COMPLEMENTATION AND MEANING

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1. The myth of asemanticism

It is not uncommon to hear or read statements to the effect that Noam Chomsky is an opponent of traditional grammar. The opinion is even aired in books on Chomsky. Harald Weydt (1976: 2), for instance, makes an attempt to link Chomsky's assumed rejection of traditional grammar with an "asemantic" approach to linguistics. He derives this point of view from Paul Postal, who, according to Weydt, justifiably maintains "that Chomsky has never completely given up [his asemantic attitude]".[1] Weydt is convinced that this is "only *one* expression of Chomsky's pervasive basic conviction that a one-to-one relation between a sound segment and a function associated with it does not exist, although this is traditionally maintained."

Weydt's assumption probably stems from statements that appear from time to time in Chomsky's earlier writings. The following statement is taken from "Explanatory models in linguistics":

> A traditional grammar has serious limitations as far linguistic science is concerned. Its basic inadequacy lies in an essential appeal to what we can only call the "linguistic intuition" of the intelligent reader. (1960 : 528)

In this article Chomsky expresses the opinion that traditional grammars aim to describe as many grammatical structures as possible on the basis of selected texts and that they are meant for a reading public of intelligent, linguistically versed adults or at least of people with some experience of deductive language teaching methods. The "linguistic intuition of the intelligent reader" is thus nothing more than the previously acquired linguistic competence that the

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[1] My translation of the German text.

learner contributes to the learning process. A lack of explicitness and of the means to explain what such grammars intuitively recognize is their greatest weakness and not the fact that they do not make an adequate distinction between syntax and semantics, although without doubt this latter point may also be criticized.

Evidence of a more positive attitude towards traditional grammar can be found at a number of points in Chomsky's work. Compare the following quotation from *Current issues in linguistic theory* with that given above and the extracts from Weydt (1975):

> The goal of a traditional grammar is to provide its user with the ability to understand an arbitrary sentence of the language, and to form and employ it properly on the appropriate occasion. Thus its goal is (at least) as far-reaching as that of a generative grammar [...] Furthermore, the rich descriptive apparatus of traditional grammar exceeds the limits of the taxonomic model, though it is largely, and perhaps fully formalizable within the framework of the transformational model. (1964: 16)

Thus the goal of traditional grammar shows certain similarities to that of generative grammar. At this point a little caution is called for, however. Within the broad spectrum of grammatical models bearing the label "traditional grammar" there are of course a number of variants, and Chomsky may well have had the Port Royal grammar in mind here. Yet even if this were so, there are plenty of other points at which he finds words of praise for the work of Otto Jespersen and Henry Sweet, so that Weydt's contention that Chomsky is an opponent of traditional grammar must be firmly rejected. In addition to this, in conversation with Herman Parret, he vehemently rejects the suggestion that his theory of language can be called "asemantic". Consider the following statement:

> [...] commentators who attribute to me the view that syntax and semantics must in principle be sharply distinguished, or those who go beyond and claim that I have urged that problems of meaning be set aside, are simply unacquainted with what I have written on the subject or are, more likely, misinterpreting the technical discussion [of the relationship between the two]. (1974 : 50)

As early as 1955 Chomsky published an article entitled "Logical syntax and semantics", where, searching for the most adequate generative model to explain the creative aspect of language use, he rejects the recursive systems of logical syntax and semantics in the tradition of Carnap, Tarski, Quine, etc. He criticizes Yehoshua Bar-Hillel's assumption that logical semantics offers a formalized system that can be integrated completely into a linguistic model. Notions such as "synonymy" and "logical inference" should not be postulated as primitive linguistic concepts since the linguist must always explain why such synonymous lexemes as *oculist* and *eye-doctor* occur in totally different contexts. At that time, as he freely admits, he was rather a supporter of the use theory

of semantics developed by the Oxford school of linguistic philosophy. Since the early 1950's he has repeatedly expressed the belief that an adequate theory of linguistic semantics cannot be developed without taking other, non-linguistic cognitive systems into account. Commentators such as Weydt have every right to consider this attitude somewhat cautious, but they certainly may not call it "asemantic".

Nevertheless, the question of how semantics may best be integrated into the syntactic description of a language is still as important as ever. In order to shed some light on this problem, I shall examine a restricted set of verbs in English which may be followed either by an infinitive or by a gerundive complement. The aim will be to satisfy my own particular "linguistic intuition", which suggests that certain basic syntactic and lexical regularities can be discovered within this subset of verbs. Furthermore, these regularities can be related to generally valid intensions and extensions and thus to situations of use within which the verbs may be expected to appear.

2. Linguistic meaning and conceptualization in memory

From the outset it should be made clear that any grammar of a natural language must be understood as one among many models set up to account for realized or realizable occurrences of that language. It is thus a metalanguage which will allow the linguist either to describe these occurrences as fully as possible or to make predictions about future possible occurrences, and it aims ultimately at the explanation of the structures of natural languages. At one and the same time, however, it implies an ideology, a way of thinking about language which competes with other models, and must be judged according to its failure or success in this respect. It should never make any claim to be "correct" or "true".

One aspect of the particular ideology to which I subscribe in this article is that, in the long run, the metalanguage should be explicable in terms of a meta-metalanguage which Chomsky has called "universal grammar" (UG). The grammar, the metalanguage, however, must consist of a set of axiomatic terms and propositions and a set of formation rules.[2] The latter must contain recursive rules, substitution rules and inference rules which will allow the generation of theorems and new propositions. In addition, the metalanguage will require functional operators, which combine previously generated propositions into larger propositions, and quantifiers, which bind variables with

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[2] In fact Chomsky's present position (1982) is that the grammar of a language need not be expressed in terms of rule systems but rather as the interaction between a set of systems of principles defining grammaticality. However, this viewpoint deserves greater attention than I shall be able to devote to it within the present paper.

constants. It must be an axiomatic, logical system, but at the same time it must reflect the structures of the object language, viz. natural language. So, despite these stringent conditions, it cannot be an already existent logical system.

An axiomatic system of this type, which serves as a metalanguage for the description and/or explanation of observed or assumed natural phenomena, is, according to Montague (1968) and Eco (1976), a semiotic system and thus bears meaning. There are several suggestions as to how the meanings of linguistic terms and expressions may be accounted for formally in a linguistic model. Two of these suggestions may be fruitfully combined and modified in accordance with recent work on lexical and conceptual memory in artificial intelligence.

The first is Montague's work on pragmatics, in which the alternation achieved through indexing between the intensions and extensions of terms and expressions appears to me an adequate way of connecting the latter with possible referents in a system of possible worlds, thus creating a bridge between semantics and pragmatics. My major criticism of this approach is that the extensions to possible referents in possible worlds are too often interpreted as being extensions to referents in the "real" world or any possible imagined state of the "real" world. From a linguistic point of view it would be far better to envisage a system of extensions to referents in an internal conceptual world, since many of these concepts (taken as extensions in their own right) simply do not have extensions in any possible or actual physical world.[3] In addition, we should be cautious about using terms such as "refer" or "referent". It would be more useful to consider the relationship to be an interaction between the lexicon of the cognitive linguistic system (i.e. semantics) and the concepts and conceptualizations of the cognitive system of human memory, and to talk about such interaction in terms of a concept of "correlation". The interaction itself may then be explained in a theory of pragmatics.

The second suggestion is taken from the theory of thematic roles in the syntactic system of a language, which has been developed on the one hand as case grammar (in all its ramifications) and on the other hand in the more

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[3] This is essentially the point made by Woods (1975 : 50), who discusses Quine (1961 : 9) on Frege's "Morning Star/Evening Star" problem. In this case there is an extension in the physical world, but Woods — quite rightly, as I believe — argues in favour of two different intensions and an assertion that they denote the same object: "In the appropriate internal representation, there must be two mental entities (concepts, nodes, or whatever) corresponding to the two different intensions, morning star and evening star. There is then an assertion about these two intensional entities that they denote one and the same extensional object (extension). In artificial intelligence applications and psychology, it is not sufficient for these intensions to be abstract entities such as possibly infinite sets, but rather they must have some finite representation inside the head as it were, or in our case in the internal semantic representation."

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syntactic work of Gruber and Jackendoff. It is postulated that even the simplest linguistic expressions contain a restricted set of inherent universal meaning elements which may be understood as primitive semantic role-concepts such as Agent, Patient (which Gruber refers to as Theme), Place, Instrument, etc. Whether or not these concepts are to be considered as primitive and universal must remain an open question for the moment. In addition, I shall suggest that they are in effect concepts formed in the memory and that they are correlated principally with structures projected by the choice of the lexemes rather than with the lexemes themselves.

3. The components of the generative model and the Empty Category Principle

If we examine the latest versions of generative grammar developed by Chomsky and his followers[4] or the versions of generalized phrase structure grammar being developed by Gazdar, Klein, etc.[5], it becomes clear that these two directions in the formalization of meaning in the linguistic model have been taken into consideration. At the same time, however, it is precisely these two directions that Chomsky considers to be dealt with too intuitively or too superficially in traditional grammar. Either syntactic categories such as "noun", "verb", "sentence", etc. are related directly to extralinguistic notional concepts, or structural differences such as that between infinitive and gerundive complements are set up without any justification or any relation to possible pragmatic indices. With the help of a coherent, axiomatic system (which space prevents me from presenting in detail here) it should be possible to rectify these failings.

In accordance with Chomsky (1981) the grammar of a natural language will consist of a restricted number of interacting rule systems, or, alternatively, will be determined by a set of interacting systems of principles. The most basic component is the lexicon, which contains the subcategorizations of the lexemes and the thematic role-concepts which they may represent in syntactic structures. Syntactic deep structures are generated, or, as Chomsky puts it, "projected", from the lexicon. Clearly the lexicon must also contain the intensions of the lexemes, which in their turn can be correlated through the system of indices with possible extensions in conceptual memory.

The syntactic component consists of a set of systems of principles. Those of "bounding" and "control" determine the scope within the syntactic structures in which the single transformation Move-α may operate and establish coreference relationships between NPs. Chomsky (1982: 33) defines Move-α as follows:

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[4] Cf. e.g. Chomsky (1981a), Chomsky (1982), Kayne (1981b) etc.
[5] Cf. e.g. Gazdar (1981), Gazdar and Pullum (1982) etc.

Move α is the relation between an antecedent and a gap where:

  a. the antecedent lacks an independent θ-role (and is therefore in a $\bar{\theta}$-position) [The theta role is the thematic role.]
  b. the gap is properly governed [...]
  c. the relation is subject to bounding theory (Subjacency)

The principles of "government" and "case" determine the allocation of morphological surface structure case to the NPs, and those of the so-called "theta-component" determine the thematic roles which the NPs fulfil. The deep structures and S-structures thus generated receive a logico-semantic interpretation through the rules of the "logical form component" and, finally, the S-structures receive the phonetic form of surface structure sentences through the "phonetic form component".

The most important part of the model, however, concerns the empty positions, or gaps, in syntactic structures. There are three of these, PRO (a phonetically non-realized NP which may not be governed by a verb, a preposition, an adjective or a complement marker and does not necessarily display a coreference relationship with any NP in the same sentence[6]), t (the trace of an NP which has been moved from its original position in the deep structure by Move-α) and e (a dummy symbol which is dominated by NP or COMP). Traces always occupy thematically marked positions, whereas dummy symbols may never be thematically marked, NPs in such position receiving their case marking indirectly through non-proper government. A thematically marked NP may only be moved to a dummy symbol position, not to a position which is already occupied by a trace and is thus thematically marked. Chomsky (1982: 21) sets up an Extended Empty Category Principle (ECP) which adequately defines all three types of empty category, viz.:

An EC is trace if and if it is properly governed and PRO if and only if it is ungoverned.

Thus the dummy symbol e is not properly governed, and, as we shall see, there is at least one very significant position in the sentence, viz. subject NP, which fulfils this criterion.

4. Syntactic configurations projected by the verbs "want" and "like"

As a starting point let us consider the following sentences:

(1) *Mavis wants an ice-cream*
(2) *Mavis wants to buy an ice-cream*

[6] If there is an NP to which it can corefer, it will generally be interpreted as doing so.

(3) *Eugene wants Mavis to buy an ice-cream*
(4) *Harry likes westerns*
(5) *Harry likes to watch westerns*
(6) *Harry likes watching westerns*
(7) *Mavis likes Eugene to go to the cinema with her*
(8) *Mavis likes Eugene going to the cinema with her*
(9) *Harry became a teacher, but he didn't like to teach*
(10) *Harry became a teacher, but he didn't like teaching*

The focal points in the analysis of these ten sentences are the verbs *want* and *like*. The verb *want* can be said to project from the lexicon the following three principal syntactic structures:[7]

(11) NP INFL ____ NP
(12) NP INFL ____ $[_{\bar{S}}[_{S}$ NP INFL VP]]
(13) NP INFL ____ $[_{PP}[$for NP]]

Structures (11) and (12) are represented in the data. The INFLECTION category (INFL) in the matrix sentence must always be marked [+TENSE] and [±AGR] (agreement of the subject NP with the verb). In (12) INFL in the embedded sentence will only be marked [-TENSE], so that an infinitive structure with *to* will in fact be generated.

I have argued elsewhere (Watts 1983c) that the type of structure given in (12) was originally postulated to avoid the NP subject of the embedded sentence projected by *want* being governed by that verb. The reason for this, as can be seen from a preliminary and inaccurate D-structure for (2), is that some sort of empty category, probably PRO, would have to be generated as the subject NP of the embedded sentence and thereby governed if a small clause analysis (cf. Williams 1975) omitting $\bar{S}$ were postulated:

(14)

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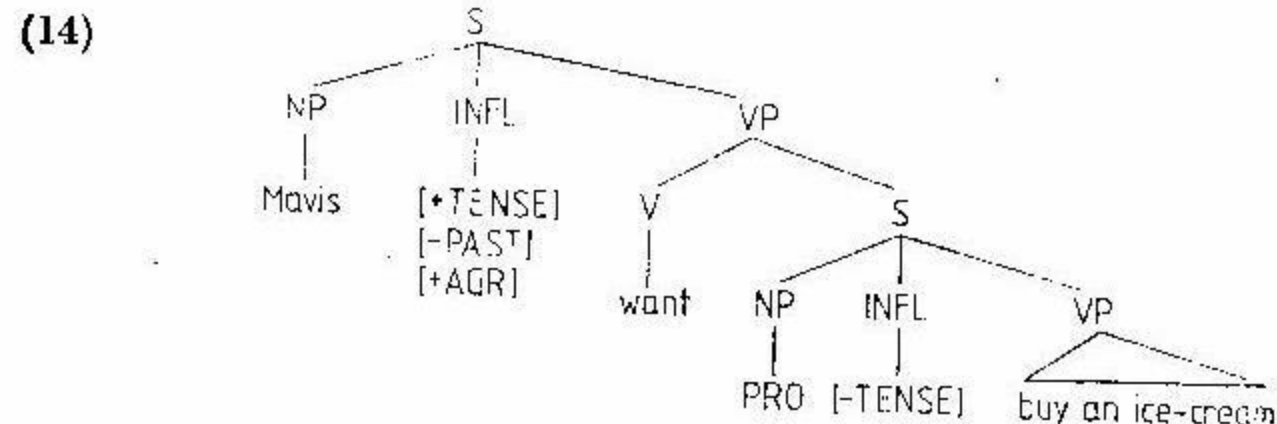
[7] One further type of projection needs to be added, viz. NP INFL__S. I take this to be the small clause analysis needed to account for the following types of sentence:
a. Your hair wants cutting
b. I want the door open
c. I want the door opened

The situation can be rectified by postulating an empty complementizer and reintroducing S̄ as the complement type projected by *want*, as in (15):

(15)
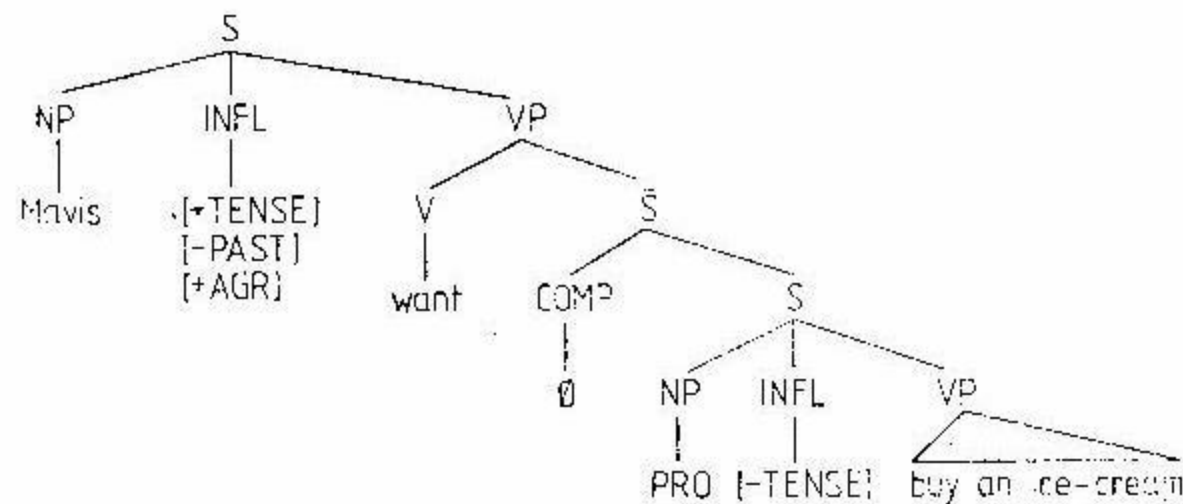
An extra transformation of S̄ deletion can then be postulated, which is an acceptable solution as long as it operates within the phonetic form component. There is, however, a more serious objection to (15). It is unclear why a zero complementizer should not in fact govern the subject NP of the embedded complement clause. We could of course maintain that S̄ deletion is a syntactic transformation and that it operates before case assignment, a procedure which is clearly dependent on the subsystem of government. But as I have argued (Watts 1983c), this would mean violating the principle that the transformational component consists of the single transformation Move-α. The problem thus remains.

My original suggestion was to reject both Chomsky's analysis and the small clause analysis in favour of a prepositional phrase structure containing a shadow element PREP (by analogy with PRO), as follows:

(16) NP INFL ___ [PP PREP [S NP INFL VP]]

The S category in (16) would then be equivalent to an NP. My reasoning was that in certain dialects of English PREP can still be realized as the preposition *for*:

(17) *Mavis wants for to buy an ice-cream*
(18) *Eugene wants for Mavis to buy an ice-cream*

There are, however, sentences such as the following:

(19) *John doesn't want for money*

so that a further projection from *want* is necessary (given above as (13)). The PREP analysis also fails to account for the fact that the marker *to* in (2), (3), (17) and (18) provides evidence for the presence of INFL[-TENSE] in the imbedded complement, which would automatically mean that S̄ must appear in the position occupied by S in (16). In this case a zero complementizer must

be generated and, whether or not we take *for* to be a preposition or a complementizer, we are back in the same impasse as with Chomsky's original analysis.

In order to resolve the problem without resorting to the suggestion of an empty preposition PREP, we need to consider:

a. the thematic roles associated with the verbs in our corpus, and
b. a suggestion which Chomsky makes in *Lectures on government and binding*, taken from Hale (1978), that "grammatical functions are determined in terms of syntactic configurations for certain types of languages [...] and by other properties where syntactic configurations do not suffice", i.e. that languages vary on a structural scale ranging from "configurational" to "non-configurational".

A non-configurational language will allow, given certain conditions on verb position, a certain amount of scrambling of thematically marked NPs at root sentence level, since grammatical functions will also be marked by case, particle assignment, etc. A configurational language marks grammatical functions by stricter syntactic ordering. Thus, in this type of language, NPs or NP-like structures are projected by a verb from the lexicon and must be shifted into certain obligatory positions in syntactic structure. The projection from the lexicon must interact with the syntactic structures admitted by the language. On the configurational/non-configurational scale English is strongly configurational, but I shall argue that at the level of D-structure it is less so.

5. *Theta roles associated with "want" and "like"*

Both verbs in our corpus, *want* and *like*, require some form of complement, either a direct object NP, or an infinitive or gerundive clause, or an NP together with an adjective or a past participle functioning as an adjective. In addition *want* can be followed by a prepositional phrase with the preposition *for* as its head. It has been suggested that *want* denotes [lack] and that this denotation is often linked to the idea of an active mental movement in the direction of the object or state which will resolve this lack.[8] The thematic role of Agent will therefore not be assigned to any of the NPs projected by *want*. Jackendoff (1972) argues that a neutral argument, or Theme[9], must be assigned to one NP in every sentence and that an NP may thus be simultaneously marked for

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[8] Cf. Bertschinger (1941).

[9] Several terms have been suggested in the literature for what Fillmore (1968) in his case grammar calls "the semantically most neutral case", Objective, Patient, Neutral, Theme, etc. Although there is a risk of confusing the concept of "theme" in functional grammar with this thematic role, I shall nevertheless continue to use the term Theme in the present paper.

more than one thematic role, but not more than two.[10] Chomsky (1982: 6) maintains that each argument in logical form which requires a theta role is assigned one "uniquely", but whether this means that every NP may only be assigned *one* theta role is not at all clear.

Consider, for example, the following situation. Someone is putting together a jigsaw puzzle and is at a loss as to how to progress further. An observer might say:

(20) *You want a blue piece in there*

In saying this, the observer is merely stating that a blue piece is missing and that the person for whom it is missing, or, put more abstractly, the location of the lack, is the addressee *you*. Thus it seems reasonable to suggest that the NP correlated with the conceptualization "a blue piece" is assigned the theta role Theme, whereas the NP correlated with the conceptualization of the person suffering the lack, i.e. our frustrated "jigsaw puzzler", is assigned the theta role Place.

If the person doing the puzzle comments:

(21) *I want a blue piece in there*

he/she may simply be stating that he/she lacks a blue piece, but it is far more likely that he/she is expressing a desire for that piece. In this case the assignment of the θ-role Source to the NP *I* and Goal to the NP *a blue piece* seems more appropriate.

Now, according to Jackendoff the NP *I* in this case will receive a double assignment of Place+Source and the NP *a blue piece* a double assignment of Theme+Goal. According to Chomsky, however, only one of these two possibilities exists, either Place and Theme or Source and Goal. If the assignment of double theta roles is a correct analysis, the entry for *want* in the lexicon will be complicated unnecessarily. It seems more feasible to contend that the reinterpretation of Place as Source and Theme as Goal is ascribable to the way in which the sentences are used in discourse rather than to the lexical entry for *want*. The mental activity sense of *want* is thus a case of pragmatic rather than semantic meaning. In the projection with the prepositional phrase with *for*, however, the NP governed by *for* can be assigned the theta role Goal (more properly Potential Goal) by that preposition. The whole prepositional phrase can then be assigned the theta role Theme by the verb *want*.[11]

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[10] Jackendoff presents very compelling arguments for double case marking. I shall argue, however, that it is possible to stick to the "one NP — one thematic role" argument by postulating that any secondary meaning can be derived pragmatically.

[11] Fillmore (1968) maintains that deep structure cases are often marked in English by prepositions. In their turn, prepositions are then virtually meaningless and only

The significant point in this discussion is that the theta role Agent is not assigned to any NP by either *want* or *like*. In the case of *like* the subject NP may also be assigned the theta role Place.[12] In both cases the complement of the verb, whether it is NP, PP, S̄ or any other structure, will be assigned the theta role Theme.

If we now take sentence (1), we can postulate the following D-structure in accordance with projection (11) and assign to each NP the appropriate theta role:[13]

(22)
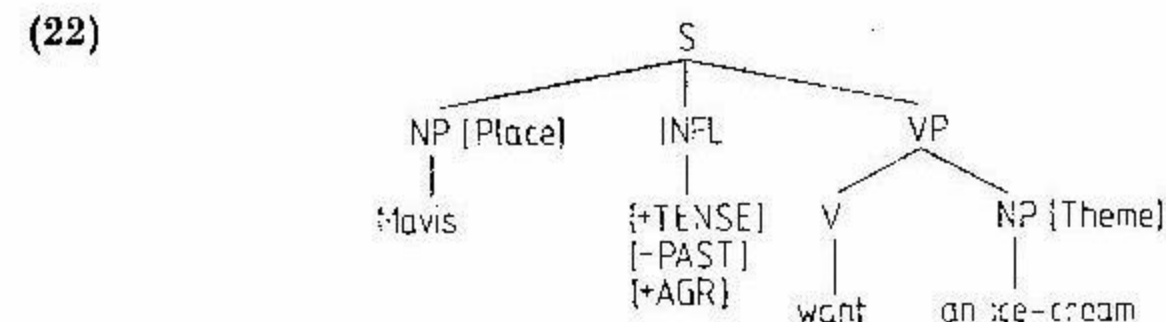
When the sentence is used in discourse, Place will be pragmatically reinterpreted as Source and Theme as Goal.

Similarly, we can assign to sentence (2) the following D-structure in accordance with projection (12):

23)

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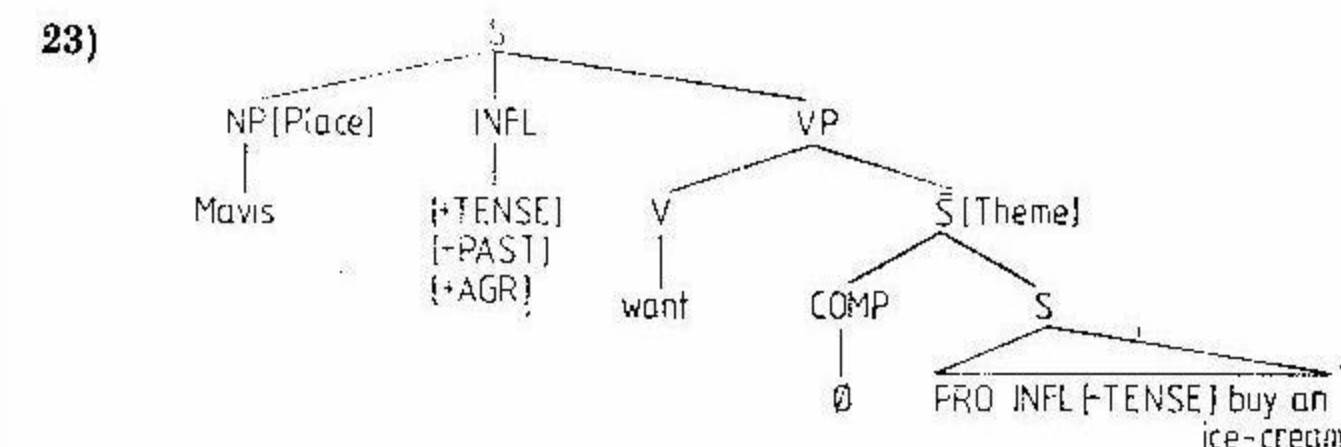
serve the purpose of theta-role marking. Now, if the preposition *for* is assigned meaning, as I believe it is (cf. Watts 1976), and if it is a governor, then the governed NP must be assigned a theta role, which in this case can only be Goal (or Potential Goal). If we insist on the presence of a Theme in every sentence, we are forced to accept the theta-role marking of whole prepositional phrases, since the only candidate for such a marking would be the *for*-phrase (in this case). I am not entirely happy with this solution, even though other types of complement structure (and the *for*-phrase is after all the complement of the verb *want* here) will be assigned a theta role. We may well have to drop the requirement that there always be a structure marked for the theta role Theme.

[12] The reader should be aware that the term Place is to be taken in an abstract sense. In this instance it covers the domain of Fillmore's semantic case Experiencer.

[13] I shall omit the level above the matrix S, viz. S̄ [COMP S], since this will play no part in the discussion. I shall also omit from consideration the specifier node of the major categories.

As I pointed out above, there appears to be no logical reason why a zero complementizer should not govern the subject of an embedded clause, in which case PRO is governed in (23). As an adequate D-structure for (2) it is thus more than problematic. A similar D-structure for (3) would be unproblematic, since the NP *Mavis* would appear in place of PRO in the embedded clause. Sentences (4) and (7) would be similarly unproblematic. The D-structure for (5), however, would be in the same uncomfortable position as (23).

6. The empty NP in subject position and non-configurational D-structure

At this point it will be helpful to consider possible D-structures for sentences containing other verbs with infinitive complements. The following two sentences with the verbs *advise* and *begin* will serve our purpose:

(24) *Eugene advised Mavis to go home*
(25) *Harry began to run*

In (24) the NP after *advised* can be made the subject of a passive sentence:

(26) *Mavis was advised to go home*

but it cannot be omitted from (24):

(27) **Eugene advised to go home*

Analogously, no passive structure can be given for (25) and no NP can be inserted after *began*:

(28) **Harry began Mavis to run*

We can conclude that *advise* projects a structure with two complements, one of which must be an NP, whereas *begin* may only project one complement, an NP, a PP, an infinitive clause or a gerund.[14]

Without entering the discussion as to whether there are two verbs *begin* or merely one with different subcategorizations (cf. Perlmutter 1970, Newmeyer 1969c, Givon 1973, Freed 1979), we seem to have an intransitive structure in (25). The activity that began was "Harry running". So, although we may assume that Harry initiated the activity of running himself, we may not consider him to be the agentive force behind the verb *began*. The aspectual verb *begin* projects as one of its subcategorizations one single complement clause; the question is whether the subcategorization should be expressed as in (29) or (30):

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[14] It may also be used intransitively without a complement, e.g. *The race began.*

(29) $[_{\bar{s}} [_{s} \text{ NP INFL VP}]] \text{ INFL } \underline{\quad}$
(30) $\text{NP}_e \text{ INFL } \underline{\quad} [_{\bar{s}} [_{s} \text{ NP INFL VP}]]$

Both (29) and (30) show the intransitive nature of *begin*. In (29), however, we would need to move INFL and VP to the right of the matrix verb, so that an empty NP slot would be required in that position. This is not problematic, but since INFL and VP are independent categories in the government-binding theory of generative grammar, there is no apparent logical reason why only VP should be moved to the right. If this were to happen, of course, generating the infinitive marker *to* in the correct position in the syntactic structure would be well-nigh impossible.

The more elegant and intuitively satisfying solution is to propose a raising operation, i.e. Move-α would apply to the subject NP of the embedded clause and move it into the empty NP slot (NP-). The principles of subjacency would not thereby be violated. More importantly, however, the only possible theta role assignment to the S̄ complement is that of Theme, the NP *Harry* being assigned the theta role Agent by the verb *run*. The D-structure of (25) can thus be given as (31):

(31)
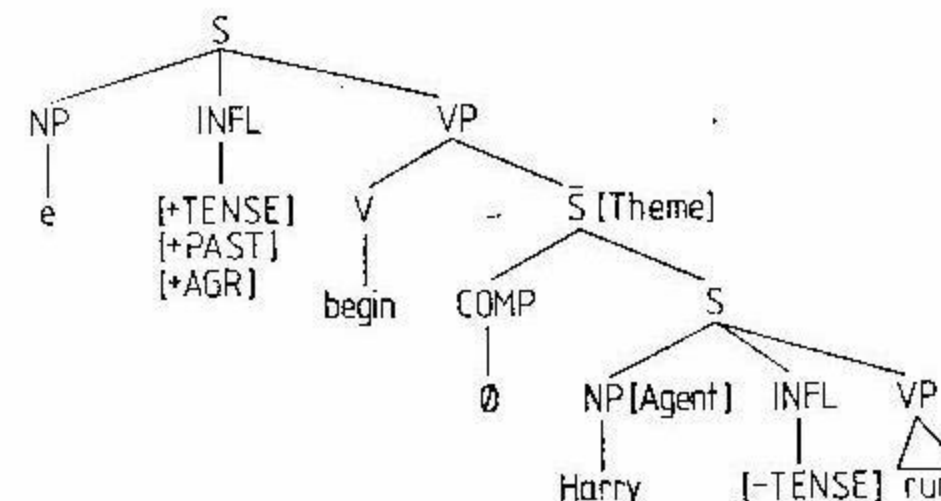
Once the NP *Harry* is moved, a trace *t* is left behind. The trace is in a theta position and cannot be assigned case as it is an empty category. The NP *Harry* has been moved to a non-theta position and can be assigned Nominative Case by virtue of being governed by INFL.

The situation with sentence (24) is rather different. The NP *Mavis* is projected as one of the complements of the verb *advise* as is the infinitive clause. The theta roles may be assigned as follows: the subject NP *Eugene* will be the Agent; the object NP *Mavis* will be the Goal[15]; the complement clause will be the Theme. To generate (24) no movement transformations need operate,

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[15] Evidence for taking this NP to be marked for the theta role Goal is provided by languages in which morphological dative case marking appears at the surface with the translation equivalent of this verb, e.g. in German.

the D-structure (32) being very close indeed to the S-structure:

(32)
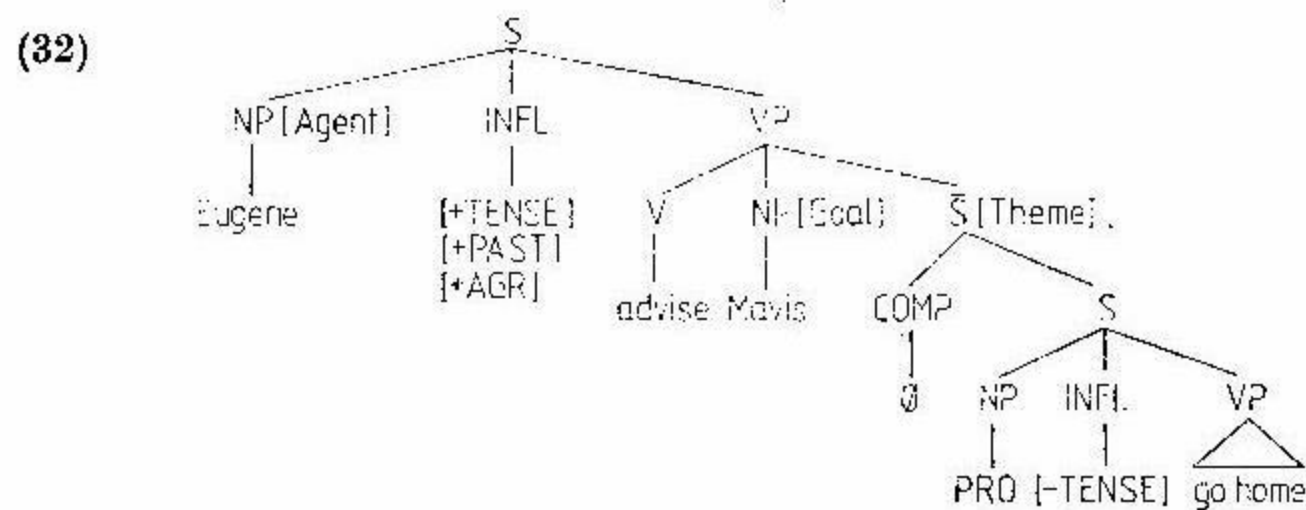
This analysis will only stand if we can clarify the government situation with regard to zero complementizers, so let us now return to that important point before drawing conclusions from the analysis of sentences (24) and (25).

7. COMP as the specifier of S

There is a certain inconsistency in Chomsky's definition of which categories can govern and be governed in which syntactic configurations (cf. Chomsky 1981: 162). On the one hand, he suggests that in the following configuration:

(33) $[_{\bar{S}}$ for $[_S NP_1$ to $[_{VP} V NP_2]]]$
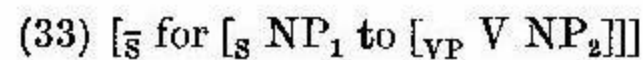
the complementizer *for* governs NP_1 but not NP_2. He argues that this will be the case if we take COMP to be the head of $\bar{S}$. On the other hand, he discusses the following structure:

(34) $[_{VP} V [_{\bar{S}} COMP [_S NP INFL VP]]]$
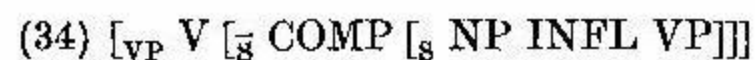
in which COMP is a *wh*-element, *that* or zero, and argues that INFL will govern NP because it is the head of S. Now, this is inconsistent. For the sake of (33) the COMP is the head of $\bar{S}$ and thus governs the subject NP of the infinitive clause, whereas for the sake of (34) COMP is said not to govern (so it is unclear whether or not it is still being regarded as the head of $\bar{S}$!) and it is now INFL, the head of S, which governs the subject NP of the complement clause.

In fact, there is very little motivation for taking COMP to be the head of $\bar{S}$. In a noun phrase, for example, the noun will be the head and it will always be specified, as we can see from the two possibilities in (35) given in $\bar{X}$ notation:

(35)
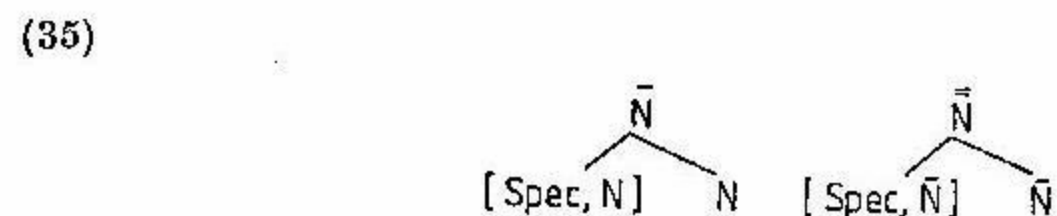
The same is true for the adjective phrase, $\bar{A}$ or $\bar{\bar{A}}$, and perhaps also for the verb phrase, $\bar{V}$ or $\bar{\bar{V}}$, and the prepositional phrase, $\bar{P}$, although there are certain arguments which might restrict the specification of these latter two.[16] Thus, if N is the head of $\bar{N}$, A is the head of $\bar{A}$, V is the head of $\bar{V}$ and P is the head of $\bar{P}$, why should COMP suddenly be the head of $\bar{S}$ when we have a category S? Surely COMP is the equivalent to a specifier of S and not the head of any larger construction. If S is the head of $\bar{S}$, it should be a governor, but at this point we run into difficulty. The only NP it could govern is the subject NP, and Chomsky himself has already made the plausible suggestion that INFL governs the subject $\bar{N}$ (or NP in our present notation). Quite apart from this, what do we do in embedded infinitive clauses with INFL present where the subject NP is then marked with an Oblique Case? INFL in the matrix sentence will lead to a Nominative Case marking.

The following difference exists between INFL in the matrix sentence and INFL in non-finite clausal complements: in the first case it *must* be marked for [+TENSE] and [+AGR], whereas in the second case it is only marked for [−TENSE]. My suggestion is that the following set of principles be set up:

(36) i. COMP is the specifier of S and cannot govern.
   ii. S is the head of $\bar{S}$, but cannot govern.
   iii. INFL, when marked [+TENSE] [+AGR], is the head of $\bar{S}$ in lieu of S and governs the subject NP.
   iv. INFL, when marked [−TENSE], is not the head of $\bar{S}$ in lieu of S and cannot govern.
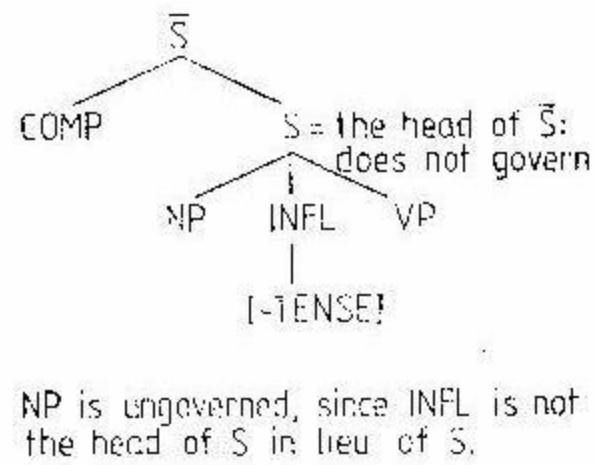
Thus the following two configurations can be set up with their associated governor relations:

(37)

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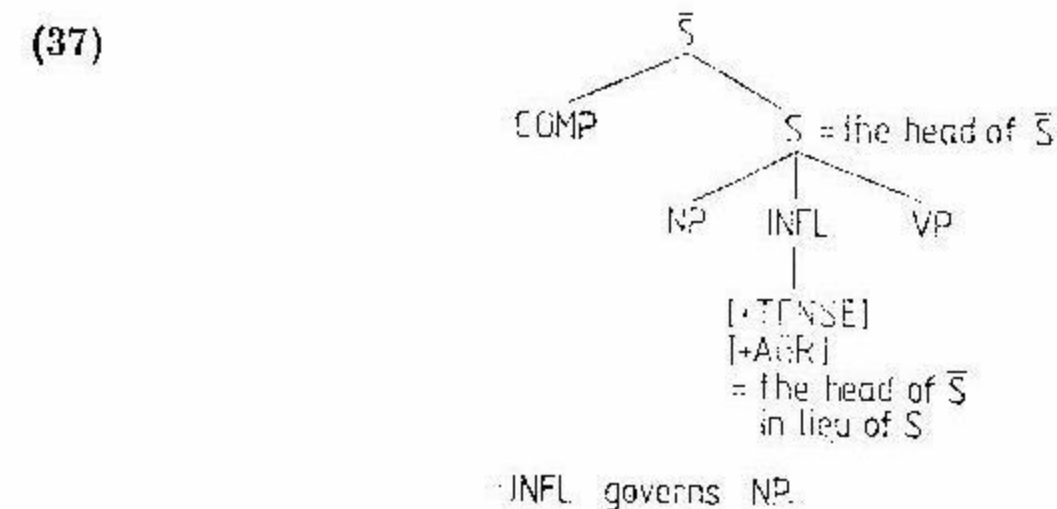
[16] One is that the AUX node was originally taken to be the specifier of V or $\bar{V}$. If, as do Pullum and Wilson (1977), we consider auxiliary verbs to be a class of verbs with verb phrase complements, then this suggestion becomes vacuous. I shall postulate later in this paper that the only specification of V or $\bar{V}$ will be in terms of a combination of two features which I set up as [FACTUAL] and [±PERFECTIVE] and that such specification may only occur when INFL is not present.

(38)

$$\overline{S}$$

COMP　　S = the head of $\overline{S}$: does not govern

NP　INFL　VP

[-TENSE]

NP is ungoverned, since INFL is not the head of S in lieu of S.

So it does not matter what complementizer specifies S: none will be a governor. The Oblique Case marking in infinitive and other complement clauses must therefore be derived from a version of Chomsky's Exceptional Case Marking principle, which will operate whenever an ungoverned NP is encountered in a syntactic configuration.

8. *Non-configurational D-structures for "want" and "like"*

The analysis of (24) and (25) with the verbs *advise* and *begin* show that if an NP projected by a verb which assigns the theta role Agent is marked for that role, it must appear in the D-structure of an English sentence in the subject NP position of the syntactic configuration. If no Agent NP is projected by the verb, the subject NP will remain empty (NPe) and the structures projected as complements will appear after the verb, as is often the case in a non-configurational language.[17] In other words, if we assume a verb X projecting two NPs marked for Theme and Place, the non-configurational entry in the lexicon may simply be the following frame:

(39) X [NP$_{Theme}$ N$_{Place}$]

However, because every sentence of English must have an NP in subject position (apart from the special case of imperative structures), we can assume that the syntactic structure projected from this lexical frame is (40):

(40) NP$_e$ INFL ＿＿＿ NP$_{non-Agent}$ NP$_{non-Agent}$

with an empty subject NP slot. One of the non-Agent NPs must then be moved into that gap by Move-α.[18] If we now assume a verb Y which projects two NPs marked for Agent and Theme respectively, the non-configurational entry in the lexicon will be (41):

(41) Y [NP$_{Agent}$ NP$_{Theme}$]

---

[17] They may also appear before the verb if the language has basic SOV rather than VSO word order.

[18] An order of precedence will have to be established here, of course. One likely order would be that Place precedes Theme, Source and Goal, and Theme precedes Source and Goal. If only Source and Goal occur, Source will be moved into the empty subject slot.

but the syntactic structure projected will be (42):

(42) NP$_{Agent}$ INFL ＿＿＿ NP$_{non-Agent}$

If this assumption is correct, it means that the D-structures of English sentences show distinct traces of non-configurationality except when an Agent NP is projected. Returning to *want* and *like* therefore, we need to revise the syntactic structures which those verbs were assumed to project in Section 4. (11)—(13) will now be incorrect, since we need to assign a theta role to each NP within the lexical subcategorization of the verbs at D-structure level. In effect this means that theta roles are not assigned in the logical form component. If we still wish to maintain that they are, then that assignment takes place simultaneously with the lexical projection and actually effects the latter — a clear case of syntactic and semantic cohesion in the model.

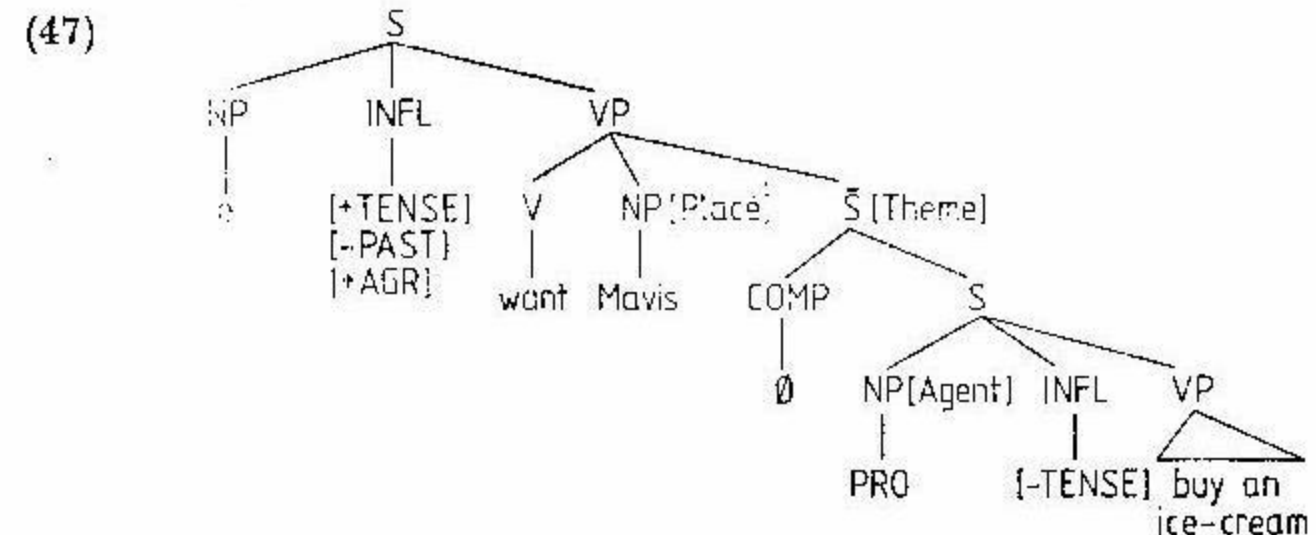The lexical frames for *want* and *like* will thus be as follows:

(43) want [NP$_{Place}$ $\left\{\begin{array}{l}NP \\ \overline{S} \\ PP\end{array}\right\}_{Theme}$]

(44) like [NP$_{Place}$ $\left\{\begin{array}{l}NP \\ \overline{S}\end{array}\right\}_{Theme}$]

The problem of pragmatic recategorization with *want* has been ignored for the moment. The projected syntactic structures will thus be (45) for *want* and (46) for *like*:

(45) i. NP$_e$ INFL＿＿＿NP$_{Place}$ NP$_{Theme}$

　　ii. NP$_e$ INFL＿＿＿NP$_{Place}$ [$_{\overline{S}_{Theme}}$ [$_S$ NP INFL[-TENSE] VP]]

　　iii. NP$_e$ INFL＿＿＿NP$_{Place}$ [$_{PP_{Theme}}$ for [NP$_{Goal}$]]

(46) i. NP$_e$ INFL＿＿＿NP$_{Place}$ NP$_{Theme}$

　　ii. NP$_e$ INFL＿＿＿NP$_{Place}$ [$_{\overline{S}_{Theme}}$ [$_S$ NP INFL [-TENSE] VP]]

D-structure (15) for sentence (2) is thus invalid and can be replaced by (47):

(47)

S

NP　　INFL　　VP

Ø

[+TENSE]　V　NP[Place]　$\overline{S}$[Theme]
[-PAST]
[+AGR]　want　Mavis　COMP　S

Ø　NP[Agent]　INFL　VP

PRO　[-TENSE]　buy an ice-cream

The verb *want* governs the NP *Mavis* but not the S̄ complement. Since the NP must be moved into subject position, leaving behind a trace, it will not be marked for Oblique Case by virtue of this relationship, but for Nominative Case by virtue of the relationship of non-proper government into which it now enters as the subject of the sentence. INFL in the matrix sentence, the surrogate of S, will be the governor. Thus, although according to the principles set out under (36) COMP cannot govern PRO, *want* is also prevented from governing in (47) and the ECP is not violated.

In this way sentences (1)—(5) and sentence (7) can be accounted for both semantically and syntactically whilst retaining the validity of the ECP. The only cost is the assumption of a D-structure with an empty NP slot in the subject position when the verb does not project an NP marked for the theta role Agent. This type of analysis is well motivated independently for other verbs followed by infinitive complements anyway, so that the apparent extra cost is minimal. At least it allows us to maintain the principle of empty complementizers, whilst at the same time restricting the transformation of S̄ deletion (which in effect is a deletion of the empty COMP node) to the phonetic form component without positing a shadow category PREP.

The following residual problems remain, however:
a. How do we account for the gerundive complements in sentences (6), (8) and (10)?
b. How do we account for the fact that (9) is felt by native speakers to be in some way less acceptable than (10)?
c. Can we motivate the pragmatic recategorization of the thematic roles associated with the verb *want* more satisfactorily within the model?

9. *Pragmatic consequences of the interaction between theta marking and tense marking*

In this section I shall consider the final two questions first, beginning with c. Let us compare sentence (2) with the other sentences given below:

(2) *Mavis wants to buy an ice-cream*
(48) *Harry wants to own a car*
(49) *Eugene wants to look smart*

Intuitively all three sentences seem to lie on a descending connotational scale of "agency" or "potential activity". In other words, if Mavis wants to buy an ice-cream, we can assume that as long as she is not prevented from doing so, she will go and buy one. But if Eugene wants to look smart, others might not judge him to be so regardless of what he does to smarten himself up.

Three factors play a role in the pragmatic interpretation of the sentences, the presence of INFL [−TENSE] in the infinitive complement, the control

relationship between the S-structure subject of the matrix sentence and the PRO subject of the complement clause, and the theta marking of the NPs projected by the verbs in the embedded complement clauses.

It is clearly open to interpretation precisely which theta roles will be assigned, but I shall suggest the following:

(50) i. buy $[NP_{Agent} \; NP_{Theme} \; (PP_{Source} \; PP_{Instrument})]$
   ii. own $[NP_{Place} \; NP_{Theme}]$
   iii. look $[NP_{Theme} \; AP]$

The verb *look* will project an adjective phrase complement, which cannot be assigned a theta role. With *buy* two PPs are optionally projected and marked for Source and Instrument. The NP marked for Agent will be pragmatically reinterpreted as the Goal unless a further PP with *for* is projected. In this case the real goal of the purchase is explicitly mentioned.

The D-structure for (2) may stand as in (47) above, as the Agent NP projected by *buy* must also be projected into the subject NP slot of the embedded complement clause. The D-structures for (48) and (49) are as follows:

(51)

(52)
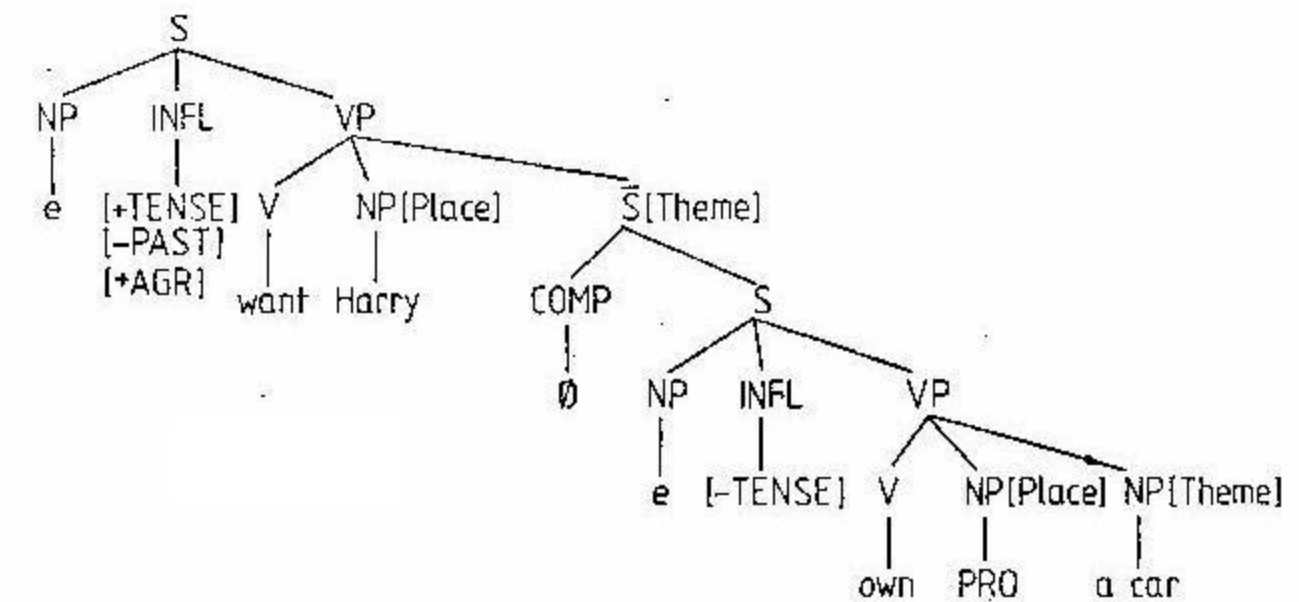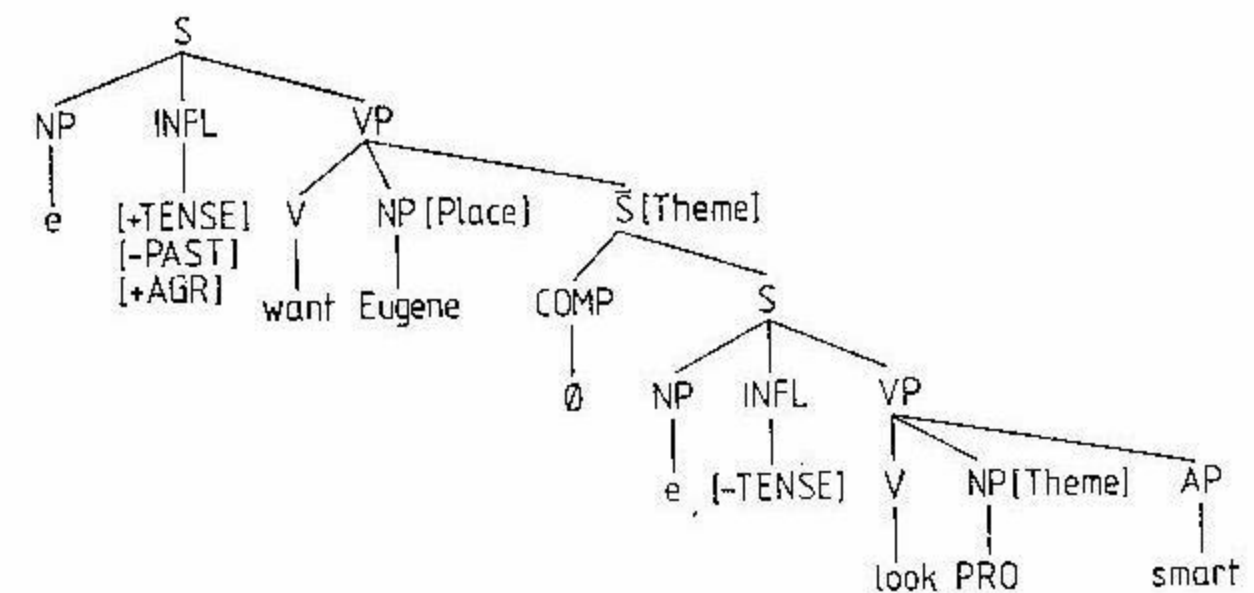
After Move-α has operated twice in both structures, PRO will appear in the subject NP position of the embedded complement clause and the NPs *Harry* and *Eugene* respectively in the subject NP position of the matrix sentence.

The principles of the subsystem of control will allow a coreference relationship to hold between the two subjects so that in (2) the theta role Agent will be, as it were, associated with the theta role Place. In (48) the theta role Place will be strengthened by the same theta marking on PRO, and in (49) the theta role Theme will be associated with the theta role Place, giving us the following combinations:

(53) i. Mavis [Place (+Agent)]
      ii. Harry [Place (+Place)]
      iii. Eugene [Place (+Theme)]

The feeling that sentences (2), (48) and (49) can be located on a descending scale of agency appears to be partly a consequence of theta role association. The extensions of these sentences are to conceptualizations involving varying degrees of potential agency or activity on the part of the persons referred to by the internal concepts "Mavis", "Harry" and "Eugene", which are in turn correlated with the lexemes in semantic memory. I shall argue that potential agency arises as the consequence of an interaction between the INFL markings in the matrix sentence and the embedded clausal complement, and the semantic structure of the verb itself.

First, we need to extend the scope of the subsystem of control to include the INFL category. I have hypothesized that INFL is marked for [+TENSE] or [−TENSE]. If the former marking occurs, then a choice must be made between [+PAST] and [−PAST], and [+AGR] must also be generated. Thus the definition of a finite clause is a clause in which INFL is marked [+TENSE] and [+AGR]. If [−TENSE] appears under INFL, no further marking is necessary. The definition of a non-finite clause is a clause in which INFL [−TENSE] is generated. I suggest that INFL [−TENSE] is under the control of the INFL [+TENSE] marking in the finite clause in which the non-finite complement clause is embedded. Thus the [±PAST] marking in the finite clause will be carried over to the [−TENSE] marking in the non-finite clause. The action, event, state or process denoted by the verb in the embedded clause cannot be correlated with a time concept previous to that with which the matrix verb is correlated unless a perfect infinitive is generated. But even then the temporal orientation point is still that of the matrix sentence.

Consider the following three sentences:

(54) *It amused Harry to see Gertrude at the party*
(55) *It's nice to see you here*
(56) *Harry wanted to see Gertrude at the party*

In (54) and (55) the infinitive complements are oriented to the time correlated with the past tense marking of the verb *amuse* and the VP *be nice*. The same is true in sentence (56), but here, in contrast to the other two sentences, the semantic structure of the verb does not presuppose the truth of the finite version of the non-finite clause. Thus, whereas (57) and (58) can be given a positive truth value, (59) (from (56)) can be considered as neither true nor false:

(57) *Harry saw Gertrude at the party*
(58) *I see you now*
(59) *Harry saw Gertrude at the party*

Nevertheless, the very fact that the infinitive complement clause has been generated in (54) and (55) means that it is not possible to assume that Harry saw Gertrude *before* he was amused or that the utterer of (55) saw the addressee *before* he decided to evaluate this fact. If we want to express this, the most natural way of doing so is by means of sentences such as the following:

(60) *Seeing Gertrude at the party amused Harry*
(61) *Seeing you here is nice*

It is the semantic denotation [lack] combined with the theta role association which leads to an interpretation of (2) or (56) as being "future-oriented" and thus directed towards the goal of "buying ice-cream" or "seeing Gertrude at the party".

The second question to be answered concerns the curious nature of sentence (9) compared with sentence (10). (9) is certainly not ungrammatical, but native speakers tend to feel that there *is* something wrong with it. The first sentence in the pair of sentences coordinated by *but* entails a further sentence *Harry was a teacher*. Given that this is so and accepting the fact that he apparently does not like his profession, what sentence (9) in fact says is that he does not like individual occurrences of himself carrying out the activity of teaching. This interpretation is deducible from the D-structure of *he didn't like to teach*:[19]

(62)
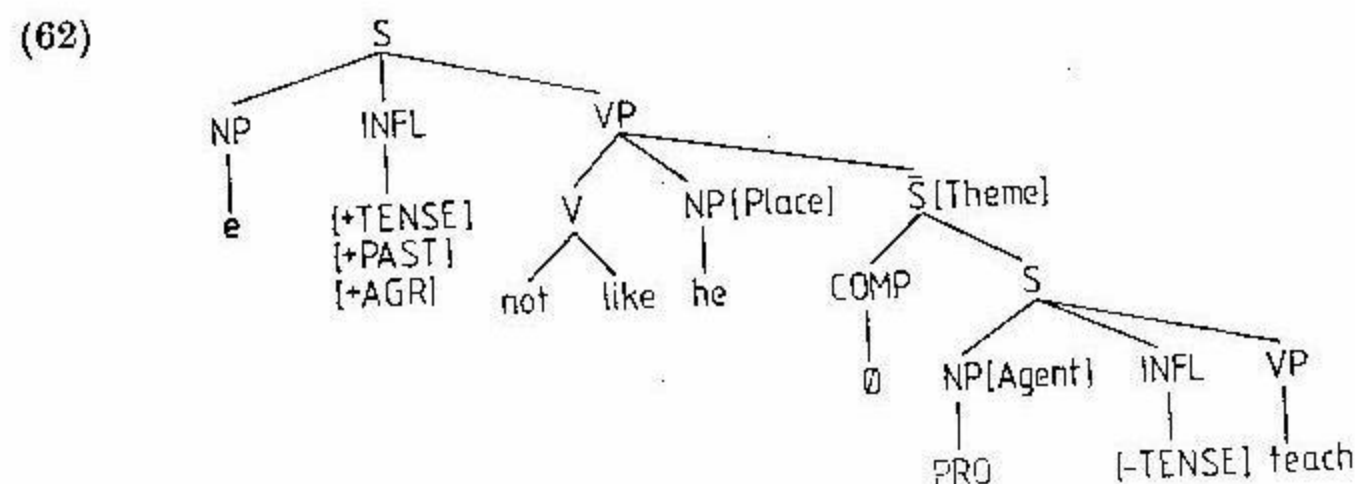
_____
[19] Clearly the status of *not* in (62) is more problematic than appears to be the case

In addition to this, the time concept with which [+PAST] is correlated carries over to INFL [−TENSE] in the infinitive complement, such that the pragmatic interpretation of the sentence is likely to be that Harry did not like the individual occasions on which *he* taught. In other words, the infinitive complement clause will lead to an iterative interpretation. Yet this is clearly not what the utterer of (9) intends to express. It is the general activity of teaching or the profession itself that he does not like, i.e. marking, lesson preparation, contact with the children and other teachers, etc. This seems to be best expressed by using the gerundive complement clause as in (10) — which brings us to the problem of accounting for this structure in sentences (6), (8) and (10).

10. *Gerundive complements*

Within the scope of the present paper we cannot review the enormous amount of literature on gerunds, gerundives and derived nominals to assess the pros and cons of considering such forms as more "verbal" or more "nominal". However, a number of points can be confidently asserted. Firstly, gerunds (i.e. *-ing* structures appearing in NP positions that cannot be preceded by a definite article, cannot be premodified by an attributive adjective and cannot be postmodified by an *of*-phrase) must be complement clauses. In (8) the NP *Eugene* must be the subject of *going* and not the object of *like*, giving us the complement clause:

(63) *Eugene going to the cinema with her*

Secondly, as complement clauses they cannot be finite since they do not possess an INFL [+TENSE] marking. Thirdly, and further to the second point, they are totally neutral with respect to any tense marking; INFL does not appear in such clauses at all. Fourthly, they appear in many cases to share semantic properties with participial structures in *-ing* and the *ing*-form which combines with *be* to generate the progressive aspect of finite verb phrases. Finally, they can be interpreted intuitively as expressing a greater degree of generality and factuality than infinitive complement clauses. Sentence (9) is strange precisely because it does *not* convey these senses.

To account for such structures both syntactically and semantically, we need to modify the principles of specification. So far we have assumed that D-COMP is the specifier of S, and this assumption will be upheld. However, it is

_____
here. For the purposes of the present discussion, however, I will let this somewhat ad hoc solution stand.

necessary to make two further assumptions:

(64) a. S may or may not be specified.
     b. V may or may not be specified.

If S is not specified, S̄ will not be generated, merely S, and no INFL category will be generated, which gives us a syntactic characterization of the term "small clause". If V is specified, only two possibilities present themselves, the "past participle" marking and the *-ing* marking.

Freed (1979) has argued in favour of the aspectual term "perfective" as an adequate concept for the structural description of verbal configurations in English. I shall postulate a feature [±PERFECTIVE], which, I maintain, is linked closely to the feature [±PAST] in finite structures, to distinguish between past participle structures ([+PERFECTIVE]) and *-ing* structures ([−PERFECTIVE]). It is now necessary to make a further distinction between these two non-finite verb forms and all others, viz. the bare infinitive without *to*, the infinitive structure with *to* and finite forms of the verb. I suggest a feature [FACTUAL], which indicates that the activity or state denoted by the verb is considered by the speaker to be in some sense true, either by virtue of the fact that it actually *did* occur or *was* the case (for the speaker),[20] or because it forms part of the speaker's general knowledge, or because the speaker has previously experienced the activity or state, either directly or indirectly.

The existence of a feature [FACTUAL] allows us to account for two phenomena; firstly, certain adjectives and nouns, e.g. *interesting, bowling* etc., have the suffix *-ing* but are no longer felt to be verbal, i.e. they appear in the lexicon (semantic memory) as adjectives or nouns and are thus taken to be "known"; secondly, gerundive clauses are projected by certain verbs and prepositions almost counter intuitively *if* we take the *-ing* form to be a sign of factivity, i.e. as true on the basis of actual past occurrence. For example, the factivity explanation will be unable to account for the grammaticality of the following sentences:
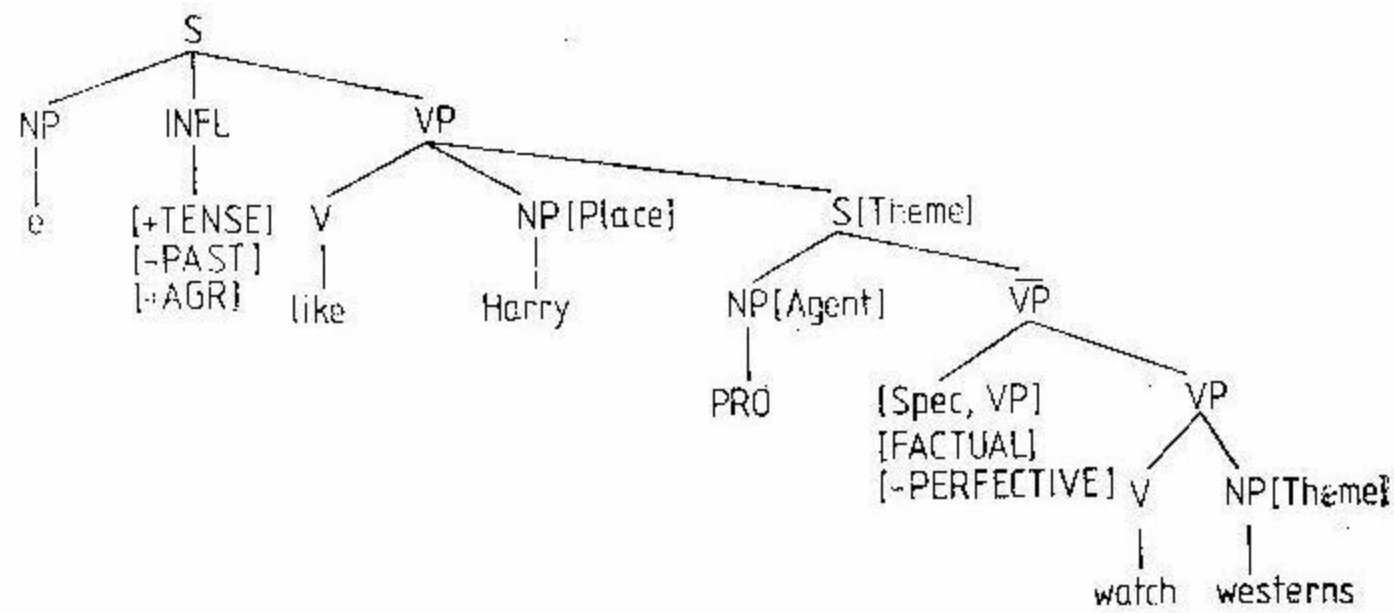
(65) *I suggest going for a swim*
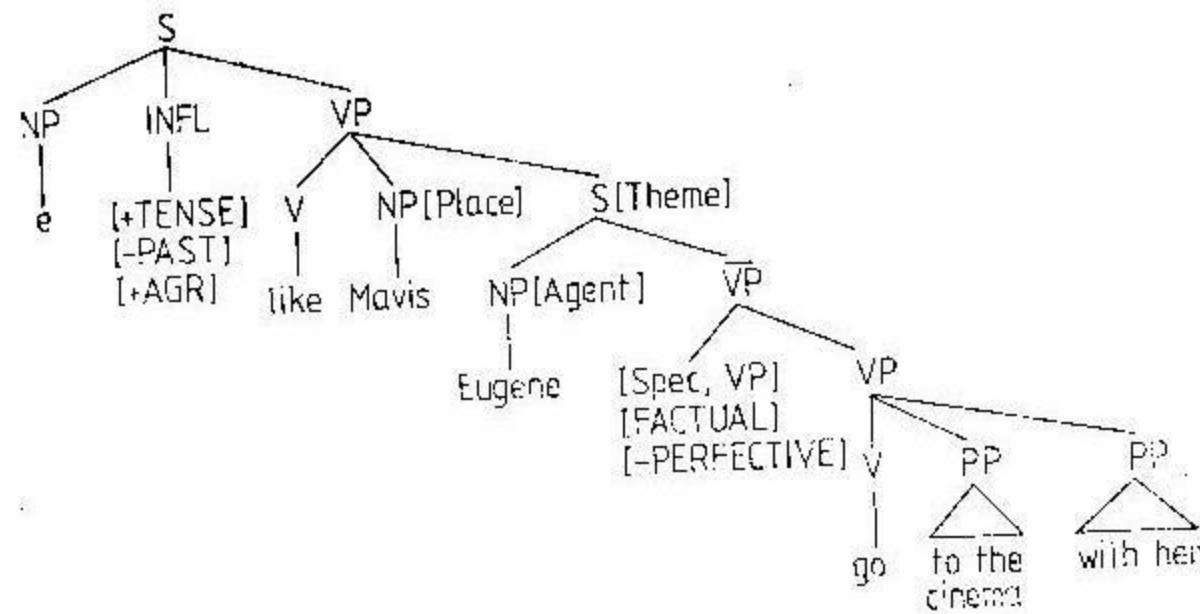(66) *We're looking forward to seeing you next week*

Returning to our original corpus of sentences, we can now assign sentences (6) and (8) and the second coordinated sentence in (10) the following D-structures:

_____
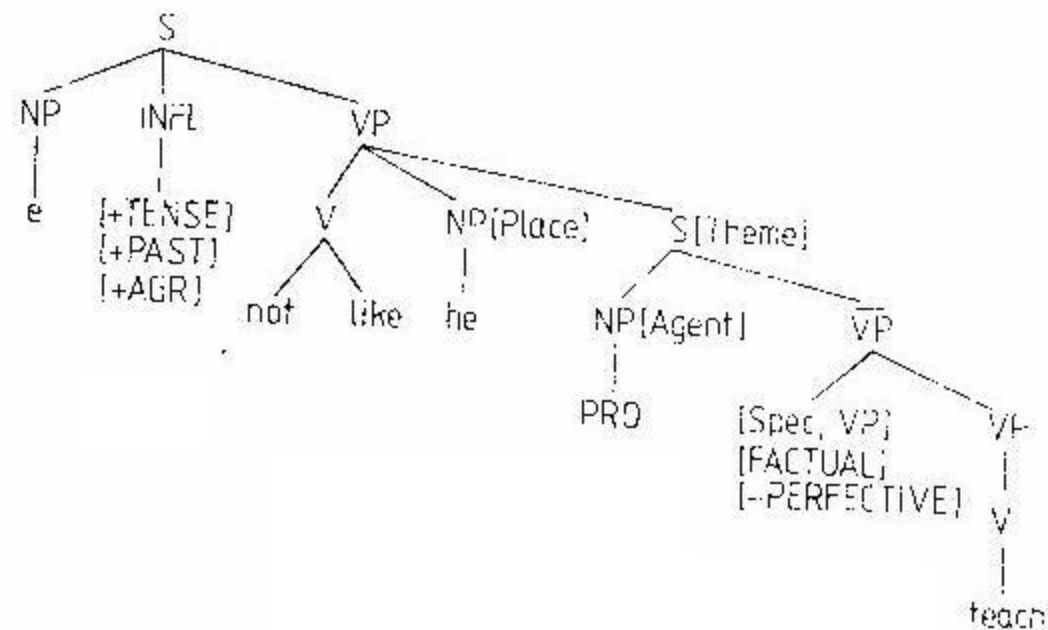[20] It will thus be very similar to the Kiparsky's notion of "factivity".

(67)

(68)

(69)

In (67)—(69) the subject NP of the small clause is not governed. The ECP is not violated in cases where PRO appears, and where the NP slot is filled by other than PRO, Oblique Case will be assigned as a consequence of (36) through Exceptional Case Marking, which, in modified form, can be stated for English as follows:

(70) The principle of Exceptional Case Marking (ECM): An ungoverned NP in a syntactic configuration will be assigned Oblique Case.

11. Concluding remarks

The analysis of the sentences in the very restricted corpus (1)—(10) has involved postulating a number of developments of the government/binding model (GB). The most important of these are as follows:

a. Theta roles, such as Agent, Place, Theme, etc., are projected onto the complements of the verb at the level of D-structure.

b. Agent NPs are projected into subject position in syntactic D-structure configurations in English, otherwise the subject NP slot remains empty. NPs marked for other theta roles are projected into positions after the verb at D-structure, thus offering a natural way of preventing government of PRO without postulating a transformation of S deletion.

c. COMP is not the head of $\bar{S}$, but rather the Specifier of S. S is the head of $\bar{S}$.

d. INFL marked for [+TENSE] and [+AGR] acts as a surrogate for S and governs the subject NP, assigning Nominative Case.

e. INFL marked for [−TENSE] and S cannot govern.

f. Ungoverned NPs will be assigned Oblique Case by the revised principle of ECM.

g. Three types of clausal complement are possible in English,
   i. finite clauses where S is specified by COMP and INFL is marked for [+TENSE] and [+AGR]
   ii. non-finite clauses, where S is specified by COMP and INFL is marked for [−TENSE]
   iii. small clauses, where S is unspecified and INFL is not generated.

h. VP may be specified by a semantico-syntactic feature [FACTUAL] which is further divisible into [+PERFECTIVE] resulting in a past participle marking of the verb or [−PERFECTIVE] resulting in an -ing form marking.

i. INFL marked for [+TENSE] controls INFL [−TENSE] in an embedded clausal complement, such that the semantic structure of the verb and the extension from [+TENSE] to a time point in conceptual memory will orient the time point conceptualized from [−TENSE].

Consideration of the theta roles associated with the verbs *want* and *like*, the semantic denotation of that verb and the interplay of these factors with INFL control allow us to account for the current meaning of *want* as a mental activity in terms of a pragmatic interpretation from semantico-syntactic structures. It has also been possible to account for the subtle differences in meaning when *want* appears in different syntactic configurations.

To illustrate that these points have a more extensive explanatory value and that semantic considerations at the level of the lexicon play a vital role in the GB model without us having to postulate the primacy of semantic representations over syntactic configurations, consider the following grammatically acceptable sentences, which tend to cause EFL teachers headaches and force them to revise their notions of what complement structures follow what verbs somewhat radically:

(71) *John wants the door opened*
(72) *Your hair wants cutting*
(73) *Bill would like looking at TV if only he could afford to buy one*
(74) *The problem needs looking into*
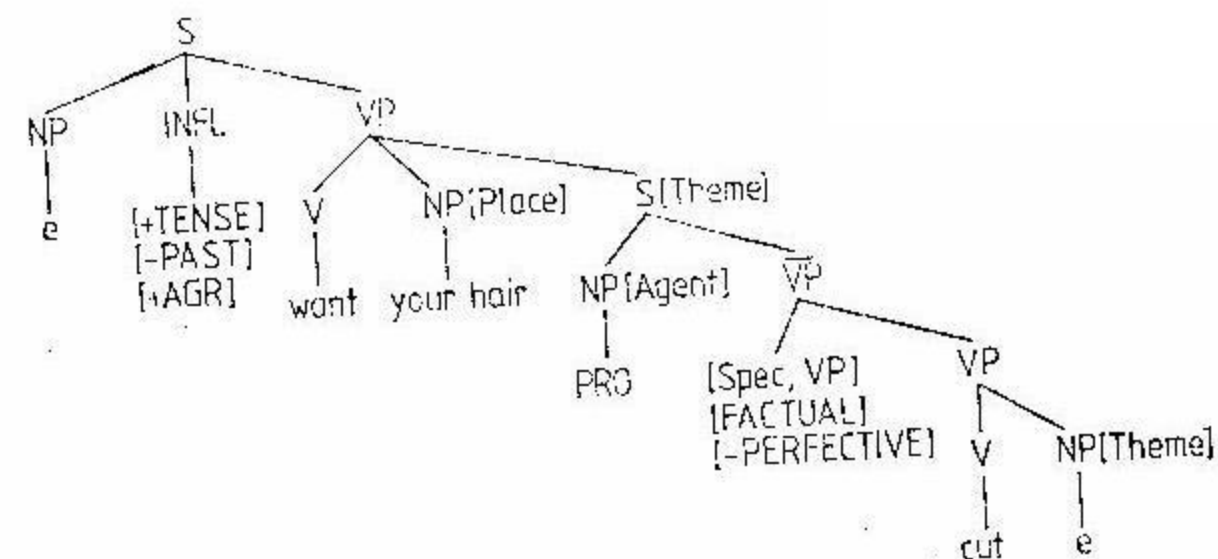(75) *Harry was made to confess everything*
(76) *They had us digging up potatoes all day*

An analysis of (71)—(76) according to the revised principles of the GB model is relatively simple and very revealing — although we shall not go into great detail at this point. However, let us take sentences (71) and (72) as examples. The following D-structures may be postulated:

(77)
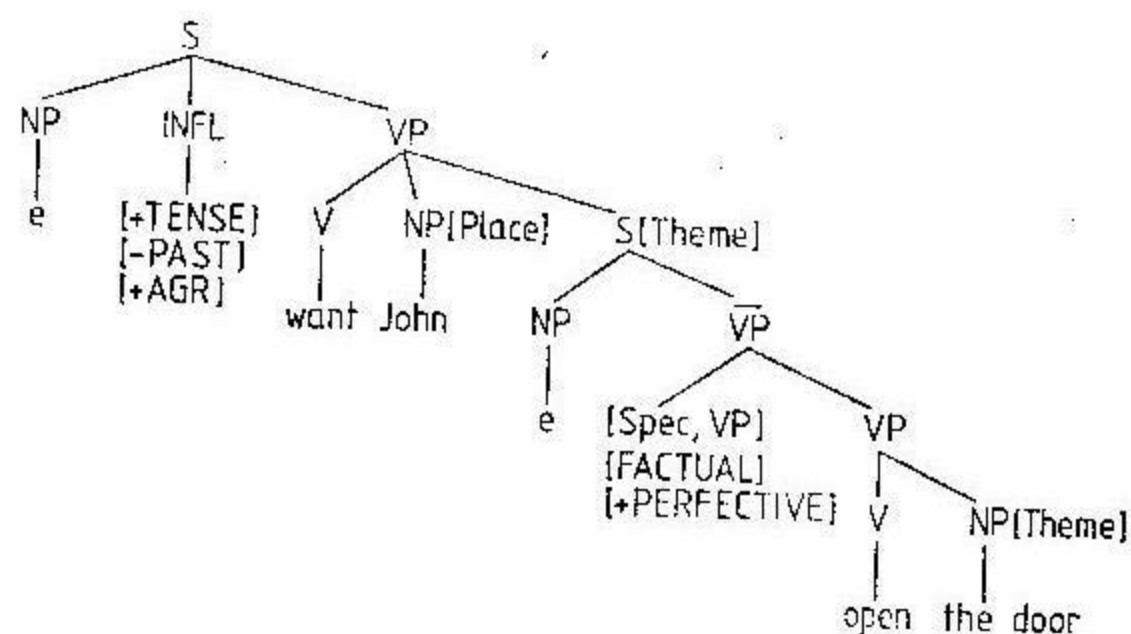
Want also projects small clause complements with verb phrases marked for either [+PERFECTIVE] or [−PERFECTIVE]. The second empty NP in (78) is the realization of a parasitic gap, a phenomenon discussed at length in Chomsky (1982). The NP understood as filling the gap in (78) is *your hair*. Whether we could avoid the gap by postulating a D-structure in which only the Theme complement clause is projected by *want* and not the Place NP *your hair* is dubious, since we should then have to move *your hair* from the embedded object to the matrix subject position. In doing so, the subjacency condition would be violated if subjacency covers VP nodes as well as S̄, S and NP nodes. At all events, it should be clear that the two sentences can be interpreted semantically simply by referring to the D-structure and the S-structure resulting from Move-α. In the case of (71) what is at present lacking is a perfective factual state concerning the door, namely that someone has opened it. In (72) what is lacking is the imperfective factual state of someone (PRO is not controlled in (78) and is hence free in its coreference) cutting the addressee's hair. The lack is not attributed directly to the addressee him/herself, but to his/her hair.

Our projected configurations from *want*, however, allow us without further ado to predict the well-formedness of the following two sentences:

(79) *You want your hair cut*
(80) *You want your hair cutting*

The verb *like* can project small clauses with gerunds, so by extension it should project other small clauses, too. Consider the following sentences:

(81) *I like my milk boiled*
(82) *We like the door open*
(83) *Some like it hot*

All are well-formed, as is predictable from the small clause projection. These and many other complement structures embedded into subject or object posi-

tions can be accounted, for with ease using the GB model with the modifications suggested here, and several apparently puzzling phenomena can be explained with reasonable success.

It should be clear that any suggestion that semantic phenomena are ignored in modern developments of generative grammar is not founded on an appreciation of the model's explanatory potential. It has been said once too often that Chomsky's approach is asemantic. It is time to face the facts, which are easily gleaned by studying Chomsky's writings a little more carefully. He does not deny the relevance of meaning in a generative model; he is simply sceptical about whether we know enough to be able to formalize a model involving meaning at this stage in the development of generative linguistics. I believe that we do know enough and that the GB framework offers us a good opportunity of integrating semantico-syntactic with what appear to be purely syntactic principles. But, then, perhaps these syntactic principles are not so *purely* syntactic after all!

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