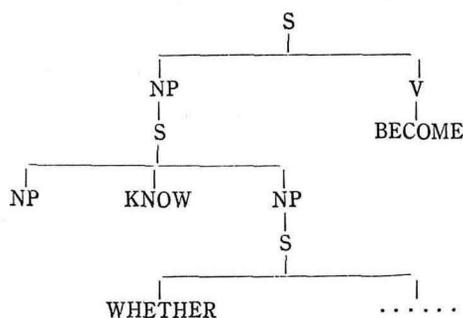
<sup>12</sup> Note that semi-factive predicates like *notice* may also be used as non-factive especially in the first person present tense, as we have discussed with respect to (42) and (44).

<sup>13</sup> I do not claim that (48a, b) are the correct underlying structures for semi-factive predicates. But I believe that all the information represented in (48) should somehow be accommodated in any motivated prelexical structures for semi-factive predicates. The prelexical elements *BECOME* and *KNOW* are postulated in (48) since semi-factive predicates somehow include the information 'come to know.'

(48) a.



b.



motivated by the fact that whenever semi-factive predicates are interpreted non-factively their complements can be paraphrased by *whether* clauses, whereas if they are interpreted factively their complements can never be paraphrased by *whether*-clauses. (45) in the sense of (46) may be paraphrased as (49) but (45) in the sense of (47) may not.

(49) I notice whether Santa has lost a lot of weight or not.

In our approach, then, the puzzle why semi-factive predicates may take both presupposed and asserted complements may be restated as a puzzle why their complements may be led by both *THAT* and *WHETHER* in the underlying structure. Our approach explains this puzzle by the independently necessary constraint that the verb *know* may take both *that*-clauses and *whether*-clauses.<sup>14</sup> We hope that this constraint will be shown to be a natural consequence of semantic characteristics of the verb *know* or the prelexical predicate *KNOW*. On the other hand, for a deeper puzzle that under exactly what conditions semi-factive predicates may take one or the other complement type, i.e., presupposed or asserted one, and why that should be the case, we only suggest positing some semantic constraints, which will hopefully be systematically characterized in the future.

### 3. Theoretical Implications

This paper has the following theoretical implications. First, the notion of factivity is partly syntactic, partly semantic and partly pragmatic; and the syntactic, semantic and pragmatic characteristics do not always match each other. Second, lexical items may be

<sup>14</sup> We assume that the verb *know* and the prelexical *KNOW* are the same in the function of taking both types of complement clauses.

ambiguous on prelexical level though not on lexical level, as we see in the prelexical structure (48a, b) of semi-factive predicates.

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