

SEMANTIC CONSTITUENTS OF CONSTRUCTIONS TAKING THAT-CLAUSES

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The awkwardness of my title arises from the incompatibility of what I have found to be some essential semantic facts and what have (quite properly) been understood as basic syntactic categories. Although, as I hope to show, the constructions to which I refer have important and unique semantic features, no syntactic rules which I have seen generate these constructions under a single phrase-marker or give these constructions a specific category name. And since these semantic constituents belong to the constructions as a whole and not to any single item within them, it is difficult to adapt the semantic facts I wish to point out to any semantic theory which assumes that all semantic features are contained in the lexical entries of some vocabulary item and are introduced at various branching levels of phrase-markers by the choice of these items (as in Katz and Fodor, 1964). It is perhaps possible to see these semantic constituents as, in a larger sense, primary syntactic categories which, in a generative semantics, would be phrase-markers themselves, with the specific lexical items introduced at some branching near the surface structure (as in Fillmore, 1968; Postal, 1970). But it is not clear to me that any semantic theory yet proposed gives an adequate representation of the data I hope to present today.

This data I have set down on the two accompanying tables. Table I gives a phrase structure description of all constructions which take THAT-clauses. These descriptions as presented here would seem to suggest that the lexical entry of the term on each line to which a subscript has been added would contain a co-occurrence rule requiring a THAT-clause whenever the other elements of the phrase-structure description are also specified. Such a presentation suggests that the rules which generate these constructions would be headed by one of the general form (as suggested in Chomsky 1965)

$$(1) S \rightarrow CS + (THAT) + S'$$

where the Complex Symbol would be a lexical entry specifying the co-occurrence features, and where the S' would be generated either by the recursive application of rule (1) or by the alternative rules in the language for the generation of sentences. Any suggestion that these constructions should be generated by rules of the general form

$$(2.a) S \rightarrow NP + VP$$

$$(2.b) VP \rightarrow Aux + V + (THAT) + S'$$

would assume that the various constructions taking THAT-clauses are not of a kind and would require considerable elaboration in the generation of such sentences as

- (3.a) Would that it were permissible that you suggest that he show that he knows that I am here.

The recursive application of rule(1), along with the application of those simple rules which delete the optional THAT and transform S' to an infinitive or participial phrase would produce the more understandable sentence

- (3.b) Would that it were permissible for you to suggest that he show he knows I am here

with the phrase structure description (using subscripts from Table I)

- (3.c) (CS (CS (CS (CS (CS (S'))))))).
 10 12 5 3 1

The usefulness of this representation is that it indicates the primary importance to the meaning of the whole sentence which belongs to the S' which ends it. The various constructions which take THAT-clauses have meaning insofar as they are operators upon some other clause without which they have no meaning.

This representation has other uses as well. It makes easier the phrasing of the rules which would disallow such sentences as,

- (4.a) I demand that you know that S'

- (4.b) I hope I am certain that S'.

Such rules would specify that one CS cannot be the S' of another, or that the subject of S' cannot repeat the subject of the preceding CS. But its greatest usefulness lies in suggesting that the meaning of all such constructions has a basic similarity. This basic similarity I have tried to indicate in the paraphrases of Table II, where I have used three basic modalities, two relations, and two levels, to indicate the meaning of all sentences represented in Table I. I find that these constituents are not only sufficient to the paraphrase of all the possible sentences produced by rule (1), but also necessary to the phrasing of the rules suggested above and suggested also by the distinctions represented on Table I by, for instance, the indicative and subjunctive moods required of S'. But, more importantly, I find that these constituents make it possible also to account for such a basic grammatical fact as the idea of first, second and third person, and for the various purposes of the fundamental transformations of indicative sentences into questions and commands. This being the case, these semantic constituents are obviously fundamental to any semantic analysis of language. I would like to offer in the elaboration of these constituents some evidence that such an assertion is justified.

The basic modality of logic is that which makes any assertion possible (p), impossible (-p) or necessary (-p-), either because of its relation to some other assertion, or by virtue of the theorem of identity which claims that the assertion (a) entails the impossibility of (-a), (-p(-a)), or in other words the necessity of (a), (-p(-a)).

NO.	SUBJECT	AUX	VERB	ADV	ADJ	PREP	OBJ	THAT	S'MOOD	EXAMPLES
1.	NP _{human}		V ₁	---	---	---	---		IND	know, fear, deny
2.	NP _{human}		V ₂	---	---	---	---		SUBJ	will, desire
3.	NP _{human}		V ₃	---	---	---	(NP _{human})		IND	persuade, tell, show
4.	NP _{human}		V ₄	---	---	(TO	NP _{human})		IND	demonstrate, say, relate
5.	NP _{human}		V ₅	---	---	(TO	NP _{human})		SUBJ	demand, suggest
6.	NP _{human}		BE	---	ADJ ₆	---	---		IND	sure, pleased, ashamed
7.	IT		BE	---	POSS	---	NP ₇		IND	plan, idea, hope
8.	IT		BE	---	POSS	---	NP ₈		SUBJ	will, demand, request
9.	IT	M ₉	BE	---	---	---	---		IND	could, may , must
10.	---	M ₁₀	--	---	---	---	---		SUBJ	would
11.	IT		BE	---	ADJ ₁₁	(TO	NP _{human})		IND	possible, certain, mystifying
12.	IT		BE	---	ADJ ₁₂	(TO	NP _{human})		SUBJ	desirable, good, permissible
13.	IT		V ₁₃	---	(ADJ	TO	NP _{human})		IND	appear, occur, happen
14.	IT		V ₁₄	---	---	---	NP _{human}		IND	strike, intrigue, please
15.	THERE		BE	---	---	---	NP ₁₅		IND	chance, hope, possibility
16.				SO ₁₆	---	---	---		IND	so, such

TABLE I. Phrase structure constituents of constructions taking THAT-clauses

1. I fear that S' = S' possible; S' uncertain, undesirable to me
2. I desire that S' = S' desirable to me
3. I persuaded him that S' = (necessity of S' uncertain, then certain, to him) desirable to me
4. I said to him that S' = (S' uncertain, then certain, to him) possible
5. I demanded that S' = (S' desirable to me) certain to recipient of demand
6. I am pleased that S' = (S' necessary, desirable to me) certain to recipient
7. It was his hope that S' = (S' desirable, uncertain to him) certain to speaker
8. It was his will that S' = (S' desirable to him) certain to speaker
9. It must be that S' = (necessity of S') certain to speaker
10. Would that S' = S' desirable, uncertain to speaker
11. It is mystifying to me that S' = S' necessary; S' certain, impossible to speaker
12. It is permissible that S' = (possibility of S' desirable to someone) certain to speaker
13. It occurs to me that S' = (possibility of S') uncertain, then certain, to me
14. It intrigues me that S' = ((necessity of S') uncertain, certain, to me) desirable to me
15. There is a chance that S' = S' possible, uncertain
16. They kidded him so that S' = S' necessary

TABLE II. Modal paraphrases of examples from TABLE I

These modalities are directly represented in nos. (11) and (15) for instance in Table I, and are part of the paraphrase of other constructions as well. It is clear, though, that assertions have an additional modality which comes from their being known by, which is to say, their being the potential utterance of, some person. This modality of judgment differs from the modality of logic in being assumed as part of the meaning entailed by the syntactic (or semantic) category of NP_{human}, which means that it can exist apart from the modalities expressing relations between different sentences, or assertions. It is clear, most importantly, that there is as well a modality of desire which, in its pure form, will not allow an assertion to exist apart from the assertion of modality itself. Our grammar expresses this connection in specifying the subjunctive mood in such a sentence as

(5.a) I desire that he go

which differs from

(5.b) I am certain that he goes

in making no form of "he go" possible except that following from the "desire" itself. It is the fact that the pure modality of desire cannot affect the modality of logic, and the fact that the pure modality of desire cannot operate causally upon the modality of judgment, which determine some of the rules which forbid (4.a) and (4.b) above.

The last two of these modalities belong specifically to the potential constituents of NP_{human}, and it is also this category which may be represented by the first and second as well as the third person. Judgment and desire are therefore "person-related," which is to say that S' in sentences with these modalities will always belong to the modal system of either the first, second or third persons in the discourse. The same rules which associate modals and persons and thus eliminate the sentence.

(6.a) Will I answer the phone?

also eliminate

(6.b) I demand that I know S'

on the grounds that it is impossible for one person to assert another's modality of desire, or necessary for him to assert his own. By the same token, modalities are "time related," in such a way as to make the meaning of

(7.a) I am surprised that S',

contain the sequence in time "S' improbable -- S' certain;" or make the meaning of

(7.b) I regret that S'

contain the sequence in time "S' certain -- S' undesirable." This

time-relatedness, like person-relatedness, makes impossible various sentences such as

(7.c) I regret that I do not know that S'

or

(7.d) I am surprised that I am sure that S'

or at least requires their interpretation in rather complicated ways. The same observation, it may be noted in passing, can be made in these cases about the tense of S'.

Sentences such as the above, or some of the sentences listed in Table II, make clear the extent to which the recursive embedding of modalities creates multilevel sentences, in which the first complex symbol determines the modality of the second and of the whole sentence consisting of the successive embeddings. This "modal level" is complementary to the "utterance level" produced by the fact that the modality of judgment implies a potential utterance, and by the fact that the modality of desire implies specific forms of utterance which in themselves produce new modalities in the potential utterances of the hearers. The sentence

(8.a) I suggested that he smoke

includes in its meaning the paraphrase

(8.b) I said, "Why don't you smoke"

(or some other form of S' to the same effect), and also the paraphrase

(8.c) ((S' desirable to me) certain to him)

with these two modalities existing in a "time-related" sequence separated by the utterance.

An utterance, in other words, is itself modal in all these ways even when the specific S' is not embedded in modal complex symbols. Any utterances come from an "I" and are directed to a "you." It contains the implicit claim that the utterance S' is certain to the I, and that the certainty to you of this certainty to me of S' which results from the making of the utterance is desired by the I in all its consequences. The making of an utterance also implies that its modality will change for you; to tell you what you already know is superfluous unless after being told you will know what you had not known before. Not every S', of course, will be uttered in the form of a simple indicative statement, belonging to the modality of judgment of the speaker. An S' may also be recognized as a **suggestion**, fear, plan, thought, mystery, or as any one of the many pure or combined modalities listed among or implied by the examples on Table I, without being embedded in the complex symbols which insure this recognition. They may also be recognized as the consequences of simple transformations, those which turn statements into orders, or into those questions which reverse the per-

son-relatedness of the modalities of judgment, and the time-relatedness of the modality of desire. We know that the question

(9.a) Where are you going?

implies not only the certainty to you and uncertainty to me of S', but also the undesirability to me of my uncertainty, and your certainty of this undesirability to me, as well as of the necessity of answering, which is why you answer

(9.b) Where am I going?

which makes no sense except as an acknowledgment of modal complexity. It is easy to see that such questions as

(9.c) You are going?

and

(9.d) Why don't you go?

are not questions at all, but are quite amenable to the obvious modal analysis which turns them into an expression of surprise or regret, or into a suggestion.

What this paper has tried to do is to present some data which would have to be accounted for in an adequate semantic theory, and to suggest some of the specific elements of such a theory. A semantic theory must presuppose the existence of modal operators on every utterance, and would explain the meaning of any discourse as the relation among its modals. Logical theory has always done this, in taking every proposition of an argument as an element of the modal relations making up the argument. A semantic theory would have to specify the relations among modals which would incorporate propositions with the modality of judgment and the modality of desire into some set of allowable, or in other words interpretable, relations. Such a theory, it should be noted, would be as well a rhetorical theory. The constructions which take THAT-clauses are precisely those which have traditionally been taken as the province of rhetoric. They contain the terms of human passion and motive, of human interaction and dialogue; and they operate to make all the sentences of the language fit into the purposes of human discourse.

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