CATEGORIES OF MEANING

by

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Abstract

This study is concerned with developing a theory of
categories of meaning. This theory hypothesizes that there
are aspects of sentential meaning which do not originate in
deep structure as lexical content or through the interpre-
tation of grammatical formatives or features. Categories of
meaning play an important role in the treatment of verbs
which take embedded sentences, for it can be shown that
certain such verbs are constrained to allow only those em-
bedded sentences which carry a specified category of meaning.
Finally, it can be shown that the application of certain
transformations is dependent on the presence or absence of
some category of meaning.

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Preface

It is perhaps ill-advised for an author to offer criti-
cisms of his own work, especially at the time of its
completion. However, I would like to give the reader an
idea of what he will encounter in the following pages, and
how the proposals made below might best be viewed.

The discussion purports to be concerned with establishing
the existence of certain kinds of meaning, called categories
of meaning, and investigating some of their properties.
Perhaps the most important part of what follows, however,
lies not so much with the particular claims as with the sub-
stance of the arguments which are marshalled to establish
these. The theory of categories of meaning outlined below
represents an attempt to deal in a precise way with a set of
observations concerning the semantics of sentences and the
interaction between semantics and syntax. Whereas the theory
of categories has shown marked instability, having undergone
many revisions through various drafts of this work, the
central observations have remained and have grown. The theory
itself is an important conceptual tool in predicting a number
of consequences and suggesting new sources of data. This
theory may not withstand the test of time, but I think that
the observations and arguments are basically sound and will

need to be accounted for in any new account of this subject. It is these latter that may represent the most lasting contribution of this work.

Chapter 1

Introduction

In this chapter I will introduce those definitions which are required for understanding the following discussion, and I will set forth as clearly as possible the claims which I hope to establish. I will not say much about the history of these ideas, nor will I give general motivation for them. These matters are left to the final chapter, and the reader may wish to read this before working through the main body of the discussion. The claims set forth here are basically new to linguistics, and are not couched in terms familiar in the literature. The problems which I hope to help solve, however, have been the concern of generative grammarians since the inception of the field.

A category of meaning is an aspect of sentential meaning having various properties outlined below. It is important to make clear at the outset that categories of meanings are carried only by sentences. This hypothesis itself has empirical content, but certain evidence potentially relevant to it involves points of grammar which are currently in dispute, such as the analysis of derived nominals in English.

I will try to show in this study that categories of meaning have properties which distinguish them in a number of ways from the aspects of sentential meaning which have

previously received attention in the literature of linguistics.
The first such property is that categories are not represent-
ed in deep structure by lexical material, grammatical forma-
tives, or features either on lexical items or major category
nodes. This claim represents a departure from all existing
treatments of meaning within a transformational grammar, and
a considerable amount of discussion below is devoted to
justifying it. The above hypothesis says what categories of
meanings are not, and it remains to make some suggestions as
to how they are to be formally represented in the grammar.
In the absence of conclusive empirical evidence to justify
one decision over another, I have left the matter of the
formal specification of categories of meaning indeterminate
in a number of ways. I will simply speak of a category as
being part of the semantic representation of a sentence, or
as being associated with a sentence, or as being carried by
a sentence. Although the matter of formal representation is
left appropriately undecided below, it is possible to study
properties of categories and their interaction with syntactic
processes.

There seem to be categories of meaning which come in
pairs, in the sense that, (1) any sentence may be marked for
either of the pair, and (2) no sentence may at the same time
carry both members of the opposition. That such should be
the case is by no means predictable on the basis of the
other properties that hold of categories, and the signifi-
cance of this fact is yet to be capitalized on in the sketch

of the theory of categories which is presented here. I shall introduce the terminological convention of calling pairs of categories which meet the above description dual categories. If C_1 and C_2 are dual categories, I will also speak of C_1 as being the dual of C_2, and vice versa.

Categories of meaning bear an interesting relation to verbs which take complement (embedded) sentences (henceforth, complement verbs). Let us say that a complement verb is an element of a category of meaning if that verb takes only embedded sentences which carry that category. Given this definition, one empirical question is whether any complement verbs are elements of categories of meaning, i.e., whether any such verbs have essentially semantic restrictions on the nature of their complements. The converse question concerns whether all complement verbs are elements of some category of meaning.

I will present evidence below that there are verbal elements of categories, and that the constraints which must be placed on their verbs by virtue of this fact are not statable within the current framework of grammar. Furthermore, if it is the case that each complement verb is the element of some category of meaning, then there will be a powerful semantic tool for the classification and description of complement verbs.

The final property of categories of meaning that will be taken up in this work concerns their interaction with

transformational processes. Let us say that a transformation is dependent on some category if that transformation can apply only to sentences which carry that category, or only to sentences which do not carry that category. (It may be possible to revise and simplify this definition by dropping the last clause, depending on how the account of duality is worked out. I will retain the definition in the form specified above in this investigation.) In stating the category dependency of some transformation, then, it will be necessary to specify whether that transformation requires the presence or absence of some category.

The claim spelled out above that transformations may be dependent on some aspect of the meaning of the sentence to which it applies stands in opposition to the work on the relation between transformations and meaning which has been done in generative grammar up to now. Katz and Postal (1964) hypothesize that transformations preserve meaning, although it has been suggested in a later work that not all aspects of meaning are preserved across the application of transformations. Under this view, transformations could ignore different kinds of meaning; and, indeed, investigations have largely been concerned with specifying purely formal constraints on the application of transformations. If at least some transformations must be made category dependent, however, then it can be shown that the concept of the relation between semantics and transformations proposed,

say, by Katz and Postal is in need of revision.

The existence of category dependency may be used to demonstrate that the theory of exceptions as currently formulated (cf. Lakoff, 1965) is deficient in several respects. It can be shown that this theory cannot correctly state the environment for the application of certain category dependent transformations. The structure of the argument is as follows: let a transformation, T, be dependent on category C. It is impossible for a verb that appears in a sentence which may or may not carry C to control correctly the application of T by means of a rule feature. If the verb is marked [+T], then T will apply regardless of whether the sentence carries C, and if it is marked [-T], T will never apply. In fact, however, T must apply to the sentence in question only when C is present (or absent). Transformations which can be shown to be category dependent include NEG TRANSPORT and THERE INSERTION.

I do not claim that the notion of category dependency can replace the theory of exceptions at the present state of knowledge of categories. It is possible that this can be done; if so, one would have a much less trivial picture of syntactic processes than that offered through an account by exceptions.

I have proposed no formal mechanism by which category dependency may be effected. It is possible to formulate any one of a number of formal processes to effect category

dependency, but none of these seems to be intuitively satis-
factory, and all would lack empirical motivation. The most
promising line of approach seems to be that of making the
matter of category dependency universal, thus obviating the
necessity for including a formal mechanism in any particular
grammar. That is, one could conceive of a universal theory
that specified archetypal transformations, transformations
like PASSIVE, REFLEXIVIZATION, etc. These archetypal trans-
formations would have different realisations in different
languages depending on other facts about the particular
languages. In acquiring a language the child would be
learning which of the archetypal transformations were present
in his language and how they were realised (within a given
range of possibilities for each). Since categories of mean-
ings are also universal objects, the universal theory could
state category dependencies between the categories and the
archetypal transformations.

To pick an example from Chapter 4 below, the universal
theory would have to say that archetypal NEG TRANSPORT is
dependent on a category called the Expressive. Such an hypo-
thesis is strong and easily falsified. In fact, it seems to
be the case that in every language in which NEG TRANSPORT
appears, this transformation is dependent on the Expressive
exactly as in English.

The universal connection between certain aspects of
semantics and transformations, that is, the universal state-
ment of category dependency, is not accidental. One

motivation for establishing the notion of category dependency
is to show that certain transformations do, as it were, have
intrinsic semantic content. (This matter is elaborated in
the final chapter.) In fact, when one examines actual ex-
amples of category dependent transformations, it becomes
clear that the dependency obtains as the result of the nature
of the structural change induced by the transformation and
the inherent semantic content of the category. That the
category dependency should be universal, then, is almost
demanded by the nature of the connection between the trans-
formation and the category. The examples presented below will
make the motivation for establishing a universal statement of
category dependency clearer than is possible in this intro-
duction.

Let me now summarize the empirical issues which will be
discussed in this investigation. First, it is claimed that
there are aspects of sentential meaning which do not originate
as lexical items, grammatical formatives, or features in deep
structure. These aspects of meaning could not, then, be part
of the interpretation of a sentence as the result of a pro-
jection rule. Second, it is claimed that there are aspects
of sentential meaning which constrain complement verbs in a
particular way; namely, certain (if not all) such verbs can
take only embeddings which carry a certain meaning. Third,
it is claimed that certain kinds of sentential meaning con-
dition the application of transformations in a way which is
unstatable within the theory of exceptions. The final claim,

and that which is perhaps most important, is that the same kinds of meaning are involved in all three cases above. That is, that those meanings which have no lexical or grammatical deep structure origin are exactly those which constrain complement verbs in the way described above, and are also exactly those which play a role in the specification of the environment of application of certain transformations.

The following work is organized into four chapters. Chapter 2 is concerned with a category called the Nomic. The third chapter attempts to show that there are verbal elements of the Eventive category (the category dual to the Nomic), and that these are verbs which carry inherent notions of aspect. Chapter 4 investigates a dual pair of categories, the Expressive and the Reportive, and shows that they exhibit the properties discussed above. In Chapter 5 the conclusions of this investigation are stated, along with some speculations concerning how the ideas developed here might find further application in grammar, and a discussion of the origin of the concepts presented in this study.

Chapter 2

NOMIC SENTENCES

2.1 Introduction

This chapter will be concerned with an investigation of a category called the Nomic. In dealing with this category, it will be necessary to discuss a category called the Eventive, which is dual to the Nomic in the sense of duality discussed in the first chapter.

The problem which occupies this chapter has a form which is somewhat different from that of most problems investigated in studies in generative grammar. Researchers have traditionally been concerned with the formulation of rules to characterize certain grammatical phenomena, and, more generally, with a universal specification of the possible forms of such rules. In such investigations the typical question put to informants is, "Is such-and-such string of morphemes grammatical in the language?" The study which follows is concerned, rather, with the interpretation of sentences which are already recognized as grammatical in the language. In this sense, this study is not concerned with a formal characterization of a set of sentences, but rather deals with various aspects of the meaning of a certain class of sentences. I will attempt to show, however, that such a concern with meaning must play an essential role in any formal characterization of these sentences.

The discussion of this chapter is organized as follows:
Section 2.2 deals with a general and rather intuitive expli-
cation of the semantics of nomic sentences. No formal
definition of this notion is attempted, and perhaps none is
possible within the conceptual apparatus current in linguis-
tics. In section 2.3 there will be a discussion of possible
deep structure origins of nomic sentences. Here I will try
to show that there is no formative, grammatical or lexical,
present in deep structure which will distinguish nomic from
non-nomic sentences, and that there is no phrase structure
configuration which will characterize nomic sentences. In
particular, I will consider and reject the hypothesis that
each nomic sentence is embedded as the complement of a prov-
erb which carries the nomic meaning. Section 2.4 takes up
the topic of verbal elements of the category Nomic. It is
shown there that such elements exist and have the requisite
properties. Finally, section 2.5 will be concerned with
transformations which are dependent on the category Nomic,
in the sense of dependency defined in the first chapter.

2.2   The Nomic

Nomic sentences are sentences of generality. A sentence
which carries a truth value expresses a general truth in its
nomic interpretation. It is possible to have a nomic inter-
pretation of sentences which do not carry truth value. In
the case of commands, for example, one may have a nomic reading,
in which case the command is interpreted as an order to always

do such-and-such, or to do such-and-such on every possible occasion.

In order to develop intuitions with regard to the semantics of nomic sentences, it is useful to refer to the writings of traditional grammarians on the subject. It is interesting that discussions of these sentences are found within the context of discussion of the tenses. Thus, Curme writes of the uses of the present tense as follows:

> b. It represents an act as habitual, customary, repeated, characteristic: 'He _lives_ in town in winter, in the country in summer.' 'I _call_ on him whenever I _go_ to town.' 'He _writes_ beautifully.' 'He _loves_ his mother tenderly.'
> c. It expresses a general truth: 'Twice two _is_ four.' (Curme, 1931, p. 355)

Nomic sentences are semantically similar to sentences of predication. Curme discusses this in the following remarks.

> A _Finite Verb of Complete Predication_: 'Birds sing.' 'Dogs _bark_.' 'Riches _pass_ away.' 'Mary _writes_ neatly.' 'Mary _writes_ beautiful letters.' Verbs of complete predication are often not complete of themselves and need some other word or words, as in the last two examples, to make the meaning complete, but the term 'verbs of complete predication' is not entirely without inner justification. Such verbs stand in contrast to copulas...., which in a mere formal way perform the _function_ of predication, and do not in an actual sense predicate. (Curme, 1931, pp. 20-21)

A sentence in either of the simple tenses may carry the nomic interpretation. The readings of (1) exemplify this.

(1) a. George eats cheese.

b. George ate cheese.

In general, sentences in the simple tenses are ambiguous between the nomic and eventive readings. The preferred reading for (1a) is nomic, although it is possible to get an eventive reading for this sentence when it is interpreted as part of a narrative. The eventive use of the simple present tense in such cases is called the historical present. Likewise, (1b) can be interpreted to assert that it was a past custom or habit of George to eat cheese, or it may be interpreted as a report of some particular past event. These would be the nomic and eventive readings, respectively. One characteristic of past nomic sentences is paraphrasability with 'used to'. Thus, only in its nomic sense is (1b) synonymous with (1c).

(1) c. George used to eat cheese.

It is instructive to contrast the meaning of tense in nomic and eventive interpretations. In the eventive reading of a past tense sentence, the assertion is that some event occurred in the past. In the nomic reading, it is the truth of the sentence which is placed in the past by the tense of the sentence. There is also a suggestion in such cases that the proposition expressed by the sentence is no longer true. Thus, to assert (1b) as a past nomic is to suggest that George no longer eats cheese. It should be noted, however, that the suggestion that the sentence is no longer true is not a logical implication, because otherwise a sentence like (1d) would be a contradiction.

(1) d. George used to eat cheese, and he still does.

Let us turn next to the question of how pervasive the
distinction between nomic and eventive is; in particular,
it is relevant to determine whether there are sentences
which are inherently either nomic or eventive, and whether
there are sentences which are neither nomic nor eventive
in interpretation. These questions will be dealt with in
order.

There are sentences which seem at first glance to be
inherently nomic.

(2) a. Ducks wintered in Miami before the New Yorkers
         got there.

     b. A duck wintered in Miami before the New Yorkers
         got there.

The most natural interpretation of (2a,b) is the nomic. I
will argue, however, that an eventive interpretation is
possible in both cases, and that the case of the nomic inter-
pretation is due to independent facts pertaining to the
subject NP's. Note that in the eventive reading of (1b)
(George ate cheese), one must make reference to some specific
lot of cheese, while there is no such specific quantity of
cheese referred to in the nomic reading of this sentence.
This may suggest that,in general, the presence of a non-
specific NP (in the sense of Dean, 1968) is necessary for
a nomic reading to be possible. That this is not the case
is shown by the fact that (3a) may have a nomic reading, as
paraphrased in (3b), where there is present in the sentence
no nonspecific NP.

(3) a. Jones hit Smith.

    b. Jones used to hit Smith.

The relation between the specificity of some NP in a sentence and the reading of that sentence with respect to the nomic-eventive distinction seems to be this: A NP which is potentially either specific or nonspecific can have either feature in the nomic reading, but cannot have the nonspecific feature in the eventive. A sentence like (4) exemplifies this.

(4) A horse ate grass.

When 'a horse' is interpreted as referring to some specific animal, one may get either the eventive or the nomic readings. The contexts appropriate for eliciting these respective meanings are provided in (5a,b).

(5) a. The scene was quite typical; in the yard some chickens scrambled for millet, and in the field a horse ate grass.

    b. In the animal farm two dogs chewed sheep bones, and a horse ate grass, while the other animals could subsist entirely on a diet milk weed.

When the subject of (4) is nonspecific, the nomic reading is quite natural; under this reading (4) has the same truth conditions as (6).

(6) All horses ate grass.

What is missing is an eventive interpretation for a nonspecific subject of a sentence like (4). This matter remains somewhat of a mystery, for it is possible to have an eventive reading for (6), in which case this sentence describes an

event in which every existing horse ate grass at one time. It is also the case that replacing 'a horse' in (4) by 'horses' does not change the range of possible interpretations. That is, one has both eventive and nomic readings when 'horses' is specific (as can be seen by placing 'horses' for 'a horse' in (5), but only the nomic is possible when 'horses' is nonspecific.

In terms of this discussion one can see that sentences like (2) are not inherently nomic. The natural interpretation for these sentences is that in which the subject NP's are nonspecific and the reading is nomic. However, the nomic and eventive readings are also possible for a specific marking on the subject NP's.

Let us turn next to sentences which may seem to be inherently eventive. Among such sentences are sentences the main verb of which denotes an action essentially terminative in aspect. (7) would be such a sentence.

(7) Jones killed an oyster.

Under a nomic reading, (7) would be synonymous with (8).

(8) Jones used to kill an oyster.

It must be determined, now, whether the strangeness in (8), i.e., that of the nomic reading of (7), is a linguistic or an extralinguistic matter. If it is a linguistic matter, then the grammar must mark (8) in some way to distinguish it from sentences like (9b), which paraphrase the nomic reading of (9a).

(9) a.   Jones tickled an oyster.

　　　b.   Jones used to tickle an oyster.

On the other hand, if the nomic reading of (7) is strange because of the speaker's normal expectations about states of affairs in the world, then the grammar will allow nomic readings for (7) as well as (9).

It will be argued here that (7) does have a straight-forward nomic interpretation. For example, what one must imagine to make sense of (7) is not that the meaning of 'kill' should be altered in some way, but that the oyster somehow is able to come back to life repeatedly after being killed by Jones. I.e., if the facts of extralinguistic experience are altered in the right way, then (7) loses its strangeness. The grammaticality of sentences like (10) argues strongly that (7) does indeed have a normal nomic interpretation.

(10) Jones murders his boss every night in his dreams. In (10) the phrase 'Jones murders his boss' is nomic; if (10) is less strange than the nomic interpretation of (7), it is because the phrase 'every night in his dreams' makes it clear that the murdering is imaginary.

To recapitulate, it has been argued that there are no sentences that are inherently nomic, and none that are inherently eventive. The method of argumentation has been that of showing that what might be considered to be paradigm cases of inherently nomic, or inherently eventive sentences

are in fact capable of both nomic and eventive interpreta-
tions. Of course, if the arguments presented above are
successful, the only conclusion which follows strictly is
that the examples considered and other sentences like them
are able to carry either the Nomic or the Eventive cate-
gories. Thus, the conclusion that there are not inherently
nomic or inherently eventive sentences is not a logical
consequence of the above discussion; however, it may be
allowed to stand in the absence of any evidence to the
contrary.

The next question to be discussed is that of whether
there are sentences which are neither nomic nor eventive.
So far we have considered only sentences with active verbs.
Sentences of predication seem to behave somewhat differently
that these sentences with respect to the nomic-eventive
distinction. In dealing with sentences of predication we
must include mental predication.

(11) a. That ball was red.

      b. Basket balls were blue.

      c. Whales are swimmers.

      d. Jones believed that linguistics is sublime.

The sentences in (11) exhibit different varieties of
predication. (11a) ascribes an attribute to a particular
object, while (11b) asserts that something was a property
of each member of a class of objects. (11c) is derived by
the rule of AGENTIVE NOMINALIZATION (see Lakoff, 1966) from
an underlying structure like, 'Whales are ones who swim';

and (11d) is a case of mental predication. Let us examine each of these in turn with respect to the Nomic and Eventive categories.

It is difficult to place either a nomic or an eventive interpretation on (11a). When one attempts to impose this distinction on (11a), the difference in readings seems to be that between, 'That ball was red at a particular time, and perhaps then changed color' (Eventive) and 'That ball was inherently and immutably red' (Nomic). Thus, if the nomic-eventive distinction finds application in a sentence like (11a), it shows up semantically as the difference between a property which timelessly inheres in an object and one which mutably or changeably pertains to an object. In other words, the eventive interpretation of (11a) yields a reading like, 'The sentence "That ball was red" was true at some particular time', whereas the nomic interpretation yields a reading like, 'The sentence "That ball was red" was generally true'.

There is further evidence that the above application of the nomic-eventive distinction is correct. Notice that the negation of (12a), namely (12b), can be nomic or eventive. In the nomic reading, (12b) is synonymous with (12c), while this is not true of the eventive reading of (12b).

(12) a. George ate cheese.

b. George didn't eat cheese.

c. George didn't ever eat cheese.

Notice, likewise, that we get two readings for the negation of (11a), one of which takes the 'ever' of (12c). The other reading for the negation of (11a), the eventive, takes a point time specification.

(13) a. That ball wasn't red.

b. That ball wasn't ever red.

c. That ball wasn't red at noon.

This treatment of sentences like (11a) is inconclusive, and it is not entirely clear that the distinction in readings of this sentence is in fact that between the Nomic and Eventive categories. However, if the distinction does apply as outlined above, then there is a natural account for the generality found in sentences like (11b). Namely, (11b) is nomic as this is the only possible reading for sentences with nonspecific subjects, as discussed above.

The nomicity of (11c) follows from its derivation from a sentence like, 'Whales are ones who swim'. The relative clause in this deep structure is a nomic sentence, and this category is preserved across the formation of (11c) by the application of AGENTIVE NOMINALIZATION.

It is not clear that the same argument for the applicability of the nomic-eventive distinction made in the case of (11a) can be made for (11d). Perhaps, however, the same difference between 'believed at one time' and 'believed in general, at all times' that characterizes the eventive versus the nomic in the case of (11a) also applies in the

case of (11d). Notice, however, that sentences which are ostensibly nomic can be construction with mental predicates like 'believe'.

(14) People believed that there was pie in the sky.

The generality of (14) could be accounted for, again, if the nomic-eventive distinction applies to sentences of mental predication. If this is the case, then the important generalization that both Nomic and Eventive categories can apply to any sentence in the language will be preserved.

Let us consider a final class of cases with respect to the question of whether some sentences are immune to the nomic-eventive distinction. In particular, let us look at imperatives. (Thanks to Paul Kiparsky for extensive discussion on this matter.)

(15) a. Pick up your trash!

      b. Don't eat sweets!

Imperatives such as those in (15) do exhibit different interpretations, which parallel the nomic-eventive distinction. That is, (15a) can be interpreted as a general exhortation to pick up trash, or as an order to pick up a specific lot of trash. Likewise, (15b) can be an order never to eat sweets, or not to eat sweets on some particular occasion.

There are imperatives which seem to be only eventive, such as (16).

(16) Kill the bastard.

It is possible to claim that although the eventive is the preferred reading, the nomic is also possible. (16) can, then, be treated just like (7) (Jones killed an oyster). The preference for the eventive lies in the fact that killing is something that normally can be done only once, but such a fact is extralinguistic and would not receive representation in the grammar.

In summary, it has been argued in this section that the nomic-eventive distinction is pervasive, i.e., that it is applicable to all sentences of the language. It has been argued that no sentences are either inherently nomic or inherently eventive, and that it is possible to find an application for this category distinction in difficult cases such as sentences of predication. This treatment is perhaps not entirely satisfactory in some cases, and it is possible that only detailed semantic investigation into the inherent content of the concepts of the Nomic and the Eventive will elicit the source of such difficulties and reveal a more productive analysis.

2.3 The Deep Structure of Nomic Sentences

In this section I will consider various possibilities for the deep structure of nomic sentences. First to be discussed are previous treatments of this topic. Next I will consider whether the nomic reading may find its origin in a characteristic phrase structure configuration, whether it may be due to some grammatical formative, and, finally, whether this reading is contained in the reading of some lexical item which is present in the deep structure of all nomic sentences. Each of the approaches discussed will be rejected, and I will propose instead that the Nomic is a category of meaning. It will be shown that this treatment suffers none of the difficulties met by the previously discussed suggestions.

2.3.1 Previous Treatments of the Nomic

The first treatment of the Nomic to be considered is that inherent in the writings of traditional grammarians on the subject. Although no proposal is made explicit, it is evident that they considered the Nomic to be a use of tense. This is seen in quotes from Curme above, and in the following quote from Goodwin and Gulick (1958) taken from a section entitled "Gnomic and Iterative Tenses". They write, "The present is the tense commonly used in Greek, as in English, to denote a general truth or an habitual action. ... In animated language the aorist is used in this sense." (pp. 274-275).

Translated into terms familiar in generative studies, these grammarians seem to be proposing that the Nomic may be

considered to be a feature placed on tense. This feature might be called [± nomic], although a more appropriate feature would perhaps be [± specific]. While an eventive sentence in the past tense indicates some specific past point of time, under the nomic reading no such point of time is indicated. Their proposal, then, might be interpreted to mean that sentences which are eventive are marked by specific tense, while nomic sentences carry nonspecific tense. This proposal has the advantage of correctly representing the intuition that nomic sentences are timeless.

The difficulty in such a proposal is that sentences which can be shown to carry no tense may still receive the nomic interpretation. Commands are examples of such sentences; I will try to show that commands carry no tense. If imperatives were to have tense in deep structure, one should expect to find the past tense just as readily as the present or the future (if the future is to be counted as a tense in English). That there are no past imperatives, then, argues against the existence of tense in imperatives. The following sentences evidence the lack of a past imperative.

(16) a. *Finished your homework.

b. *Have finished your homework.

A second, and perhaps even more formidable difficulty with the thesis that the Nomic is somehow connected with or a reading of nonspecific tense concerns the matter of relativizability. It is well known that nonspecific NP's do not

relativize. Thus, (17a) can be embedded in a relative con-
struction like (17b) only when the phrase 'a giraffe' is
specific.

(17) a. Shirley would like to be like a giraffe.

     b. The giraffe that Shirley would like to be like.

Likewise, the NP 'someplace' in (18a) can be relativized in
(18b) only when it is specific.

(18) a. Jones wants to be someplace.

     b. The place that Jones wants to be.

Consider now constructions like (19).

(19) a. Baha wanted to return to the time when white
        whales roamed the oceans.

     b. The time when George ate cheese was a hard one.

Both of the sentences following 'the time when' above may be
nomic in reading; the most natural reading for (19a) is the
nomic, but the eventive is also natural in the case of (19b).
If the Nomic were characterized by nonspecific tense in deep
structure, one would expect that the sentences following 'the
time when' in (19) could never be nomic, in the same way that
a nonspecific NP cannot be relativized in (17) and (18). (The
reader should note that there is no claim being made here that
tense is relativized in (19), but that the phrase 'at such-and-
such time' should be a specific or nonspecific NP depending on
the specificity of tense to the sentence to which it is
attached.)

The second proposal concerning the deep structure origin
of nomic sentences is that made by Boyd and Thorne (1969).

They classify the Nomic as an aspect called 'the habitual'.
There is no argument for this decision by Boyd and Thorne;
their discussion is interesting, however, and their discussion
is worth quoting.

Take the sentence

(28) He will sit there for hours doing nothing.

Nearly all grammarians have recognized that it would
be incorrect to describe both interpretations of this
sentence as being future tense... They have therefore
been obliged to find another account of will for one
of these interpretations. Usually they describe it
as the 'characteristic' or 'habitual' will. The trouble
with this description is that it obscures the fact that
under one interpretation (28) is more or less equivalent
to

(29) He sits there for hours doing nothing.

from which it is clear that any feature HABITUAL in
(28) is associated, not with will, but with sit.
In fact, both sentences are present tense and habitual
aspect. ...most verbs which are used in the present
tense are nearly always at the same time used in the
habitual aspect. (p. 64)

It is necessary to clarify the proposal set forth (with-
out further justification) by Boyd and Thorne. They seem to
be claiming that what are termed here nomic sentences are
sentences in which an aspectual feature, HABITUAL, is asso-
ciated with the verb. Sentence (29) is offered to show that
the source of the nomic in one interpretation of (28) is not
'will'; i.e., that 'will' is not ambiguous between a future
and a nomic interpretation. Although they are correct in the
observation that the possibility of a nomic reading of (28)
does not reside in a reading of 'will', the claim that the
Nomic is an aspect in deep structure is unwarranted.

The main proof that the Nomic is not an aspect in deep structure will appear in the next chapter, where it is shown that only eventive sentences may carry aspect in deep structure. It is evident at this point in the discussion, however, that the treatment of the Nomic as a habitual aspect fails for sentences like "Basket balls are blue', which are nomic, but which do not represent an action habitually or repetitively performed.

The final proposal to be considered here concerning the deep structure origin of nomic sentences is that of Gottlob Frege. (cf. Frege 1892, 1912). Frege held that the appearance of an "indefinite indicator" serves to confer generality on a proposition. By an indefinite indicator he meant such phrases as 'a whale' in (20) below.

(20) A whale ate plankton.

Translated into the terminology of generative grammar, an "indefinite indicator" would mean, minimally, a nonspecific NP. That is, it would be incorrect to maintain that generality in a sentence is due to the presence merely of an indefinite NP, for it is possible to get an eventive interpretation for (20) above. An exegesis of Frege reveals, however, that an indefinite indicator can be other than a nonspecific NP; in particular, it could be what is termed nonspecific tense above. This is discussed in the following:

> If an instant of time is to be indefinitely indicated
> in both conditional and dependent clauses, this is
> often achieved merely by using the present tense of
> the verb, which in such a case, however, does not
> indicate the temporal present. This grammatical form

> is then the indefinite indicator in the main and
> subordinate clauses. An example of this is: 'When
> the Sun is in the tropic of Cancer, the longest day
> in the northern hemisphere occurs.' ... It may be
> added that several common components in the ante-
> cedent and consequent clauses may be indefinitely
> indicated.   (Frege, 1892, pp. 43-44).

Frege would have to locate the source of generality in the

nomic reading of (21) below in the tense as an indefinite

indicator, for both NP's are definite and specific.

    (21)   Jones worked with Smith.

Of all the proposals considered above, Frege's is by far

the best worked out, and is to be taken most seriously. His

proposal can account naturally for the cases which are

embarrassing for the account in terms of categories of

meaning, nomely, the predicative sentences discussed above.

Instead of locating generality in just nonspecific tense, as

the traditional grammarians seem to have done, any nonspecific

formative including tense can be the source of generality.

Such a theory cannot be dispensed with easily, but it does

run into difficulty with sentences such as (22).

    (22)   John wants to catch a fish.

Sentences like (22) appear in the original discussion of non-

specifics in Baker (1966), although Baker did not use this

terminology. The NP 'a fish' here has two interpretations,

one of which is nonspecific. In this latter interpretation,

(22) does not entail (23).

    (23)   There is a fish that John wants to catch.

Sentences like (22) present a difficulty for Frege's

theory, because it is possible to have a non-nomic reading of

(22) where 'a fish' is nonspecific. In other words, an indefinite indicator can be present where there is no generality, at least generality in the sense of nomicity. Thus, Frege would have to say that an indefinite indicator confers generality sometimes, but not always. In order for his account to be viable, Frege would have to find some characterization of the contexts in which indefinite indicators do and do not provide the source for a nomic interpretation. The attempt to provide such a characterization seems to run into insuperable difficulties in the face of cases like (24).

(24) It was fish that Jones tried to catch.

Here the 'tried to catch' can be either eventive or nomic, where 'fish' remains nonspecific, although it might be said that the generality in the nomic case was due to nonspecific tense. Again, however, the arguments against the Nomic as nonspecific tense presented above could be brought to bear.

Finally, we must entertain the possibility that the translation of 'indefinite indicator' as 'nonspecific' is incorrect in at least some cases and that the arguments directed against Frege on the basis of this interpretation of his theory are irrelevant. If this is so, then there seems to be no concept available currently in linguistics which corresponds to what Frege meant by 'indefinite indicator', and perhaps the development of such a concept would effect the dissolution of the difficulties discussed above.

This completes the survey of previous treatments of the

Nomic. I have tried to show that none of these can provide an adequate account, although Frege's seems to be by far the most promising. It should be pointed out that if the account in terms of categories of meaning can avoid the difficulties faced by these approaches, it is because this account hypothesizes less structure inherent in nomic sentences than any of these. That is, the theory of categories says, rather simply, that nomic sentences are nomic by virtue of the presence of a category of meaning wholly external to sentential structure. On the face of it this may seem to explain less than any of the other approaches, but there are a number of well-defined properties of categories in general that the Nomic exhibits, and it is by virtue of this that this hypothesis gains its strength. In particular, there are verbal elements of the category Nomic, and a number of transformations are dependent on the Nomic. Perhaps further research will lead to a hypothesis with a more highly articulated internal structure, and one thus capable of greater explanatory potential.

Let us turn next to consider various other proposals for the deep structure origin of nomic sentences. Of particular interest will be the possibilities that some grammatical formative or deleted verb can account for this interpretation.

2.3.2 Phrase Structure Configuration

In this section I will consider the hypothesis that the nomicity of nomic sentences is the result of some characteristic phrase structure configuration. That is, it is known

that certain aspects of sentential meaning, such as grammatical relations, and perhaps scope of quantifiers and negation, derive from phrase constructions in deep structure (cf. Chomsky, 1965). Such aspects of sentential meaning are nonlexical, and thus are like categories of meanings in at least this respect. It is necessary to consider whether the Nomic is like these other sorts of sentential meaning in being also defined by some typical phrase structure.

The argument against such an hypothesis is that every known deep structure configuration can be part of a sentence which may receive either the nomic or the eventive interpretation. It would be tedious to detail this, and a few cases will suffice to show how the proof goes. For example, sentences like (25) show that both transitives and intransitives may be both nomic and eventive.

(25) a. Mackie fondled a carnivor.

b. Eagles slept.

Again, sentences like (26) show that the occurrence of a sentence in an embedded position does not in itself produce a nomic reading.

(26) a. Jones believes that George ate cheese.

b. George's eating cheese was crucial to the argument.

c. Martha wants George to eat cheese.

The factual claim, then, is that the complement sentence 'George eat cheese' may be nomic or eventive, regardless of whether it is embedded in subject or object position, takes

POSS-ING, FOR-TO, or THAT complementizers, or undergoes the operation of SUBJECT RAISING, as in (26c).

By the procedure outlined above of examining every possible deep structure configuration and observing that there are sentences with such a configuration which may be either nomic or eventive, it can be established that the Nomic is not an essentially phrase structure phenomenon, in contrast to elements of sentential meaning such as grammatical relations and scope. As remarked above, a full demonstration in which each possible case is tested is uninteresting and will not be attempted here.

2.3.3 Grammatical Formatives and Features

The next hypothesis which may be entertained is somewhat more plausible than that discussed immediately above. This is the hypothesis that there is some grammatical formative in the deep structure of all nomic sentences which is responsible for the nomic interpretation, in the sense that when this formative is present the sentence is nomic, and when it is not present, the sentence is not nomic. Let us call this putative formative G.

An hypothesis which is fundamentally similar is that there is some feature on, say, the S node which marks the sentence immediately dominated by that node as nomic or non-nomic. As with the formative, G, the feature would have no phonological representation on surface structure. In fact, the feature treatment of nomicity has an advantage over the

grammatical formative treatment in that the nomic-eventive distinction would correspond naturally to a two-valued feature. Let us call the hypothesized feature [G].

The hypothesis that the Nomic is carried in deep structure either by a formative, G, or a feature, [G], is sufficiently flexible and devoid of specific consequences subject to verification as to be highly resistant to counter arguments. The best arguments which may be brought to bear on the matter are those which proceed by demonstrating that G would have to be unlike any known formative in many crucial respects, and that the same holds for G analogously with respect to known features.

For example, both G and [G] are somewhat phantom-like in receiving no direct or indirect surface representation. That is, deep structure grammatical formatives such as tense or negation all leave some trace on surface structure in the form of morphological debris. The hypothesized grammatical formative G, however, would be unlike these known grammatical formatives in leaving no such trace whatever on the surface. It is possible, however, that this lack of surface representation of the hypothesized formative G is an idiosyncracy of Indo-European languages. Thus, Whorf (1938) reports that Hopi has a system of assertion which "refers the statement to one of three distinct realms of validity" (p. 276), these three being the reportive, the expective, and the nomic. A statement in the reportive is represented with zero morphology,

but both expective and nomic statements are marked as such
with phonological material.

The question which must be answered before these observa-
tions may be made relevant to the discussion here is whether
Whorf's term 'nomic' is the same as that used here. The
sentences which Whorf gives as examples of nomic sentences in
Hopi all translate as sentences in English whose preferred
interpretation is nomic, although the eventive is also always
possible. Some of the sentences Whorf gives translate as
follows: 'She writes poetry.' 'He smokes only cigars.' 'Rain
comes from the clouds.' 'Certain dinosaurs laid eggs in sand.'
A final decision on the status of the Hopi suffix which Whorf
calls nomic must await further research on the language.
C. Vogelin, who is currently writing a grammar of Hopi, reports
(personal communication) that the Hopi nomic sentences are like
English nomics in lacking aspect.

If the Nomic is to be represented by a feature, [G], in
deep structure, then it can be shown that [G] will be unlike
known features in several respects. The first matter is that
of lack of surface representation, as in the case of the
hypothesized formative G. Features of number, gender and case
all find some sort of morphological surface representation in
English, as in many other languages. The feature [G] would
have to be unlike all such features in this respect.

There are hypothesized to be syntactic features, such as
rule features, which receive no manifestation morphologically

in surface structure. [G] would also be like these in that
it could be used in the statement of environments for the
application of transformations. These are the transformations
which are category dependent; however, with the presence of
[G] in deep structure, one would only have to have the trans-
formations involved refer to a positive value for [G].
However, [G] would be unlike any rule feature in playing an
essential role in the interpretation of sentences. That is,
no rule feature has an inherent semantic content, while the
opposite would be true of [G] were it to carry the nomic
interpretation in deep structure.

The conclusion which can be drawn from these facts is
that it would require some nontrivial extension of the theory
of grammar to allow either a formative, G, or a feature, [G],
with the properties required to carry the nomic reading in
deep structure. The theory would be extended in that the
known formatives and features differ in nontrivial respects
from G and [G[, respectively, and so the theory would have
to be made to allow for the possibility of a formative like
G, or a feature like [G]. With no independent evidence for
such an extension currently available, the extension would
be unwarranted and ad hoc. It is on grounds such as these
that the representation of the Nomic as G or [G] can be
disputed.

2.3.4 A Possible Lexical Source for the Nomic

The next hypothesis to be considered is that nomic

sentences originate in deep structure as sentences embedded under a proverb, GNOME. (For a discussion of proverbs, see R. Lakoff (1968).) In the course of transformational derivation, GNOME would be deleted, and so would leave no phonological trace on the surface. Under this hypothesis the Nomic is a reading of a lexical item in deep structure, and is thus to be placed alongside of readings of other complement verbs such as 'appear', 'know', etc.

Two consequences of this hypothesis deserve immediate mention. The first is that the existence of GNOME implies that there exists some other proverb, EVENT, which carries the eventive interpretation. The only way to avoid such a consequence is to claim that of the nomic-eventive pair, the latter is unmarked, and so requires no direct representation in deep structure. Thus, every sentence would be automatically eventive unless marked by the presence of GNOME. I know of no indications that one of the pair nomic-eventive is the un-marked member. It is certainly not the case that one is the preferred reading, since there are sentences which are more naturally nomic, and others for hwich the eventive is more natural. It may be the case that the notions of markedness are simply inapplicable to essentially semantic distinctions, such as nomic-eventive. Thus, in the absence of further evidence, it seems that the existence of GNOME requires the existence of another proverb, EVENT, to carry the eventive.

The second consequence of the hypothesis being considered

is even if GNOME exists, it cannot be used to control the
application of those transformations that are dependent on
the Nomic (or the Eventive, in the case of EVENT). That is,
it might be thought that if some transformation, T_i, is
dependent on the Nomic, then one could mark GNOME as $+T_i$ or
$-T_i$ (as the case demands) with a rule feature. However, if
T_i is cyclic, as is the case with some Nomic-dependent
transformations, then it will apply to the sentence embedded
in GNOME before the rule feature on GNOME can be read. Thus,
using the proverb treatment of the Nomic does not solve the
problem of correctly stating the domain of application of
transformations which are dependent on the Nomic, and some
notion equivalent to that of category dependency must still
be incorporated in the grammar.

With the above consequences in mind, let us now examine
the merits of the hypothesis that nomic sentences are embedded
in the proverb GNOME in deep structure. This hypothesis may
be thought to be made plausible by the fact that there exist
real verbs in English, such as 'tend', which occur only with
nomic sentences. Thus, GNOME would at least parallel some
real verb in its syntactic properties. It is claimed below,
however, that the sentences embedded in 'tend' must be nomic,
rather than that 'tend' itself carries an inherently nomic
interpretation. If this can be shown to be the case, i.e.
that in 'tend' sentences, the nomicity is not carried as a
reading of 'tend' but is already present, as it were, in the

embedded sentence, then no support for the hypothesis that a proverb like GNOME carries the Nomic can be derived from the existence of English verbs like 'tend'. In fact, when it is shown that 'tend' has properties essentially different from those of GNOME, then GNOME will have to be different from any known verb, and its existence will thereby become to that extent more questionable. Let us turn now to an examination of the semantics of verbs like 'tend'.

Compare sentences such as (27a,b).

(27) a. Wilhelm tended to play coronet when he was bothered.

b. Wilhelm played coronet when he was bothered.

Whatever the difference between (27a,b), it is mirrored by the difference between (28a,b).

(28) a. Wilhelm usually played coronet when he was bothered.

b. Wilhelm always played coronet when he was bothered.

Notice that in (28) the adverbs 'usually' and 'always' serve to qualify, not the time of some event, but the generality of the nomic sentence. Exactly the same can be said of 'tend' in (27a), namely, its semantic function is to qualify the generality of the nomic sentence in the complement. Just as one would not locate the generality of sentence (28) in the adverbs 'usually' or 'always', so also the nomicity of (27a) is not to be found in 'tend'.

Furthermore, if 'tend' means 'nomic', then a question like (29) in which 'tend' is stressed should be interpreted

as inquiring as to whether the embedded sentence is nomic.

(29)   Do whales <u>tend</u> to be mammals?

In fact, however, nomicity is not what is questioned in (29);
rather, what is questioned is the degree to which the state-
ment, 'Whales are mammals' is to be qualified. This can be
seen by considering the appropriate answers to (29).

(30)   a.   No, whales are <u>always</u> mammals.

b.   Yes, whales are usually mammals.

c.   No, whales are never mammals.

The facts marshalled above indicate, then, that while
'tend' appears in nomic constructions, it does not carry as
part of its meaning some notion of nomicity. Thus, the
existence of what are termed below verbal elements of the
category Nomic do not support the hypothesis that there could
be an abstract verb like GNOME. In fact, no known verbs have
the properties which GNOME would have to have in order to
provide a lexical deep structure source for nomicity.

A second argument against the existence of GNOME derives
from a consideration of the semantics of imperatives. It has
been shown that imperatives may be nomic. I.e., sentences
like (31) can be interpreted as commands to do something on
a specific occasion, or as general (nomic) commands.

(31)   a.   Wash your hands before you eat.

b.   Don't buy grapes.

In all treatments of imperatives by generative grammarians,
the deep structure subject of sentences like (31) is the

second person (even though in some treatments the sentence in question is embedded as the complement of a performative). This would not be the case for the nomic readings of (31) when the origin of the Nomic comes from GNOME. E.g., under the Katz-Postal treatment (1964), (31a) would have to have a deep structure like (32).

(32)

```
                       S
          ┌────────────┼────────────┐
        IMP           NP           VP
                       │            │
                       S          GNOME
              ┌────────┴────┐
             NP             VP
              │         ┌────────────┐
            you       wash your hands
                      before you eat
```
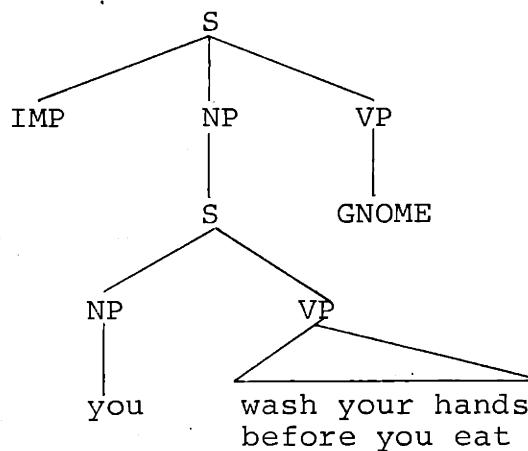
Of course, it might be argued that in the case of (31a), the sentence embedded in GNOME was not in object position, so that the deep structure looked rather like (33).

(33)

```
                    S
        ┌───────────┼───────────┐
      IMP          NP           VP
                    │       ┌────┴────┐
                  you     GNOME      (NP)
                                       │
                                       S
                              ┌────────┴────┐
                             NP             VP
                              │       ┌──────────┐
                            you     wash your hands before
                                         you eat
```
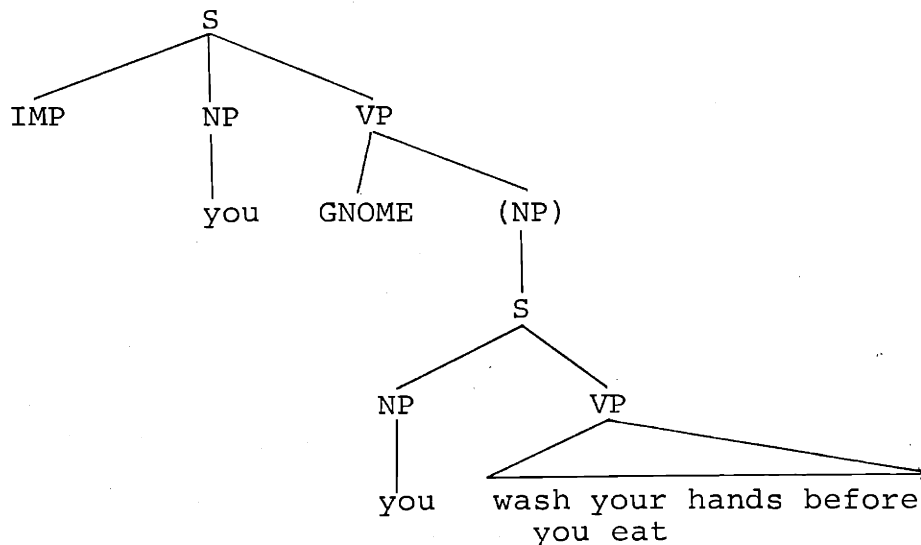
It can be shown, however, that the hypothesized GNOME does not take a complement in the VP, for there can be subjects of nomic sentences which cannot appear in subject position in deep structure. For example, there is a reading of (34) which is nomic.

(34)   Tabs were kept on our activities by the FBI.

A similar argument against the existence of GNOME in nomic sentences derives from the observation that sentences embedded in 'force' may be nomic, as in (35) (example due to Paul Kiparsky).

(35)   The changing climate forced the Greeks to
       grow millet.

Here the embedded sentence, 'The Greeks grow millet', is nomic, but a deep structure like (36) would be semantically implausible, for it would incorrectly represent the meaning of (35) to be something like, 'The changing climate forced the Greeks' growing of millet to be nomic'.

(36)

```
                          S
                   _____|_____
                  |                 |
                  NP                VP
               ___|___       _____|_____
              /___|___\     |       |        |
          the changing     V       NP       NP
            climate         |        |        |
                          force  the Greeks   S
                                          ____|____
                                         |         |
                                        NP         VP
                                         |          |
                                         S        GNOME
                                      ___|___
                                     /___|___\
                                   the Greeks
                                   grow millet
```
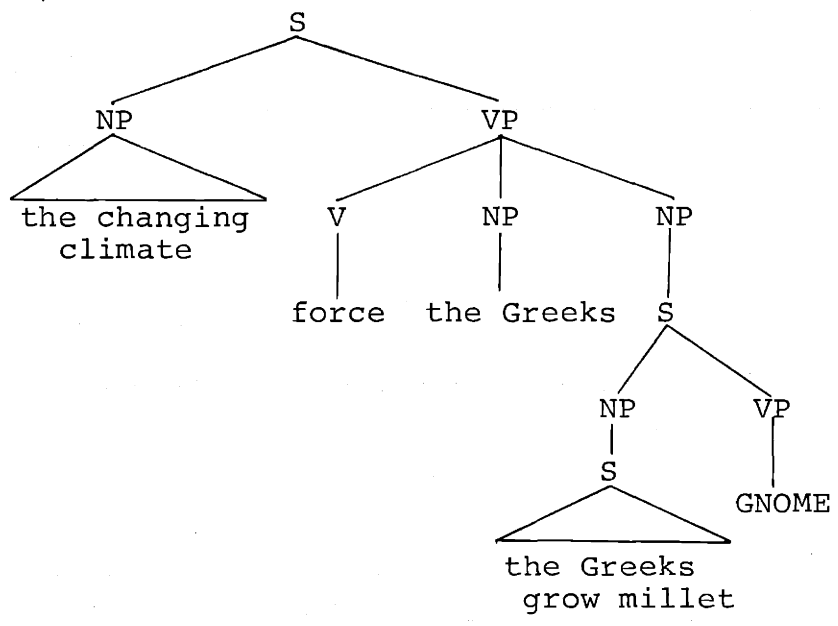
In conclusion, then, the hypothesis that GNOME carries
the Nomic first must postulate the existence of a verb which
has properties different from any known verb of English; and,
second, this hypothesis seems to run into insuperable diffi-
culties in correctly representing the semantics of imperatives
and sentences embedded in verbs like 'force'.

This completes the consideration of various deep
structure sources for the Nomic. I have tried to show that
this aspect of meaning cannot be the result of some character-
istic phrase structure configuration, cannot be located in
some grammatical formative or feature, and does not originate
as the meaning of some proverb. If this claim is true, then
the Nomic (and also the Eventive) are aspects of sentential
meaning unlike those previously investigated in studies in
generative grammar. I have presented a theory of categories
of meaning to account for the semantics of nomic and eventive
sentences. This theory deals not so much with the internal
structure of the various categories, but hypothesizes that
by virtue of being categories of meaning the Nomic and the
Eventive have certain properties enumerated in the first
chapter. The rest of the chapter will be devoted to showing
that the Nomic does have the requisite properties. Namely,
it will be shown that there are verbal elements of the
category Nomic, and that certain transformations must be
made sensitive to the nomic-eventive distinction in their
application.

2.4 Verbal Elements of the Category Nomic

This section will begin with a review of the notion of verbal elements of categories. The main arguments of the section will be devoted to showing that there are verbal elements of the Nomic. For convenience, the term 'nomic verb' will be used to refer to verbal elements of the Nomic; the use of this term should not be taken to suggest that the verbs in question are nomic in any sense other than that provided in the definition of verbal elements of categories.

2.4.1 Complement Verbs and Categories of Meaning

By the definition offered in the first chapter, a verb V taking a complement sentence (henceforth, a complement verb) is an element of some category of meaning, C, if the sentence embedded in V always carries C.

It should be remarked first that there is no a priori reason to think that any of the kinds of meaning called categories of meaning in this work should play a role in sentence complements different from that of any other kind of sentential meaning. Perlmutter (1968) proposes that there are constraints which hold between matrix verbs and embedded sentences, but these constraints are purely syntactic in nature, pertaining to features on embedded verbs or specifi- cation of identity or nonidentity of the embedded subject with the subject of the matrix sentence. In particular, there has been no proposal that only sentences which carry certain aspects of meaning may appear embedded under a certain

class of verbs.

The empirical question, then, is whether there are verbal elements of some category of meaning; i.e., whether there are verbs whose complements are restricted by certain essentially semantic constraints. A more general question is whether every complement verb is an element of some category of meaning; this can only be a matter of conjecture at the current state of knowledge of categories. If this general question does receive even a qualified positive answer, however, then there will be available a powerful semantic tool for the investigation and classification of complement verbs.

The next section will be devoted to showing that there are indeed elements of the category Nomic. Verbal elements of the Eventive will be investigated in the next chapter.

2.4.2 Nomic Verbs

Candidates for verbal elements of the Nomic are expressions like 'be inclined' and 'be disposed' in addition to 'tend'. It will be shown in the following that these expressions are nomic verbs in that they take only nomic complements.

The claim being made is essentially factual, and in this sense no argument for the claim is possible; i.e. the truth of the claim could not follow from some set of premises by some process of deduction. Thus, the procedure followed below consists of presenting data to elicit the

appropriate linguistic intuitions.

Consider first the difference in the possible readings of sentences in the simple tenses when they are and are not embedded in the nomic verbs. (In the following only the verb 'tend' will be exemplified; the reader can check for himself that 'be disposed' and 'be inclined' behave the same.)

(37) a. George ate cheese for dinner.

b. George tended to eat cheese for dinner.

c. Greebles prey on topological oddities.

d. Greebles tend to prey on topological oddities.

Sentence (37a) can be interpreted either as nomic or eventive, but (37b) is only nomic. The same holds for (37c,d), where (37c) can be interpreted as eventive in the context of a narrative. One can attempt to place (37b) into the nomic by adding a phrase like 'on that occasion' to get (37e).

(37) e. George tended to eat cheese for dinner on
        that occasion.

If (37e) is grammatical, then it receives an interpretation in which 'George ate cheese' is asserted to be nomically nomically true over some duration of time, as, e.g., with (37f).

(37) f. George tended to eat cheese during those years.

Another way to make evident the nomicity of the complement of 'tend' is to consider the interpretation of NP subjects embedded in 'tend' in deep structure, which NP's

appear as derived subjects of 'tend' on surface structure.
One observes that these NP's have interpretations exactly
like those of subjects of nomic sentences, the conclusion
being that they originate as subjects of nomic sentences in
deep structure. Contrast, now, the nomic and eventive
readings of the following sentences:

(38) a. A man who was caught stealing bread was hanged.

b. The man who was caught stealing bread was
hanged.

c. Men who were caught stealing bread were hanged.

d. All men who were caught stealing bread were
hanged.

In the eventive reading, none of the above sentences are
synonymous. In both (38a) and (38b), only one persons was
executed, but the latter may be used to suggest that, among
some given set of men, only one was caught stealing bread.
In (38c) more than one person was hanged, and (38d) is a
report of a mass slaughter of all bread thieves.

In contrast, all of (38) may be synonymous under the
reading in which they state that it was the custom to hang
bread thieves. When the subject NP's are referential, it is
possible to get nomic readings, although these are unnatural
in that they would mean that the action of hanging particular
individuals was habitual or customary. The verb 'hang' has
been chosen, as it makes the nomic reading natural only for
the case in which the subject NP's are nonreferential.

In the light of these observations, let us see how
sentences (38) behave when embedded in 'tend'.

(39) a. A man who was caught stealing bread tended
to be hanged.

b. The man who was caught stealing bread tended
to be hanged.

c. Men who were caught stealing bread tended
to be hanged.

d. All men who were caught stealing bread tended
to be hanged.

The only interpretation possible for (39) is the nomic, and
the most natural (as discussed above) is that in which all
the sentences are synonymous (i.e., the subject NP's are
nonreferential). That is, the subjects of the sentences
above behave exactly like the subjects of sentences under a
nomic reading. This, again, is evidence that the complements
of 'tend' are only nomic.

It should be mentioned that there are uses of the verbals
mentioned above ('tend', 'be inclined', 'be disposed') in
which the embedded sentence is not nomic. Examples of such
sentences are as follows:

(40) a. Jones tends to think we ought to get out of
Vietnam.

b. Jones feels inclined to disparage American
peace efforts.

c. Jones is disposed to refusing induction.

All of these counterexamples to the claim that these expres-
sions take only nomics involve mental predicates. I can offer
no explanation for their behavior in these sentences. One
hypothesis might be that mental predicates and nomics share
some essential semantic properties. It cannot be maintained,
however, that nomics are essentially predicative, and that

this explains their appearance with 'tend', and also the appearance of statements involving mental predication, for there are sentences which are nomic which are not predicative, such as the general commands cited earlier. Now, imperatives do not appear with 'tend', but this does not weaken the claim that 'tend' is a nomic verb, since the ungrammaticality of sentences like (41) is to be explained on the basis, discussed above, that these imperatives must have second person deep structure subjects.

(41)   *Tend to do your laundry.

An examination of sentences like (40) above reveals that the semantic function of 'tend', etc. seems to be somewhat different than when they appear with nomic sentences. This is not to suggest that there are homophonous pairs in each case, but that a deep explanation on semantic grounds is called for. The best decision in the face of such counter-examples is to allow the claim that 'tend', etc. are verbal elements of the Nomic to stand, pending an account of sentences like (40).

2.5   Transformations Dependent on the Nomic and Eventive
      Categories

This section will be devoted to showing that there are transformations which are dependent on the Nomic and the Eventive, in the sense of dependency defined in the first chapter. It will be evident below that no account of the application of transformations by exception features can

handle the data. This can be seen in principle as follows:
Suppose some transformation, T, is dependent on the Nomic,
and so cannot apply or must apply only to nomic sentences.
It has been shown that any verb in the lexicon may appear in
a nomic sentence (with perhaps some restrictions), as well as
in an eventive sentence. This fact makes it inherently
impossible to mark these verbs by rule features for R. In
essence, since the Nomic and the Eventive are aspects of
sentential meaning not carried by the main verb, it is im-
possible for the verb to "know" when it is in a nomic
sentence in order to control the application of T. Further-
more, as discussed above, those who would argue that the
Nomic is carried in deep structure by GNOME cannot use a
rule feature on GNOME to control the application of trans-
formations, for some of the transformations in question are
cyclic and thus will have applied on the sentence embedded
in GNOME before the transformation is sensitive to the rule
feature on GNOME.

The way in which the facts of category dependency are
described is of considerable importance. The bare fact is
that certain transformations do not preserve certain kinds
of meaning. This has been formulated here as an hypothesis
that these transformations must be made sensitive to certain
aspects of sentential meaning, although no formal mechanism
for providing for this has been offered here in the absence
of data which would decisively choose between equivalent
alternatives. Given the assumption that transformations

meaning preserving, the result that transformations must be able to be category dependent is a consequence of data such as those to be presented below. The most interesting upshot of this investigation, however, consists in the demonstration that certain transformations have intrinsic semantic content or relevance by virtue of the fact that they do not preserve certain kinds of sentential meaning. The question of the semantic relevance of transformations will be discussed in more detail in the final chapter.

2.5.1 THERE INSERTION

A transformation called THERE INSERTION has been proposed to relate sentences like (42a,b).

(42) a. Many greebles were garbled.

b. There were many greebles garbled.

THERE INSERTION is thought to apply to a structure consisting of an indefinite NP followed by 'be' followed by anything, and it operates by inserting 'there' in subject position and moving the NP to the right side of 'be'. Formally, the transformation would be written as in (43).

(43) $[^{NP}_{-def}]$ be X $\Rightarrow$ there be $[^{NP}_{-def}]$ X

There are several difficulties with this formulation, although it is not clear how (43) might be fixed up to resolve them. For example, (44a) would have to have a deep structure source such as (44b), which is of questionable grammaticality.

(44) a. There was a commotion.

     b. ?A commotion was.

Furthermore, it is not clear whether a sentence like (45a)

originates from (45b) or (45c), or both.

(45) a. There is a unicorn in the garden.

     b. A unicorn is in the garden.

     c. ?A unicorn which is in the garden is.

Notice that although (45c) is quite as bad as (44b), it may

in fact form the deep structure source of a viable surface

structure, namely (45d).

(45) d. There is a unicorn which is in the garden.

Thus, if (45a) could come from either (45b) by THERE

INSERTION or from (45c) via THERE INSERTION and RELATIVE

CLAUSE REDUCTION, then one would look for an ambiguity in

(45a), where the difference in readings corresponded to the

difference in meanings between (45b) and (45c) (whatever

that might be). In fact, however, (45a) is not ambiguous,

and it is difficult if not impossible to establish whether

(45b,c) have different meanings since the latter is not a

grammatical sentence of English.

With these difficulties in mind, let us turn to an

examination of the interaction between THERE INSERTION and

the Nomic and Eventive categories of meaning. The difficul-

ties mentioned above bear on the correct statement of the

dependency of THERE INSERTION on these categories.

There is evidence that THERE INSERTION is restricted to

non-nomic sentences. A sentence like (46) may be either

nomic or eventive; this sentence appears in (46b,c) in the context of adverbs which elicit the nomic and eventive readings as the natural readings, respectively.

(46) a. A cake was made by leaching acorns.

b. In those days a cake was made by leaching acorns.

c. On that occasion a cake was made by leaching acorns.

(The reader will notice that both readings are possible for both (46b,c), although the nomic and eventive, respectively, are the most natural.)

Sentence (46a) meets the structural description of THERE INSERTION, as stated in (43), and may undergo this rule to yield (47).

(47) There was a cake made by leaching acorns.

Sentence (47), however, can be only eventive. In fact, when it appears with the adverbs above, both sentences yield the eventive interpretation.

(48) a. In those days there was a cake made by leaching acorns.

b. On that occasion there was a cake made by leaching acorns.

Notice, further, that a sentence like (47) cannot be embedded under 'tend', which takes only nomics.

(49) *There tended to be a cake made by leaching acorns.

There are some apparent counterexamples to the claim made here that THERE INSERTION can work only on non-nomic sentences. Consider sentences like (50).

(50) a. There tend to be riots in Cambridge.

     b. There tends to be a commotion every time
       Idat speaks.

The existence of these sentences, in which THERE INSERTION

has applied to sentences embedded in 'tend', may seem to

throw doubt either on the claim that 'tend' takes only nomic

embeddings, or on the claim that this transformation applies

only to non-nomics.

The seeming difficulty in the case of a sentence like

(50) can be resolved on the basis that it is the whole embed-

ded sentence, 'a commotion is every time Idat speaks', which

is nomic. Thus, the clause 'a commotion is' to which THERE

INSERTION applies is itself non-nomic, even though it is an

essential constituent of a nomic sentence. Thus, (50b)

constitutes a counterexample neither to the claim that THERE

INSERTION works only on non-nomic sentences, nor to the

claim that 'tend' takes only nomic embeddings.

A sentence like (50a) presents problems of a different

sort than (50b). If 'tend' takes only nomic embeddings, the

deep structure for (50a) will contain a nomic subject embed-

ded sentence, ?'riots are in Cambridge'. Such a sentence

is, first of all, of questionable grammaticality. It is

grammatical when construed as part of a description of the

meaning of the word riots; ie., when it serves the same

function as, say, (51).

(51) a. Mandibles are things you chew with.

     b. Aborigines are (found only) in Australia.

Under this interpretation, however, the embedded sentence of (50a) means something like 'all riots are in Cambridge', and not 'there are riots in Cambridge'.

In short, the difficulties which pertain to the description of THERE INSERTION like (43) are just those which must be resolved before it can be determined whether (50a) is a true counterexample to the claim that this transformation applies only to non-nomics, given for a working assumption that 'tend' takes only nomic embeddings. One possibility is that a rule like (43) is not the only origin of 'there' in surface structure. This new source remains to be described but there is no reason that it should be subject to the same category dependencies as (43). In any case, in the absence of a definitive solution to the problem of finding an adequate characterization of THERE INSERTION for all cases, the hypothesis that this transformation applies only to non-nomic sentences may be allowed to stand.

2.5.2 OBJECT INCORPORATION

Above I have investigated a transformation which seems never to apply to nomic sentences. The following will be concerned with showing that there is a transformation which applies only to nomic sentences. The first task will be to describe this transformation, which is called OBJECT INCORPORATION.

If it is the case that (52a) comes from (52b) by AGENT NOMINALIZATION, then (53a) must come from (53b) by the same

rule.

    (52) a.   Jones is a driver.

           b.   Jones is one who drives.

    (53) a.   Jones is a wine-drinker.

           b.   Jones is one who wine-drinks.

The problem which must be faced concerns the origin for (53b).

I propose that it should come from (53c), where the object

is preposed and Chomsky-adjoined to the verb.

    (53) c.   Jones is one who drinks wine.

Under the transformation of OBJECT INCORPORATION, then, a

sentence like (54a) is mapped into (54b).

(54) a.

```
              S
            /   \
          NP     VP
          |     /  \
        birds  V    NP
               |    |
              eat  worms
```

    b.

```
              S
            /   \
          NP     VP
          |     /  \
        birds  NP   V
               |    |
             worm  eat
```
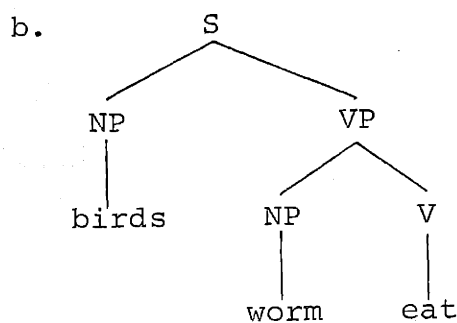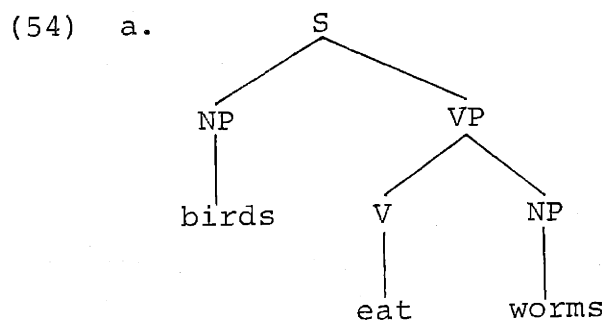
    As formulated, OBJECT INCORPORATION forms a new verb out

of a verb-plus-object construction by the operation of

Chomsky-adjunction. This way of stating the rule for English

reflects what seem to be universal properties of the rule. Thus, languages which have particles which surround the verb in surface structure treat the NP-V (respectively, V-NP in verb final languages) combination as a verb. (Thanks to Ken Hale for the data.)

There is evidence that OBJECT INCORPORATION is restricted to nomic sentences, although this restriction is difficult to establish. For example, when an adverb like 'on that occasion' is appended to a sentence, the interpretation becomes most naturally eventive. Now consider (55).

(55) a. ˮ Jones ate cheese.

b. Jones ate cheese on that occasion.

c. Jones was a cheese-eater.

d. *Jones was a cheese-eater on that occasion.

e. Jones was a driver on that occasion.

Sentence (55a) may be either nomic or eventive, but (55b) has a natural interpretation which is eventive only. In (55c), (55a) has undergone the rule of OBJECT INCORPORATION. The ungrammaticality of (55d) indicates, however, that the eventive (55b) cannot undergo such a rule. (55e) establishes that the ungrammaticality of (55d) is not due merely to the fact that 'on that occasion' is appended to a sentence which contains an agent nominal. That is, (55e) would have to have come from a sentence like (55f).

(55) f. Jones was one who drove on that occasion.

As remarked above, it is difficult to establish that

OBJECT INCORPORATION applies only to nomic sentences; the only means available seems to be the adverb test, plus the simple use of intuition. Notice that if, as is claimed here, this transformation applies only within nomic sentences, then no possible use of rule features can serve to control its operation. For example, the 'eat' of (55a) cannot simply be marked [+OBJECT INCORPORATION], for the same verb may appear in an eventive sentence, (55b), which does not undergo this operation.

2.5.3 CONDITIONAL FORMATION

In this section I will state a result which is of a somewhat weaker form than those stated above. This result is in the form of the following conditional: that if such-and-such transformation exists, then it is dependent on the Nomic. I will not investigate directly the question of whether this transformation, which I have called CONDITIONAL FORMATION, is a rule of English.

Consider the following set of sentences.

(56) a. Henry's eating onions bothers Matilda.

b. For Henry to eat onions bothers Matilda.

c. That Henry is eating onions bothers Matilda.

Under the interpretation in which the complement sentence is presupposed, all sentences of (56) are synonymous. However, both (56a,b) are susceptible to a reading which (56c) is not susceptible to. This reading may be paraphrased by (57a,b).

(57) a. It bothers Matilda whenever Henry eats onions.

      b. It bothers Matilda if Henry eats onions.

That is, both (56a,b) may be nomic, in the sense paraphrased by (57), whereas (56c) may not. Notice that in the nomic reading, it is not presupposed that Henry is now eating onions.

CONDITIONAL FORMATION is that transformation which maps sentences like (56a,b) in their nomic readings into (57b). (Alternatively, (56a,b) could become (57a), which later becomes (57b) by another operation.) This transformation operates not only on subject embedding factives, but also on factives which take object complements.

(58) a. Donna hated John's bumming cigarettes.

      b. Donna hated for John to bum cigarettes.

      c. Donna hated that John bummed cigarettes.

(59) a. Donna hated it whenever John bummed cigarettes.

      b. Donna hated it if John bummed cigarettes.

Again, (58a,b) are synonymous with (59a,b) only in the nomic reading, where one does not presuppose the action described in the complement on one particular occasion.

It will be clear from the meanings of sentences above that CONDITIONAL FORMATION can apply only when the sentence containing the factive verb is nomic. Thus, if the transformation described above is indeed a part of the grammar of English, then it is dependent on the Nomic.

2.6 Conclusion

This chapter has been devoted to investigating the category Nomic, and also to some extent the Eventive. I have tried to show that the nomic interpretation is not due to any grammatical or lexical formative in deep structure, and is not an interpretation of some feature. There are verbs which take only nomic sentences, such as 'tend', and it would be difficult to state the syntactic behavior of these verbs if they were not marked as members of the Nomic. Finally, the question of the category dependency of various transformations has been raised. I have tried to show that at least three transformations, THERE INSERTION, OBJECT INCORPORATION, and CONDITIONAL FORMATION are dependent on the Nomic.

Chapter 3

VERBS OF ASPECT

3.1 Preliminary Remarks

The previous chapter has been concerned with an investigation of nomic sentences, and of verbal elements of the category Nomic. This chapter represents a continuation of this discussion in examining the category complementary to the Nomic, the Eventive. In particular, this chapter will be concerned with establishing that the verbal elements of the Eventive include those complement-taking verbs which express notions of aspect, such as inception, duration, and termination. (I have not dealt with the question of whether the verbs of aspect exhaust the class of verbal elements of the Eventive.) Thus, it will be shown that verbs of aspect may take only eventive sentences in their complements, and that this restriction has syntactic reflexes which cannot be stated in the grammar without incorporating a theory of categories.

The following data from Latin presented in R. Lakoff (1968) suggest the hypothesis that verbs of aspect take eventive embeddings.

(26a) Marcus currere incepit. 'Marcus began to run.'
(26b) Marcus carmina mala recitare solet. 'Marcus tends to recite bad poems.'
(26c) Marcus pergit megare se Caesarem interfecisse. 'Marcus continued to deny he killed Caesar.'
We find in Latin sentences with the same meaning as these sentences, but without an overt verb meaning "begin", "continue", "tend". The sentence has a subject in the nominative case, and the verb describing the action being begun or continued is an infinitive.

> This construction is called by grammarians the
> "historical infinitive" because of its relative
> frequency in the historical writers. (p. 194)

After producing several examples of historical infinitives,

Lakoff writes:

> These sentences have meanings as though there
> were a verb such as incipio 'begin', soleo 'tend',
> or pergo 'continue', in their deep structures. (p. 195)

Lakoff's conclusion is that the historical infinitives are

embedded in deep structure under proverbs, which carry the

meaning of 'begin', 'tend', etc., and that these verbs are

deleted in the course of transformational derivation.

I should like to offer a rather different interpretation

of these data, however. One must account for the fact that

the interpretation of the historical infinitives involves

just verbs of aspect (begin, continue) or what I have claimed

are verbal elements of the Nomic. Why, for example, should

not sentences in the form of the historical infinitive allow

an interpretation with verbs of intention, modality, belief,

desire, etc.? This fact concerning the interpretation of

historical infinitives can be explained if one assumes that,

like other sentences in the language, the historical infini-

tives carry either the Eventive or the Nomic categories, and

that verbs of aspect are verbal elements of the Eventive just

as verbs like 'tend' are elements of the Nomic. Furthermore,

the verbs of aspect do not themselves carry the Eventive,

just as 'tend' is not a lexical source for the Nomic; rather,

these verbs serve the semantic function of qualifying the

action of some event.

An additional indication of the complementarity of aspect and nomicity derives from considering the possible meanings of pairs of sentences such as (1a,b).

(1)   a.   Jones does his laundry.

      b.   Jones is doing his laundry.

Sentence (1a) may be either nomic or eventive, the latter reading possible in the context of a narrative. On the other hand, (1b) carries no such ambiguity and is only eventive. If aspect pertains solely to eventives, this lack of ambiguity in (1b) is explained. Notice, further, that these observations concerning the possible meanings of (1a,b) are corroborated by their behavior embedded in a nomic verb like 'tend'.

(2)   a.   Jones tends to do his laundry.

      b.   *Jones tends to be doing his laundry.

Sentence (1b) cannot appear embedded in 'tend'; this is accounted for by the fact that 'tend' takes only nomics, and that (1b) is eventive only.

It is necessary to digress to consider the manner in which the ungrammaticality of sentences like (2b) is handled by using categorial notions. In an _Aspects_ framework, the phrase structure and transformational rules would bear the burden of stopping a sentence like (2b). It is not clear how this would be done in a non-ad hoc manner, however, for verbs like 'seem', which are similar to 'tend' with respect to most formal properties, can appear in (2b), as evidenced by (2c).

(2)   c.   Jones seems to be doing his laundry.

Since <u>Aspects</u>, however, a number of grammatical constraints
have been proposed which one might attempt to marshall in
explaining (2b). For example, it has been argued that there
are verb-verb constraints allowing the complement verb to
select the verb of the embedded sentence from a certain
class. If sentence (1b) (Jones is doing his laundry) is to
be analyzed by the method proposed in Ross (1967), then it will
have a deep structure like (3).

(3)

```
                        S
              ┌─────────┴─────────┐
             NP                   VP
              │            ┌───────┴───────┐
           Jones          V               NP
                          │          ┌─────┴─────┐
                         be         at          NP
                                          ┌──────┴──────┐
                                         it             S
                                                   ╱────────────╲
                                                Jones do his laundry
```
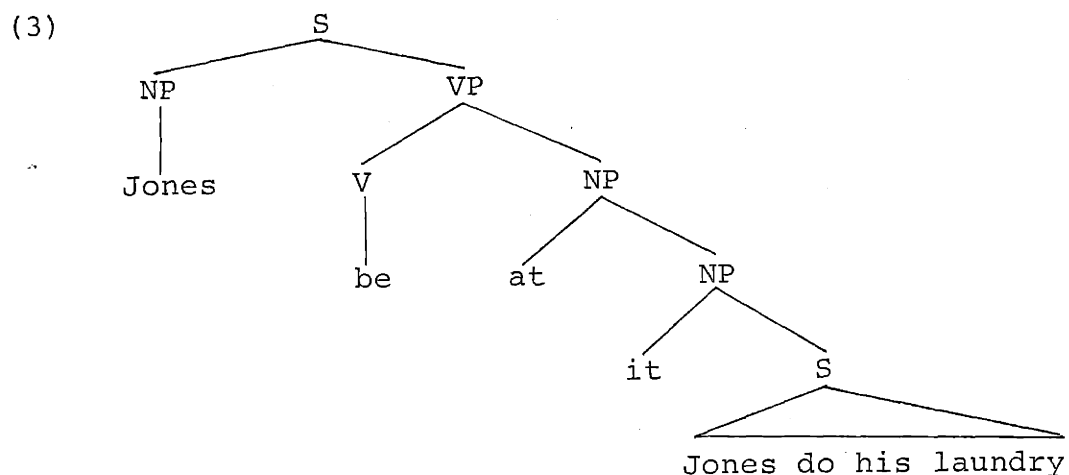
Then, perhaps, 'tend' would be marked so as not to take 'be'
as the matrix verb of the embedded sentence. Such an hypo-
thesis, however, seems to encounter numerous counter examples,
as in (4).

    (4) a. Whales tend to be fat.

          b. Tall men tend to be President.

It might be claimed that the 'be' of the progressive is
different from the other 'be's which may appear under 'tend'.
Notice, however, that the same verb-verb constraint will have
to be utilized to stop (5).

(5) *Jones tends to have done his laundry.

However, the constraint cannot be stated to stop all 'have's

from appearing under V, as is shown by sentences like (6),

where both alienable and inalienable possession are

exemplified.

(6) a. Whales tend to have fat faces.

     b. Tall men tend to have fat wallets.

Again, then it is just the 'have' of the perfect which must

be blocked from occurring under 'tend'. What is lost in such

an account is the fact that semantically both the 'have' and

the 'be' which would be prevented from appearing under 'tend'

are aspectual; the fact that the constraint is essentially

semantic in nature would not receive representation in the

grammar.

Thus, no known mechanism seems to be able to account for

the ungrammaticality of (2b) in a fully satisfactory manner.

Such an account can be made, however, when verbs are marked

as elements of categories of meaning. The verb 'tend' is

nomic, and so cannot take eventive embeddings, whereas aspects

appear only on eventive sentences. Such an explanation not

only seems right on an intuitive basis, but also it handles

examples which are out of the range of existing grammatical

mechanisms.

It can be seen, then, that not only are there a number

of indications that verbs of aspect are elements of the even-

tive, but that also certain otherwise mysterious cases could

be explained on the basis of this hypothesis. Let us turn,
then, to establishing that verbs of aspect are verbal
elements of the Eventive.

3.2 The 'Commence' Series

This section will be concerned with exploring syntactic
and semantic properties of a subclass of the verbs of aspect,
named the 'commence' series after its leading member.
Minimally, this class contains 'commence', 'keep on', and
'finish'. It can be seen by inspection that these verbs all
express aspectual notions; namely inception, iteration, and
completion. The elements of the 'commence' series contrast
with verbs like 'begin', 'continue', and 'cease' in several
important respects, although the members of this latter class
likewise express aspectual notions parallel to those express-
ed by verbs of the 'commence' series. The treatment of the
'commence' verbs begins with a survey of their syntactic
properties.

The verbs of the 'commence' series take only the POSS-
ING complementizers. This is seen in (7).

(7)
$$\text{Jones} \begin{Bmatrix} \text{commenced} \\ \text{kept on} \\ \text{finished} \end{Bmatrix} \begin{Bmatrix} \text{building absurdities} \\ \text{*that he was building absurdities} \\ \text{*to build absurdities} \end{Bmatrix}.$$

Second, there seems to be some evidence that the verbs of
this class are transitive in deep structure, taking the em-
bedded sentence in object position. First to indicate this
are sentences like (8).

(8) Jones commenced his running.

Although the argument is by no means conclusive, the

existence of the pronoun 'his' in (8) suggests that in deep

structure the source for (8) is something like 'Jones

commenced Jones run'. Complementizers are inserted, and the

second 'Jones' is pronominalized.

Further evidence for the transitivity of the 'commence'

verbs in deep structure comes from the fact that NP's which

appear only as derived but never deep structure subjects

cannot be the subject of these verbs. Thus, 'tabs' and the

existential 'there' both appear as subjects in surface struc-

ture only through the operation of various transformations;

PASSIVE in the case of 'tabs', as in (9a), and THERE INSER-

TION for 'there', as in (9b).

> (9) a. Tabs are being kept on the tabs-keepers.
>
>   b. There is a slithey tove on your collar.

If verbs of the 'commence' series originate from intransitive

deep structures, then both 'tabs' and 'there' should be able

to appear as surface subjects of these verbs through the

operation of SUBJECT RAISING. That is, if 'commence' etc.

are intransitive, then one ought to be able to derive (10c)

from (10a) by successively applying PASSIVE on the embedding

and SUBJECT RAISING on the matrix sentence.

(10) a.

```
                    S
                  /   \
                /       \
             NP          VP
            /|\          |
           / | \      ┌ commence ┐
          /  |  \     │ keep on  │
        FBI keep tabs └ finish   ┘
          on Jones
```

b.

```
                    S
                  /   \
                /       \
             NP          VP
            /|\          |
           / | \      ┌ commence ┐
          /  |  \     │ keep on  │
      tabs be kept    └ finish   ┘
      on Jones by
      the FBI
```

c.

```
                      S
                    /   \
                  /       \
               NP          VP
               |          /    \
               |         /       \
             tabs   ┌ commence ┐    VP
                    │ keep on  │   /|\
                    └ finish   ┘  / | \
                              being kept on Jones
                                 by the FBI
```
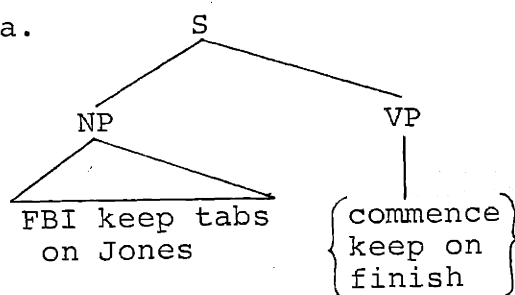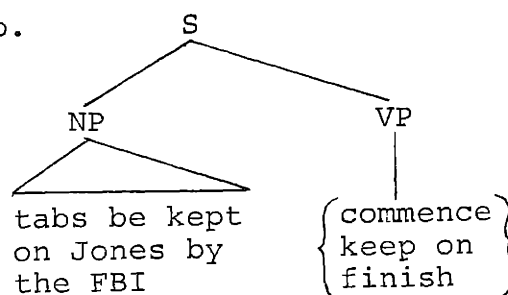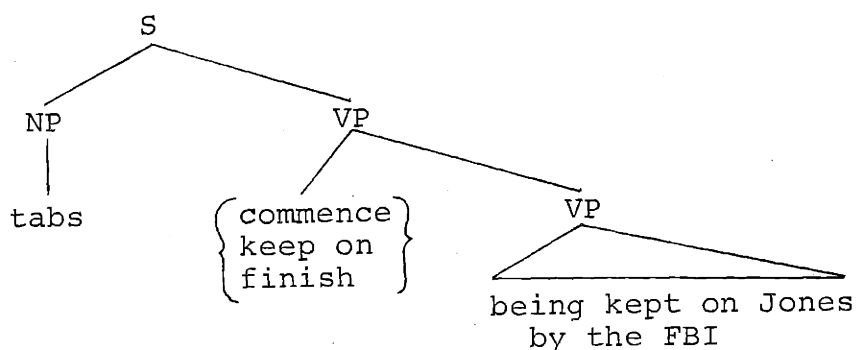
The ungrammaticality of (10c), however, indicates that the 'commence' verbs do not take subject embedding. Rather, the evidence suggests that these verbs take object complements, and that the rule of EQUI NP DELETION applies to delete the suject of the embedded sentence. By this deep structure sentences like (10c) can be blocked, because 'tabs' and 'there' could never occur as deep structure subjects of 'commence', etc.

Newmeyer (1969) defines an aspectual verb to be one

"whose semantic role is to function as the predicate of a proposition rather than to modify or refer specifically to one item in that proposition." (p. 3) This definition covers a class of verbs much wider than what are termed here verbs of aspect. Newmeyer claims that all aspectual verbs are intransitive in deep structure, and he would probably include the 'commence' verbs as aspectual, since verbs with very close semantic readings such as 'begin' are counted as aspectual. Thus, the evidence marshalled above that 'commence' etc. are transitive in deep structure presents some difficulty for Newmeyer's hypothesis.

Furthermore, since Newmeyer's characterization of aspectual verbs (to be distinguished from verbs of aspect, as remarked above) is semantic, it is reasonable to suppose that his hypothesis concerning the intransitivity of these verbs in deep structure is to be accorded universal status. That is, if 'commence' is supposed to be subject embedding in deep structure because of something about its semantic function, then surely a lexical item in another language which performs the same function would be subject embedding. Now, this prediction of Newmeyer's account runs into serious difficulties in handling even an earlier stage of English. There is very strong evidence that a verb like 'finish' was transitive in late eighteenth century English, for it appears in passive form then. For example, Curme (1930) cites the following sentence taken from George Washington's diary of 1790.

(11) My clover field was finished being sown.

Such sentences are, perhaps, acceptable to speakers of con-

temporary English. In any case a sentence like (11) is much

better than corresponding sentences where 'finish' is replaced

by true intransitives like 'seem' and 'happen'.

(12) a. *My clover field was seemed to be sown.

b. *My clover field was happened to be sown.

This completes the brief survey of the syntactic behav-

ior of the 'commence ' series. Verbs of this class all take

just the POSS-ING complementizer (although sentences like

'Jones commenced to sing' are good in some dialects, but only

with 'commence' and not the other verbs), and they take com-

plement sentences embedded in object position. The next

stage of this discussion is devoted to showing that the

'commence' verbs are elements of the Eventive.

The most direct way of establishing that 'commence' etc.

take only eventive embeddings is to consider the range of

possible meanings of a sentence like (13).

(13)
       George $\left\{\begin{matrix} \text{commenced} \\ \text{kept on} \\ \text{finished} \end{matrix}\right\}$ eating cheese.

The complement sentence in (13) can be only eventive. Thus,

in the nomic interpretation of this embedded sentence, the

NP 'cheese' would be nonspecific; notice, now, that 'cheese'

in (13) can be only specific.

It is striking to note the interpretation of a sentence

which is naturally nomic when such a sentence is embedded in

verbs of the 'commence' series. Consider, then, the reading

of (14a) when it appears in (14b).

(14) a. Dinosaurs chased pterodactyls.

b. Dinosaurs $\begin{Bmatrix} \text{commenced} \\ \text{kept on} \\ \text{finished} \end{Bmatrix}$ chasing pterodactyls.

(14a) is normally read as nomic, although the eventive is

also possible when some particular groups of dinosaurs and

pterodactyls are envisaged. Interestingly, however, only

the eventive is possible in (14b); thus, this less natural

reading is elicited from sentences embedded under 'commence'

etc.

I will digress somewhat here to point out the existence

of a class of verbs which are nearly synonymous with the

'commence' verbs, and with which embedded sentences may carry

a nomic reading; these are the members of the 'begin' series.

(15) Dinosaurs $\begin{Bmatrix} \text{began} \\ \text{continued} \\ \text{ceased} \end{Bmatrix}$ to chase pterodactyls.

The embedding in (15) can be read as either nomic or even-

tive; as with (14a), the nomic is the preferred reading.

Sentences in (15) express what (14b) cannot. Under the nomic

reading, e.g., the first sentence of (15) states that it

began to be the custom of dinosaurs to chase pterodactyls,

and this sentence is to be contrasted with the first sentence

of (14b), which cannot carry such a reading. The 'begin'

verbs will be discussed at length in the next section.

Notice, further, that verbs in the 'commence' series do

not take 'tend' in the embedding, although this is possible

for the 'begin' verbs.

(16) a. *Jones $\begin{Bmatrix} \text{commenced} \\ \text{kept on} \\ \text{finished} \end{Bmatrix}$ tending to eat rice and fish.

  b. Jones $\begin{Bmatrix} \text{began} \\ \text{continued} \\ \text{ceased} \end{Bmatrix}$ to tend to eat rice and fish.

Further evidence that 'commence' etc. take only eventive

embeddings derives from consideration of the distribution of

time adverbs. In particular, it is impossible to get

different adverbs on the matrix and embedded sentences, as

shown in (17).

(17) *At noon Jones $\begin{Bmatrix} \text{commenced} \\ \text{kept on} \\ \text{finished} \end{Bmatrix}$ writing at midnight.

Now, Newmeyer (ibid, pp. 33ff.) claims that the same holds

for verbs like 'begin'. He cites sentence (8) (his numbering)

as evidence for this.

(8) *John began at 10 o'clock to work at midnight.

In fact, however, this holds only when the embedding is

eventive. It is possible to get two adverbs on a 'begin'

sentence when the embedding is nomic. Suppose, for example,

that Jones has been eating his lunch at one, and has been

ordered to change to noon. One might then utter (18).

(18) On Thursday Jones began to eat his lunch at noon.

Here 'eat lunch at noon' is interpreted nomically, and the

adverb 'on Thursday' qualifies the 'begin' sentence. When

(18) is interpreted as an eventive, it is ungrammatical.

To complete the argument, then, the fact that (19) is

ungrammatical under any possible reading shows that 'commence' takes nothing but an eventive embedding.

(19) *On Thursday Jones commenced eating his lunch at noon.

The arguments presented above show that the 'commence' verbs are elements of the Eventive category. Let us turn now to the 'begin' series to contrast the behavior of these verbs with those like 'commence'.

3.3 The 'Begin' Series

The 'begin' series comprises, minimally, 'begin', 'continue', and 'cease'. Other candidates for membership are 'stop' and 'start', although these verbs seem to differ from those listed above in a number of ways.

The 'begin' verbs allow FOR-TO as well as POSS-ING complementizers.

(20) Jones $\begin{Bmatrix} \text{began} \\ \text{continued} \\ \text{ceased} \end{Bmatrix} \begin{Bmatrix} \text{to run} \\ \text{running} \\ \text{*that he ran} \end{Bmatrix}$.

There is strong evidence that these verbs take subject embedded complements. For example, it seems to be possible to get gerundive nominals with these verbs in subject position in surface structure, as in (21).

(21) a. Jones' planting corn began at noon.

      b. Jones' planting corn continued for three hours.

      c. Jones' planting corn ceased at the sound of the buzzer.

Further, transformationally introduced NP's such as 'there' and 'tabs' may appear as surface structure subjects of the
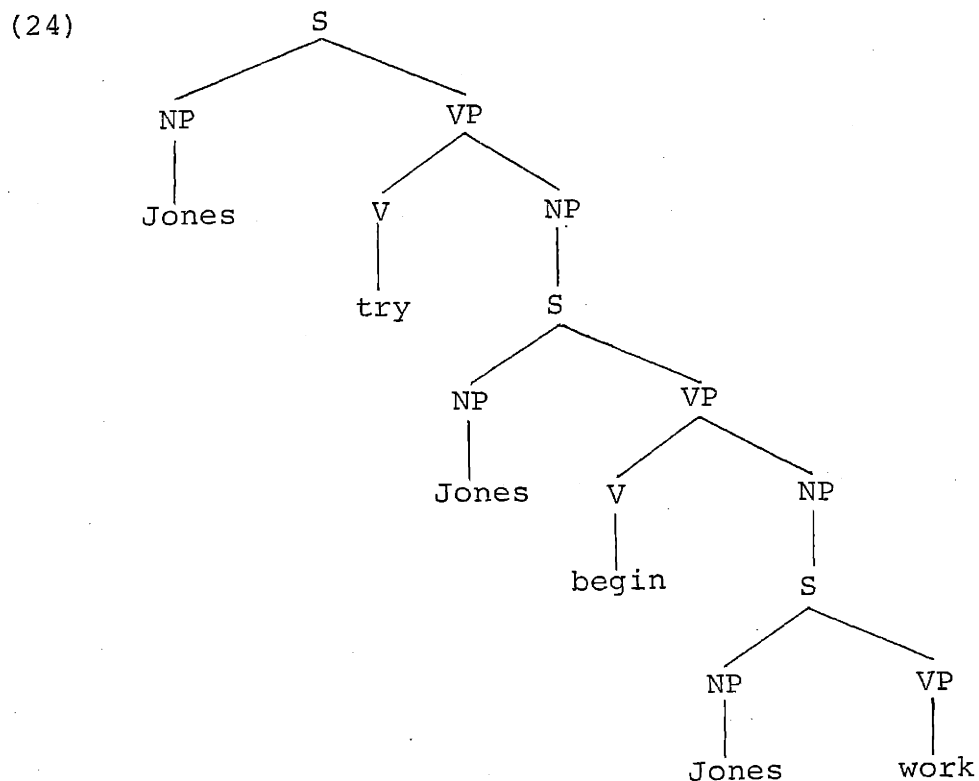
'begin' verbs.

(22)   a.   There began to be a commotion.

       b.   Tabs began to be kept on the tabs-keepers.

Perlmutter (1968) argues that verbs like 'begin' must
also be able to occur as transitives in deep structure, where
the complement sentence is embedded in object position. Sen-
tences showing this have subjects which must occur in subject
position in deep structure according to his like-subject
constraint.

(23)   Jones tried to begin $\left\{\begin{array}{l} \text{working} \\ \text{to work} \end{array}\right\}$.

Thus, if 'try' requires the subject of the sentence embedded
in object position to be the same as the subject of the matrix
sentence, then the deep structure of (23) will have to look
like (24).

(24)

```
                         S
                ┌────────┴────────┐
               NP                 VP
                │          ┌───────┴───────┐
             Jones        V               NP
                          │                │
                         try               S
                                    ┌───────┴───────┐
                                   NP               VP
                                    │          ┌─────┴─────┐
                                 Jones        V           NP
                                              │            │
                                            begin          S
                                                    ┌───────┴───────┐
                                                   NP               VP
                                                    │                │
                                                 Jones             work
```

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A second set of examples indicating that 'begin' etc. can be transitive in deep structure concerns sentences like (25).

(25) a. Begin to do your exercises.

b. Continue to row the boat.

c. Cease your ironing the dandelions.

Newmeyer (1969) attempts to show that Perlmutter did not establish that 'begin' etc. may be transitive in deep structure, but his arguments are far from conclusive. The dispute will not be pursued here, rather I will assume that Perlmutter is correct, and show that his conclusion yields interesting consequences for the categorial description of the 'begin' verbs.

As noted above, the verbs like 'begin' differ from those like 'commence' in that they may take both nomic and eventive embeddings. Thus, sentences like (26a) carry exactly the same set of possible readings as does (26b).

(26) a.
Horses $\begin{Bmatrix} \text{began} \\ \text{continued} \\ \text{ceased} \end{Bmatrix}$ to eat daisies.

b. Horses ate daisies.

(Sentence (26b) has the nomic as a preferred reading, but the eventive is also possible, in which case (26b) might be paraphrased by 'some horses ate daisies'.)

As further evidence that these verbs may take nomic complements, they seem to be able to take 'tend' sentences in the embedding, although the acceptability of sentences like (27) may vary from speaker to speaker.

(27) ?Buzzards $\begin{Bmatrix} \text{began} \\ \text{continued} \\ \text{ceased} \end{Bmatrix}$ to tend to eat carrion.

The problem which the analysis proposed above concerning the 'commence' series seems to fail for the 'begin' series. That is, verbs of both classes express notions of aspect, yet only the 'commence' verbs are elements of the Eventive, whereas the 'begin' verbs may take either nomic or eventive embeddings. Part of this seeming incongruity disappears when it is observed that when the 'begin' verbs take nomic embeddings, they do not express the inceptive, durative, and terminative aspects of actions, respectively. Rather, these verbs are used to assert the beginning, continuation, or cessation of some state of affairs expressed by the nomic proposition.

The explanation of the difference in behavior of the 'commence' and the 'begin' verbs with respect to the Nomic and Eventive categories seems to lie in the fact that the verbs of the latter class may take subject embeddings. In fact, there is evidence that the 'begin' verbs take nomic embeddings only in subject position; i.e., sentences embedded in object position of these verbs can be only eventive, as is the case with the 'commence' series. If this is true, then there is indeed a striking parallelism between the 'begin' and the 'commence' verbs; namely, the latter take only object complements and only eventive embeddings, while the former may take both subject and object complements, but take only eventive sentences in object position. One might

say that the 'begin' verbs are semi-elements of the Eventive.
Let us turn now to examine the evidence showing that the
'begin' verbs cannot take nomic sentences in object position.

Consider first those sentences which must have non-
sentential subjects according to the like-subject constraint,
e.g., (23) 'Jones tried to begin to work'. It seems imposs-
ible to get a nomic reading for the embedded proposition
'Jones works' in such a sentence. This is brought out even
more clearly by observing the behavior of sentences which are
preferably nomic in such constructions.

(28)   a.   Horses ate grass.

       b.   Horses began to eat grass.

       c.   Horses tried to begin to eat grass.

Whereas the nomic reading for (28a,b) is quite natural, it
seems to be excluded in (28c). Thus, the nomic readings of
(28a,b) are respectively paraphrasable by (29a,b), but there
seems to be no such paraphrase for (28c).

(29)   a.   Horses are grass-eaters.

       b.   Horses began to be grass-eaters.

       c.   ?*Horses tried to begin to be grass-eaters.

It may be thought that the strangeness of (29c) is due either
to the fact that 'horses' normally do not try to begin to do
something, or because 'try' cannot appear in nomic construc-
tions. However, notice that 'horses' can be replaced by 'men'
as in (30a) with no change in grammaticality, and that 'try'
may appear in nomic sentences, as in (30b).

(30) a. ?*Men tried to begin $\begin{Bmatrix} \text{to eat cheese} \\ \text{to be cheese-eaters} \end{Bmatrix}$.

   b. Dictators try to subvert the will of the people.

(Sentence (30a) is starred where the 'to eat cheese' is interpreted to mean 'to be cheese-eaters'.)

Next, consider the sentences where 'begin' is used in an imperative.

(31) a. *Begin to eat cheese.

   b. *Begin to be a cheese-eater.

(31a) is starred in that sense in which it would mean the same as (31b). Notice that the indicative corresponding to (31b) is grammatical.

(32) Women began to be cheese-eaters.

Thus, it is not merely the case that there is some constraint between 'begin' and the complement in (31b) which excludes that sentence. And (31a) can be grammatical where it is interpreted with an eventive embedding. Lastly, there are cases of nomic imperatives, so it is not merely the appearance of a nomic sentence in an imperative construction which excludes (31a,b). Again, the hypothesis that 'begin' verbs take nomic sentences only in subject position is borne out.

It should be noted that the claim that nomic sentences do not appear in object embeddings with the 'begin' verbs does not entail that eventive sentences cannot appear in subject embeddings with these verbs. In fact, sentences like (33), which seem to receive both nomic and eventive

readings, could be derived only from a subject embedded complement.

(34)   Tabs began to be kept on the subversives.

3.4 Conclusion

This chapter has been devoted to an investigation of the syntactic and semantic properties of two classes of verbs of aspect. It has been shown that the 'commence' verbs are elements of the category Eventive; further, evidence has been presented that these verbs take only object embeddings. The 'begin' verbs may take either nomic or eventive sentences, but they are like the 'commence' verbs in that they take only eventive sentences in object position. There seems to be good semantic reason to count verbs of aspect such as those investigated above as elements of the Eventive, and when the 'begin' verbs do take nomic embeddings, they do not semantically parallel verbs of the 'commence' series in expressing notions of aspects of action.

Chapter 4

Expressive and Reportive Sentences

4.1 Introduction

This chapter will be concerned with an investigation of
two categories of meaning called the Expressive and the
Reportive. It will be shown that these categories play an
essential role in the grammar of certain sentences, and that
the theory of exceptions (cf. Lakoff, 1965) is inherently
incapable of representing the domain of application of those
transformations which are dependent on one or the other of
these categories. The discussion of this category distinc-
tion will begin with a review of some philosophical litera-
ture relevant to the semantic phenomenon being considered.

4.2 Philosophical Background

It is possible to introduce the expressive-reportive
distinction by considering the semantics of the language of
sensation. The problem of the grammar of sensation words
is taken up by Wittgenstein (1953, part I, articles 244-304),
where he argues that these words cannot be treated on the
name-object model. That is, he argues that a phrase like
'my pain' is not a referring expression in the same way that
'my father' is. In other words, sentences like (1a) and
(1b) are quite different in their grammar (in Wittgenstein's
sense of the word 'grammar').

(1) a. I have a headache.

     b. I have a pencil.

Wittgenstein suggests that we might give the following

sort of account of sensation words:

> A child has hurt himself and he cries; and
> then adults talk to him and teach him excla-
> mations, and, later, sentences. They teach
> him new pain-behavior.
> "So you are saying that the word 'pain'
> really means crying:" -- On the contrary: the
> verbal expression of pain replaced crying and
> does not describe it. (Wittgenstein, 1953,
> 244.)

Consider the status of linguistic expressions such as

'Oh, Hell', 'Damn', 'Ouch'. By Wittgenstein's account, these

are linguistic expressions which may replace pain-behavior.

That is, one might use these in the same situations in which

screams, cries, groans, etc., are appropriate. Now, the

expressions cited above are not grammatical sentences, and

do not have the internal syntactic construction character-

istic of sentences of English. However, there are full sen-

tences which have uses essentially indistinguishable from

the uses of 'Ouch', etc., as replacements for pain-behavior.

(Although the discussion here centers about only pain and

words for pain, everything said in this area can be carried

over to other sensation words.)

The most likely candidates for sentences which have

uses like 'Ouch' are sentences like (2).

(2) It hurts!

That is, in a situation where a groan or an 'Ouch' is appro-

priate, one might also utter (2). Let us call such a use of
(2) an expressive use. Contrast the expressive use of (2)
with a use in which it reports the occurrence of a sensation.
For example, a doctor might be tightening a steel band around
a patient's head, and ask for a chronicle by the patient of
his sensations. The response might be, "I can feel the
pressure, it's getting tighter, now it hurts." In such a
situation the patient could not directly answer the doctor's
question by exclaiming 'Ouch!', for this would not be to
inform the doctor of a sensation, but would only constitute
behavioral evidence from which the doctor could draw a con-
clusion about the sensation. Let us call the use of (2) in
a situation such as that described above a reportive use.

The reader will now note that just as utterances like
'Ouch!', 'Damn!' and 'Alas!' do not express propositions,
and cannot carry value, so also 'It hurts!' fails to express
a proposition in its expressive use. One cannot lie with
groans; it is perhaps possible to intentionally give false
impressions by means of groans, or by uttering 'Ouch!', but
this is different from lieing. In lieing the speaker asserts
the truth of some proposition which he knows to be false.
If an utterance does not express a proposition, then one
cannot lie with that utterance. Thus, one cannot lie with
'It hurts!' when this sentence carries the expressive cate-
gory, although a reportive 'It hurts.' can be used in a lie.
The patient in the above example might consciously report

that it hurt when there was no pain. To reiterate, expressive utterances of pain replace pain-behavior; and just as there is no assertion by means of a certain mode of behavior, so also there is no assertion made in an expressive utterance.

The following chapter will be concerned with investigating the grammatical reflexes of the semantic distinction between expression and report. It will be shown that there can be no question forms of expressive sentences, just as there is no way to question a groan or an 'Ouch!' Furthermore, expressive utterances cannot constitute the answers to questions, for an answer to a question must be an assertion that such-and-such is true, and expressive utterances do not carry truth value. Negation has the effect of switching truth value; since expressive sentences do not carry truth value, they have no deep structure negations. Just as it is possible to both express and report bodily sensations, also one can express and report states of mind, such as beliefs. Thus, sentences referring to such states of mind have both expressive and reportive uses. It will be shown that the grammar of such sentences depends crucially on whether the sentence carries the Expressive or the Reportive category.

4.3 Questions and Negation

In studying the behavior of expressive sentences under the transformations for forming 'yes-no' questions, it becomes evident that these sentences are quite different from

their reportive counterparts. A 'yes-no' question is a request as to the truth value of the proposition expressed by some sentence. If a sentence does not express a proposition under one interpretation of that sentence, then it can have no question form under that reading.

Let us return to consider a sentence like (2) (It hurts!) when this sentence serves in the same way as a groan or an epithet. Sentence (2) does have a grammatical question form, namely (3).

(3) Does it hurt?

The reader will observe, however, that (3) can serve to question (2) only in its reportive sense. That is, there is no question form of (2) in its expressive sense, and this follows from the fact that in this sense (2) functions like a groan or epithet, for which there is likewise no question form.

A sentence used expressively cannot be an answer to a question, this for the same reason that an expressive sentence cannot be questioned. Suppose, for example, that in response to a question like (3), one were to groan, scream, or say 'Ouch!'. The questioner could certainly draw the desired conclusion from the response, but the response in itself does not constitute an answer to the question. A 'yes-no' question asks for an assertion of truth value, and expressive utterances do not state propositions which can be true or false. Thus, just as a groan or 'Ouch!' could not

answer (3), so also an expressive 'It hurts!' could not answer this question.

Consistent with the above observations is the fact that no expressive sentence may have a negation; another way of formulating this would be to say that no sentence with negation of the matrix clause can be used expressively. (These two different ways of stating this fact involve different ways of thinking about the expressive-reportive distinction, and I will return to the issue raised here shortly.) This becomes apparent when we once again view the semantics of expressive sentences on the model of the semantics of a groan or 'Ouch!'. There are no negative groans; and an expression of happiness cannot be considered as such (or vice versa). In the same way, an expressive 'It hurts!' has no negation. Notice that a sentence expressing pleasure is not 'It doesn't hurt!', but rather something like, 'It's nice!'.

Let us return now to the issue raised by stating the absence of negation in expressives as either, 'No expressive sentence has a negation,' or, 'No sentence with internal negation may be used expressively.' The crucial question is whether the expressive-reportive distinction is extralinguistic, or whether it is something which needs to have representation in the grammar. If the distinction is essentially grammatical in nature, then the first formulation will be chosen; the second would be chosen if the potential use of some sentence as an expressive is an extralinguistic fact.

I claim that the distinction being made here must be made in the grammar, and, in fact, that the grammar must contain some specification of which sentences may be expressive, in addition to representing the fact that expressive sentences have no negation and no question form. There are at least two arguments for this position, the first somewhat weaker than the second. The person who claims that the expressive-reportive distinction has to do with some extralinguistic facts about the use of sentence will be hard put to explain why it is that questions and negations cannot be expressive. An explanation might be forthcoming, but its structure is by no means obvious. Second, it will be shown in the following sections that various syntactic properties of a certain class of sentences are dependent on the expressive-reportive distinction. In particular, it will be shown that the application of several transformations are restricted to sentences in their expressive sense. In this respect of controlling the application of transformation, these aspects of sentential meaning behave like categories of meaning, and I have counted them as such.

Given the assumption taken above, that the asymmetrical behavior of expressive and reportive sentences with respect to question and negation must receive representation in the grammar, let us turn now to survey the various forms which such representation might take. One approach, which would fit in with the categorial treatment of the expressive-

reportive distinction, would be to say that the Expressive category prohibits either QUESTION FORMATION or NEG PLACE-MENT from applying. Thus, no question form of an expressive can be generated, and if a NEG appears in initial position, it cannot be placed within the sentence, so the sentence blocks. Although such an approach is perhaps consistent, I think it represents an incorrect application of general categorial properties, and that a different approach will yield more fruitful results. I will try to spell this out below.

The reader will notice that expressives share certain properties with performatives. In Austin's sense (Austin, 1955), a verb used performatively describes the action which is performed in the act of description. (See also, J. R. Ross, 1969). Performatives have the property that they must be used in the first person present tense, they have no question forms, and they cannot be negated. It has been shown that expressive sentences share the last two proper-ties with performatives, so let us now turn to the question of person and tense.

It may seem that expressive sentences are limited to first person and present tense, as are performatives. To argue for this one could marshall evidence that a past tense 'It hurt' could not be expressive, for the same reason, say, that a groan has no past tense. I will argue here that one must distinguish between expressive and nonexpressive use of

an expressive sentence. That there is such a distinction is evidenced when one considers expressive sentences in the context of direct and indirect quotation.

In dealing with this topic I will use the definitions of _oratio recta_ and _oratio obliqua_ provided in Goodwin (1930).

> A _direct_ quation or question gives the exact words of the original speaker or writer (i.e., of the _oratio recta_). In an _indirect_ quotation or question (_oratio obliqua_) the original words conform to the construction of the sentence in which they are quoted. (p. 312)

The relevant part of this definition is the "conform to...", for it is possible that a phrase may appear in direct quotation that can never conform to the construction in which it appears. Contrast (4a,b) and (5a,b).

(4)   a. Jones said, 'It hurts.'

      b. Jones said that it hurt.

(5)   a. Jones said, 'Alas!'

      b. *Jones said that alas.

The point being made here is as follows: The 'Alas!' of (5a), is surely expressive, but it finds no corresponding occurrence in indirect quotation, because this expression is not sentential. Likewise, the 'It hurts!' of (4a) can be expressive, but in this case there is a grammatical correspondent in _oratio obliqua_, because this expression is sentential in form. The claim is, then, that in all of (4a,b), (5a) the quotation may be expressive, although here it is not _used_ as an expression (outburst) by the speaker. One could call these sentences reports of expressions.

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The claims being made here will be borne out when we
consider expressive versus reportive senses of sentences
containing words like 'believe'. We will find here that
such sentences can be expressive in both non-first person
and non-present tense .

The picture of the expressive-reportive distinction
presented above may seem to be internally inconsistent, but
the appearance of inconsistency disappears as soon as one
ceases thinking of expression or report as a use of a sen-
tence (in the same way that certain verbs may have performa-
tive uses), and comes to view these as aspects of the meaning
of a sentence. These aspects of meaning, which I include
here among the categories of meaning, may be carried into
embedded and non-first person, non-present tense contexts.
Again, evidence for this view of the state of affairs in
this area of grammar which is much stronger than any given
so far will appear shortly in the context of a discussion of
sentences of belief. It is partly in preparation for this
discussion that these remarks are offered.

It is now possible to return to the problem of providing
a mechanism in the grammar to represent the fact that ques-
tions and negations cannot be expressive. Just as these
sentences cannot have a deep structure negation or question
marker when they are in matrix position, likewise these pos-
sibilities are excluded when they are embedded as direct or
indirect quotes. The decision which seems to raise the

fewest problems is that of providing that the expressive
reading cannot be assigned to a sentence which contains a
negation or question marker. This approach leaves a number
of questions appropriately unresolved, and perhaps further
research on the matter will reveal that a wholly different
approach is more productive.

Before closing this discussion of the semantics of ques-
tion and negation with respect to expressive sentences, I
should like to further explore the internal construction of
expressives in order to clarify some of the matters presented
above. Candidates for sentences which may serve as expres-
sions of sensations or emotions are those like, 'It's hot!',
'It's beautiful!', 'It's great!', etc. One can well imagine
a way of expressing sensations or emotions in which the
speaker simply utters 'Hot!', 'Great!', 'Hurt!', etc. These
latter are not sentences, and they get put into the form of
sentences, retaining their expressive force, by the addition
of a dummy subject. The crucial observation, however, is
that the subject cannot be referential. Compare (6a,b,c).

    (6)   a.   My arm hurts.

            b.   That knife hurts.

            c.   It hurts.

None of (6a,b) can be expressive. Part of the semantics of
expressive sentences is that they do not serve to inform a
potential hearer, they are not directed at anyone. This
they share with groans, screams, etc. Sentences (6a,b) have

referential subjects; the verbal is predicative in function and is not expressive. Likewise, when the 'it' of (6c) is interpreted referentially, (6c) cannot be expressive.

The phrase 'It's hot!' can be expressive, but it can also be used as a description of the weather. In this latter case the 'it' is referential in the sense of meaning 'conditions outside the body of the speaker'. One point left unexplained is why certain locutions cannot be expressive. For example, upon rising in the morning one might exclaim, 'It's hot!', but one could not say, in the same sense, 'It's sleepy'. I have no account of this matter, but will close with a quote from Wittgenstein relevant to the point.

> Let us imagine the following: The surfaces of the things around us (stones, plants, etc.) have patches and regions which produce pain in our skin when we touch them. (Perhaps through the chemical composition of these surfaces. But we need not know that.) In this case we should speak of pain-patches on the leaf of a particular plant just as at present we speak of red patches. (1953, p 312)

The discussion so far has been concerned with outlining a semantic distinction without giving many concrete grammatical applications of the distinction. In particular, no grammatical criteria have been developed to identify sentences which may be only expressive. An attempt will be made in the next section to overcome these deficiencies; the grammatical relevance of the distinction will become evident, and it will be possible to find some syntactic characteristics which are definitive of expressive sentences.

4.4 Expressions of Belief

Just as it is possible to either express or report emotions or sensations, the same holds for states of mind like belief. One can express a belief that such-and-such is the case, in which case this would count as a hesitant assertion of such-and-such; or, one can report that one holds a belief of a certain sort. In the latter case, the assertion is that of the existence of a belief, and not of the proposition which is believed. The following example will illustrate the point.

(7) I believe that the world is flat.

The factual claim being made is that there are two senses of (7); in the expressive sense (7) is read as an assertion of the embedded sentence, "the world is flat"; in the reportive sense (7) is an assertion that the subject is currently in a state of belief. The difference is brought out strikingly when it is seen that either of (8a) or (8b) is an appropriate response to (7).

(8) a. Well, it isn't; it's really hyperbolic.

     b. No you don't; you're just trying to deceive us.

One can see by the nature of these possible responses that what is asserted in an expressive sentence of belief is quite different from that which is asserted in the reportive case. Lindholm (1969), who has discovered some of the facts presented below independently, describes the readings of a sentence like (7) as 'have the opinion that' (the expressive)

and 'accept the claim that' (the reportive). Lindhelm's
treatment will be discussed subsequent to the main develop-
ment of this topic here.

The different readings of (7) are again elicited when
one considers the different purposes for which (7) might be
uttered. For example, at a Medieval inquisition where the
content of the subject's beliefs was on trial, (7) would be
asserted reportively. On the other hand, the first baloonist
might exclaim (7) expressively upon viewing the earth from a
low altitude.

Wittgenstein (1953, Part II, x) noticed the different
senses of sentences containing verbs like 'believe'. He
remarks as follows:

> Moore's paradox can be put like this: the
> expression "I believe that this is the case"
> is used like the assertion "This is the case";
> and yet the hypothesis that I believe this is
> the case is not used like the hypothesis that
> this is the case.
> So it looks as if the assertion "I believe"
> were not the assertion of what is supposed in
> the hypothesis "I believe"!
> Similarly: the statement "I believe it's
> going to rain" has a meaning like, that is to
> say a use like, "It's going to rain", but the
> meaning of "I believed then that it was going
> to rain", is not like that of "It did rain
> then". (1953, p. 190)

Wittgenstein gives himself an incomplete picture of the
facts in this discussion. The sentence "I believe that
this is the case" can be used like the sentence "This is
the case", but it also has another reading. Furthermore,
sentences of belief in hypotheses are not entirely repor-

tive, as Wittgenstein seems to think. Thus, sentence which begins, "If Jones believes we ought to leave, then..." can be read either as a supposition about the contents of Jones' beliefs, or as a supposition about Jones' suggesting that we leave. Likewise, the third person, "Jones believes..." can be either expressive or reportive, as can a sentence in the past tense like "I believed...". (Detailed justification of these factual claims, insofar as this is possible, is forthcoming in the next section.) Thus, Wittgenstein was not aware of the full range of facts, although it does not seem that this deficiency mitigates in any his later argument.

A sentence like "I seem to believe..." or "I must believe..." is quite alright in the reportive sense, although it has no expressive reading. Likewise, tag questions on the matrix 'believe' sentence are possible in the reportive but not the expressive senses. (9) demonstrates this contrast.

(9) a. I believe the world is flat, isn't it?

b. I believe the world is flat, don't I?

In each case the tag question goes on the proposition which is asserted. In (9a) the sentence is expressive, and so the embedded sentence is asserted and takes the tag. In (9b), on the other hand, the assertion concerns the contents of the speaker's beliefs, and the tag is placed on the matrix.

We have here, then, a grammatical criterion for the expressive-reportive distinction, although the criterion

works only for first person present tense sentences. (For

in other expressive sentences, the sentence is contained

within some other assertion upon which the tag is placed.)

Namely, the tag question is placed on the embedded sentence

in the expressive case, and on the matrix sentence in the

reportive case.

4.4.1 Negative Transportation

In this section I will consider the behavior of a trans-

formation called NEG TRANSPORT with respect to the Expressive

and Reportive categories. In particular, I will show that

this transformation can apply to sentences of belief only in

their expressive sense if meaning is to be preserved, and

that there is no way to state the behavior of this transfor-

mation within a theory of exceptions such as that proposed

by Lakoff (1965).

The rule of NEG TRANSPORT maps a structure like (10a)

into (10b).

(10)   a.   S   b.   S
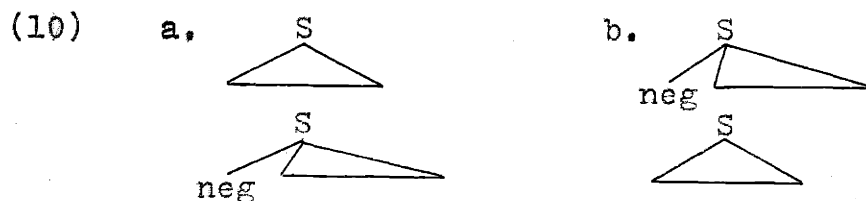
The negation which shows up in the matrix sentence in

(10b) originates in the embedded sentence. However, a con-

figuration like (10b) can also be generated by the base

rules, so such a structure is characteristically ambiguous,

the ambiguity being a result of the different origins of the

negation in deep structure. We will find that the ambiguity

in (10b) parallels the expressive-reportive distinction in a striking way; this will lead to the conclusion that NEG TRANS-PORT is category dependent. Before pursuing this argument, however, we will review previous treatments of this transformation.

NEG TRANSPORT was discussed in Fillmore (1963), where it was used to account for the fact that a sentence like (11a) could carry the same reading as (11b), whereas the same is not true of 12a,b).

(11) a. Jones thinks that the sun is not shining.

b. Jones doesn't think that the sun is shining.

(12) a. Jones claims that the sun is not shining.

b. Jones does not claim that the sun is shining.

This transformation is described in Lakoff (1965) as a minor rule, i.e., one which applies to a rather small subclass of the lexicon. Accordingly, verbs like think, suppose, believe, want, expect, guess, and, perhaps, seem are to be marked in this treatment as undergoing NEG TRANSPORT. The adequacy of any such treatment will be discussed shortly.

Syntactic evidence for the existence of NEG TRANSPORT is presented in R. Lakoff (1969). The argument runs as follows: As is well known, the formation of tag questions in English proceeds according to what one may term the polarity principle. That is, a positive sentence takes a negative tag, and vice versa, as illustrated by (13).

(13) a. Ducks squat, don't they?

b. Ducks don't squat, do they?

This polarity principle seems to fail in cases like (14b),
unless one takes (14a) as a deep structure for (14b). NEG
TRANSPORT applies to (14a) after TAG QUESTION FORMATION has
applied, thus accounting for the positive tag in both cases.

(14) a. I suppose we should not leave, should we?

b. I don't suppose we should leave, should we?

There are sentences which seem to contradict the con-
clusion drawn above that NEG TRANSPORT exists and follows
TAG QUESTION FORMATION. In these sentences there can be no
tag question on the embedded sentence, even though NEG
TRANSPORT may apply. For these sentences it appears that
TAG QUESTION FORMATION must follow NEG TRANSPORT.

(15) a. He supposes that we should not leave (doesn't
he? *should we?)

b. He doesn't suppose we should leave (does he?
*shouldn't we?)

Lakoff offers the following explanation for this phenom-
enon: Under the assumptions that, (1) NEG TRANSPORT is
cyclic, (2) NEG TRANSPORT follows TAG QUESTION FORMATION,
and (3) TAG QUESTION FORMATION applies on sentences only
when they are embedded in a performative, it is possible to
account for the above data. Namely, TAG QUESTION FORMATION
applies to be embedding of (14) because, she claims, 'sup-
pose' here is used as a performative. However, it applies
to the matrix sentence in (15) because, she continues, there

is an abstract performative 'I assert' over this sentence,
and the 'suppose' of (15) is not used performatively.

The treatment of the matters discussed above to be given
here differs in significant respects from that of Lakoff.
Her argument does in fact provide evidence for the existence
of NEG TRANSPORT, but the account which she gives of (14) and
(15) can be shown to be untenable. The first task here will
be to show the category dependency of NEG TRANSPORT; after
this is done, it will be possible to review the discussion
of Lindholm and Lakoff.

The claim which is central to the thesis being put forth
here is that (16a) and (16b) are synonymous only when the
matrix sentence constitutes an expression of belief rather
than a report of belief.

> (16) a. I believe that Johnson's creation was not a
>   product of spontaneous generation.
>
>   b. I don't believe Johnson's creation was a
>   product of spontaneous generation.

The claim is factual, and thus no argument can either strengthen
or weaken it. However, I will present a discussion of this
claim which is intended to aid the reader in eliciting the
intuitions relevant to this matter.

In the reportive sense of (16), (16a) and (16b) assert
quite different propositions. The first asserts that the
speaker is in a state of believing that such-and-such is not
the case, while (16b) asserts that the speaker is not in the
state of believing that such-and-such is the case. These are

different states, and different assertions are made in each case. In the expressive sense of (16), however, both (16a) and (16b) count as hesitant assertions that such-and-such is not the case.

As remarked above, answers to questions can be only reportive. And it is easy to see that as answers to a question like, 'What are your current beliefs about Johnson's origin?', (16a) and (16b) are quite different. On the other hand, these two sentences state the same answer to a question like, 'Did Johnson really emerge by spontaneous generation?'

Likewise, when sentences like (16a,b) appear in embedded questions, where the truth value of the matrix sentence is the object of inquiry, only the reportive sense is possible. Thus, in such contexts (16a,b) do not have the same meaning.

(17) a. The Pope wants to know if you believe that the Church isn't infallible.

      b. The Pope wants to know if you don't believe that the Church is infallible.

The point here is that (16a,b) are synonymous whey they have the characteristics of expressives discussed above, and that they are not synonymous when they behave like reportives. A second example will further reinforce the claim made above. As is well known, modals in English have two uses called the epistemic and the root.

(18) He may leave.

A sentence like (18) is ambiguous depending on whether 'may' means permission (root) or possibility (epistemic). It has

been proposed that these different meanings can be traced to different deep structure origins (see Ross, 1967), but the issues raised by such a claim can be ignored here. The relevant fact is that when a modal like 'may' in (18) is epistemic, the sentence 'he leaves' expresses a proposition and thus carries a truth value. From this we can see that only a reportive and never an expressive can be used with an epistemic modal. Accordingly, it should be impossible to do NEG TRANSPORT on a belief sentence which contains an epistemic modal. In fact, since 'believe' is a stative verb, no root modal can appear in a belief sentence. I.e., one cannot give permission or order someone to believe such-and-such. The prediction, then, is that no belief sentence with a modal may undergo NEG TRANSPORT. This is borne out by sentences like (20).

(20) a. He may believe that we shouldn't leave.

b. He may not believe that we should leave.

c. He must believe that we shouldn't leave.

d. He must not believe that we should leave.

That is, (20a,b) are not synonymous, and (20c,d) likewise are not synonymous.

The proposal here is that NEG TRANSPORT is dependent on the expressive-reportive distinction. Thus, this transformation applies only when a sentence carries the Expressive category. Notice that a theory in which the behavior of NEG TRANSPORT is governed by an exception feature cannot account

for the nonsynonymy of (20a,b) and (20c,d). If we accept
Ross' proposal (ibid) that (20a) has a deep structure like
(21), then, when NEG TRANSPORT is applied on the second
cycle, this transformation does not "know" that "believe"
is embedded in an epistemic modal and is thus reportive.
Thus, in the exception feature account, nothing could block
(20a) from being mapped into (20b).

(21)

```
                              S
                     _____/ _____
                   NP                    VP
                    |                     |
                    S                     V
              _____/ \_____               |
            NP           VP              may
             |          /  \
            he         V    NP
                       |     |
                   believe   S
                          __/ \__
                       neg NP    VP
                          |       |
                          we   should leave
```
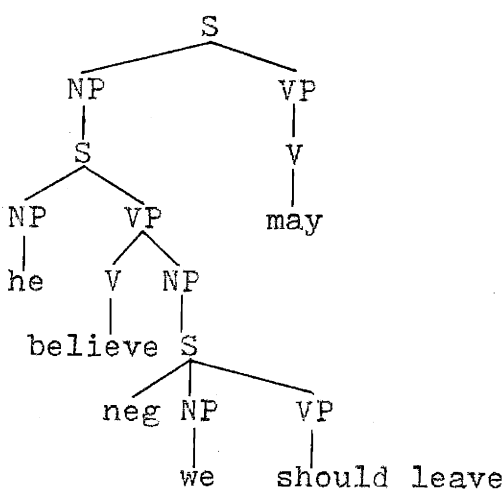
This deficiency in the account of the operation of NEG TRANS-
PORT provided by the theory of exceptions applies to all the
examples above. If the verb 'believe' is inherently marked
for taking this transformation, then nothing can stop the
transformation from applying when 'believe' is used report-
ively.

   There is another argument against using an exception
feature to account for the behavior of NEG TRANSPORT. The
use of such a feature predicts that in each language in
which there is an operation like that of NEG TRANSPORT in
English, the set of verbs for which this operation operates

is arbitrarily chosen. That is, in English 'believe' under-
goes the operation, but 'know' does not. Under the exception
feature hypothesis, there is no reason why the reverse should
not be true in, say, German, i.e., why 'glauben' should not
be an exception to the rule while 'wissen' undergoes the rule.
What evidence there is on this matter indicates that this
prediction is not borne out. That is, if a language has an
analog of NEG TRANSPORT, then this transformation applies to
the same class of verbs as in English. The central point is
that the class of verbs involved is semantically defined;
namely, it is that class of verbs which may be used expres-
sively, i.e., which may appear in sentences which carry the
Expressive category. The treatment in terms of categories
can express this fact, while this is impossible by the use
of exception features.

It is possible for NEG TRANSPORT to apply to sentences
which are unlike performatives in all respects, sentences
which are non-first person, non-present tense, and embedded.
(22) illustrates this.

(22) a. Bill knows that she believes we should not
          leave.

      b. Bill knows that she doesn't believe we should
          leave.

These sentences are ambiguous depending on whether Bill knows
that the subject of 'believe' is committed to a certain opin-
ion (expressive) or that the subject is in a certain state
of belief. Furthermore, only in the expressive case are

(22a,b) synonymous. To repeat the discussion above, such facts are puzzling only if one conceives of expression as a use. The treatment of these facts by categories of meaning postulates that expression and report are properties of sentential meaning, and that these properties are not restricted to performative uses.

According to the hypothesis presented here, there is no deep structure negation of expressive sentences. All cases in which negation appears in expressive sentences in surface structure are cases in which NEG TRANSPORT has applied. This accords with the general property of expressions that they do not take deep structure negation. An expressive belief sentence cannot be semantically negated any more than a groan, epithet, or expressive 'It hurts' can be negated.

It is possible now to return to the discussion of R. Lakoff and Lindholm. Lakoff accepts the exception treatment of NEG TRANSPORT, against which several arguments have been presented. Furthermore, her assertion that TAG QUESTION FORMATION fails to apply to the matrix of sentence of (23) because 'suppose' is used performatively fails to explain the parallel phenomena in the case of (24).

(23) I don't suppose you would like to leave, $\left\{\begin{array}{l}\text{*do I?}\\ \text{would you?}\end{array}\right\}$

(24) a. I don't think they are here, $\left\{\begin{array}{l}\text{*do I?}\\ \text{are they?}\end{array}\right\}$

      b. I don't expect they are here, $\left\{\begin{array}{l}\text{*do I?}\\ \text{are they?}\end{array}\right\}$

That is, if we accept the usual definition of performative
use, as Lakoff does, that the act described by the verb is
performed by the use of that verb, then (24a,b) are not per-
formative uses. (24a) is not an act of thinking, it is a
hesitant assertion of the sentence, 'they are not here';
likewise, (24b) is not an act of expecting (if such is pos-
sible), but again constitutes a hesitant assertion. And, as
Wittgenstein (op cit) put it, a hesitant assertion is not to
be construed as an assertion of hesitancy.

Lindholm (op cit) notices what I have termed the expres-
sive-reportive "ambiguity" in sentences of belief, expectation,
etc. In the case of 'believe', he calls these the 'have the
opinion' (expressive) and 'accept the claim' (reportive)
readings, as mentioned above. He notes that NEG TRANSPORT
applies to 'believe' only in the former reading, and can
offer no real explanation apart from suggesting that, perhaps,
'believe' replaces 'have the opinion' by lexical insertion in
one case, and 'accept the claim' in the other. It is impor-
tant to note that, even if lexical insertion could work in
the manner which Lindholm suggests, the readings which he
postulates for the different senses of sentences containing
'believe' are incorrect. This can be seen as follows: It has
been pointed out that a belief sentence with the Expressive
category cannot be embedded under a modal. If 'have the
opinion' were a true paraphrase of an expressive 'believe'
then this phrase likewise should not be able to appear with

a modal. Sentences like (25) demonstrate that this predic-
tion, which follows from Lindholm's treatment, is incorrect.

(25) a. John must have the opinion that Hausdorf
          spaces are compact.

      b. John may have the opinion that Hausdorf
          spaces are compact.

The strongest criticism of Lindholm concerns the fact
that he treats the different readings of a belief sentence in
terms of an ambiguity in the word 'believe', rather than a
difference in possible sentential reading. Of course, under
his approach, words like 'expect', 'guess', etc., are going
to have to be treated as similarly ambiguous. Now, if the two
different readings of 'believe' (whatever they are under the
lexical ambiguity theory) are going to be the same as the two
different readings of 'expect', 'guess', etc., then we are
led to the incorrect conclusion that all these words have the
same meaning in at least the reportive sense. On the other
hand, if the two readings for 'believe' are different from
the two readings for 'expect', and these are different from
the two readings for 'guess', etc., then the generalization
concerning the application of NEG TRANSPORT is going to be
lost. This demonstrates that a treatment which handles the
expressive-reportive distinction in terms of lexical ambigu-
ity faces insuperable difficulties. The treatment given here
in terms of categories of meanings avoids the difficulties
associated with the lexical ambiguity theory. Categories of
meaning are hypothesized to be nonlexical aspects of senten-

tial meaning, and the impossibility of treating categorical differences in terms of lexical ambiguity bears out this hypothesis.

Let us consider, finally, another way in which the expressive-reportive distinction might be treated lexically. Under this hypothesis there is a proverb (express) in which all expressive sentences are embedded, and another (report) which appears over all reportive sentences. Such a treatment has several fatal defects. First, the statement of the distribution of such proverbs would have to include features unknown for any other verb which takes complements. For example, it has been pointed out that only reportive sentences may appear under modals. This would mean that a belief sentence would have to appear under only the proverb (report) when embedded in a modal. Furthermore, the proverb (express) could not appear over a sentence which contained deep structure negation; such a property is found nowhere among the existent complement taking verbs of the language.

For the real complement verbs of English, it is possible to question, negate, and assert sentences containing that verb. Notice, now, that there is no way in the grammar to assert, question, or deny that such-and-such belief sentence is expressive or reportive. That is, there is no way of asserting, say, that it is reportively that Jones believes such-and-such (as opposed to expressively) etc. These observations lead to the conclusion, again, that the expressive-reportive distinction involves nonlexical aspects of

sentential meaning.

4.4.2 'It' and 'So'

There is an intuitively felt difference in meaning between (26a,b).

(26) a. It is reported that crime has been legalized, although I don't believe it.

b. It is reported that crime has been legalized, although I don't believe so.

The first sentence, (26a), is a conjunction of two assertions, the second of which concerns the contents of the beliefs of the speaker. The second sentence consists of an assertion plus an expression of opinion. (Note that in expressing an opinion one does not <u>assert</u> that one holds the opinion; one <u>expresses</u> the opinion.) In other words, the 'believe it' phrase acts like a reportive, while the 'believe so' acts like an expressive.

In this section I will try to show that 'so' pronominalizes embedded sentences when 'believe' appears in expressive sentences, while 'it' is used when the 'believe' sentence is reportive. This can be established by showing that NEG TRANSPORT works when 'so' is used, but not when 'it' is used. Consider, then, the contrast in (27a,b).

(27) a. Michael thinks that linguistics isn't sublime, and (*but) I don't believe so too.

b. Michael thinks that linguistics isn't sublime, but (*and) I don't believe it.

The 'I don't believe so' of (27a) means 'I believe linguistics isn't sublime', where NEG TRANSPORT has applied before

sentence pronominalization has occurred. On the other hand,
the 'I don't believe it' of (27b) means that my opinion is
different from Michael's, as is indicated by the appearance
of 'but' but not 'and'. Thus, (27b) means that I don't be-
lieve that linguistics isn't sublime, which is awkward, but
still grammatical. Thus, in (27b) NEG TRANSPORT could not
have applied.

The conclusion which may be drawn from this is that the
Expressive category controls 'so' pronominalization, while
the Reportive controls 'it' pronominalization. There is
another explanation, however, which seems to account for the
facts equally well. This is that an expressive sentence
takes an embedding of the form of (28a), while a reportive
takes (28b).

(28)   a.
```
            S
          /   \
        NP     VP
              /   \
             V     S
```
b.
```
            S
          /   \
        NP     VP
              /   \
             V     NP
                    |
                    S
```
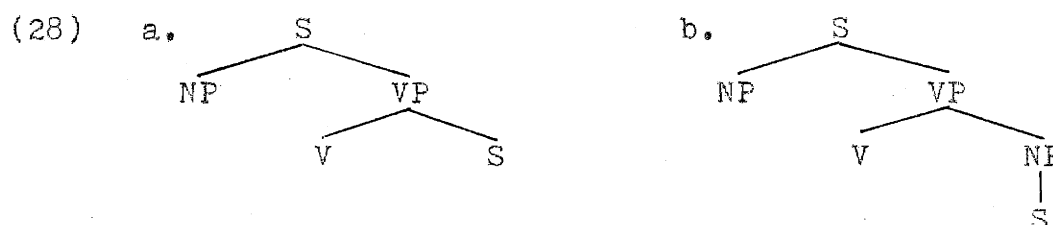
The object NP of (28b) would then show up as an 'it' under
pronominalization, while a 'so' would show up in the expres-
sive case of (28a) because there is no object NP. Further to
support this hypothesis is the fact that pseuo-clefts appear
only with 'believe' in a reportive sentence. Thus, (29a) can
be only reportive, as is shown by the fact that it is not
synonymous with (29b).

(29)   a.   What I believe is that beer is not here.

       b.   What I don't believe is that beer is here.

Of course, the fact illustrated by (29) could equally well
be handled by making the transformation which produces pseudo-
clefts dependent on the expressive-reportive category dis-
tinction. In the absence of decisive arguments on either
side, I will leave open the question of how the difference
between 'it' and 'so' pronominalization is to be handled in
the grammar. It is interesting to note, however, that this
difference corresponds to the expressive-reportive distinc-
tion.

4.4.3 Questions

According to the theory of Expressive sentences outlined
above, it should be impossible to question an expressive sen-
tence containing 'believe'. The facts do not bear out this
prediction, for it is possible for a question like (30) to
ask for an opinion as well as to question the contents of
belief.

(30) Do you believe that Jones is an idiot?
Note, however, that only in the expressive sense of 'believe'
can (30) mean the same as (31).

(31) Is Jones an idiot, do you believe?

This indicates that in the expressive sense, (30) does
not represent an interrogation of belief. The semantic
question is directed at the embedding, and the 'do you be-
lieve' is the main verb of the sentence. Notice that only
(32a) can serve as an answer to (31), while (32b) would be
an answer to (31) asked in the reportive sense.

(32) a. Yes, I believe so.

      b. Yes, I believe it.

Thus, the facts presented here can be construed in a way
such that they do not conflict with the claims made above.

It is interesting to note that a sentence like (33a)
cannot mean the same as (33b).

(33) a. Doesn't he believe that we should leave?

      b. Does he believe that we should not leave?

These facts fall directly in line with the claim that NEG
TRANSPORT applies only to Expressive sentences. If this
transformation applied to (33a), then no question should be
possible, for the 'believe' sentence would be Expressive.
And the fact that (31) can mean the same as (30) can be
handled by making the transformation which maps the under-
lying structure of the latter into the former dependent on
the Expressive category.

4.5 Expressions of Desire

Since desires (wishes, wants) are the kinds of mental states that can be expressed as well as reported, we would be led to expect that sentences of desire may carry the Expressive as well as the Reportive category. That this is the case is indicated by the ambiguity in sentences like (34), where each sentence can be interpreted as a report of a mental state or as an expression of a desire, which, in such cases, may be interpreted as a command.

(34) a. Haastiin wishes that we would leave.

b. George desires that Martha should bake a cake.

c. I want you to make a long voyage.

Further indicating that the ambiguity in (34) really lies in the expressive-reportive distinction is the fact that when these sentences are construed as answers to questions, they are not commands but reports of states of mind. To see this, consider (34a-c) as answers to the questions stated in (35a-c), respectively.

(35) a. What does Haastiin wish?

b. What does George desire?

c. What do you want?

As is well known, certain of the desideratives are able to undergo NEG TRANSPORT, although it is somewhat mysterious why all should not be able to undergo this rule.

(36) a. I want you not to undertake such an inane project.

b. I don't want you to undertake such an inane project.

(37) a. I desire you not to recapitulate the
         sostenuto.

     b. I don't desire you to recapitulate the
         sostenuto.

(38) a. I wish you not to leave.

     b. I don't wish you to leave.

Although it is quite clear that (36a,b) can be synonymous,

this may not hold for (37a,b) or (38a,b). Notice, however,

that the sense in which (36a,b) are synonymous is just that

sense in which they are construed as mild commands, i.e. in

the expressive sense. Thus, as with the 'believe' sentences

above, NEG RAISING applies only to the expressive case.

4.6 PROTASIS LIFTING

In this section I will show the existence of a rule

which applies to certain sentences containing embedded con-

ditionals, and which raises the protasis of the conditional

out of the embedded sentence. I will show that it is

through the operation of this transformation that modals

are attached to the apodosis of conditionals, and that this

is in fact the only source for such modals. Finally, I will

show that this transformation is category dependent.

4.6.1 Modals in Protases of Conditionals

Contrast (39a,b).

(39) a. It may be that if Taylor found out the truth,
         then he would puke.

     b. If Taylor found out the truth, then it may be
         the case that he would puke.

The only discernable difference in meaning between (39a) and

(39b) is that in the second there is an implication that if the protasis is not fulfilled, then the apodosis will not be true, and this implication is absent from the first. (Pointed out to me by Warren Cowgill.) Sentences (40) perhaps provide better examples for seeing this difference.

(40) a. It may be that if Jones was in N.Y., then he visited one of his mother's brother's sons there.

b. If Jones was in N.Y., then it may be the case that he visited one of his cousins there.

c. If Jones was in N.Y., then he may have visited one of his cousins there.

Certainly (40c), and perhaps also (40b), suggest that if Jones was not in N.Y., then he would not have visited one of his cousins. This suggestion is lacking in (40a). I have no particular explanation for this phenomenon, but it is fair to say that a meaning difference of this kind does not by itself rule out transformational relations between all sentences of (40), for the sort of meaning preserved over transformational operations may not include implicatures.

On the other hand, the closeness of meaning observed in the sentences of (40) does suggest that some transformational operation is involved. It will be claimed that sentences like (40a,b) are related by a transformation called PROTASIS LIFTING. Taking (41a) as the deep structure, this operation produces (41b).

(41) a.

```
                              S
                    _____/ _____
                  NP                    VP
                   |                     |
                   S                  may be
            _____/ _____
          S                 S
      ___/ \___         ___/ _____
   if-then     S     Jones visit a cousin there
          ___/ \___
       Jones be in N.Y.
```

b.

```
                        S
              _____/   _____
             S                       S
        ___/  \___              ___/  \___
    if-then       S           NP          VP
             ___/  \___        |           |
         Jones be in N.Y.      S         may be
                          ___/  \___
                      Jones visit a cousin there
```
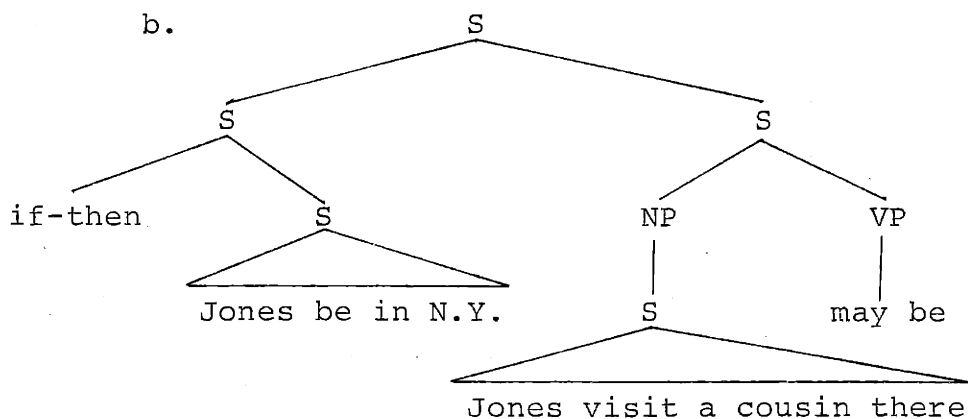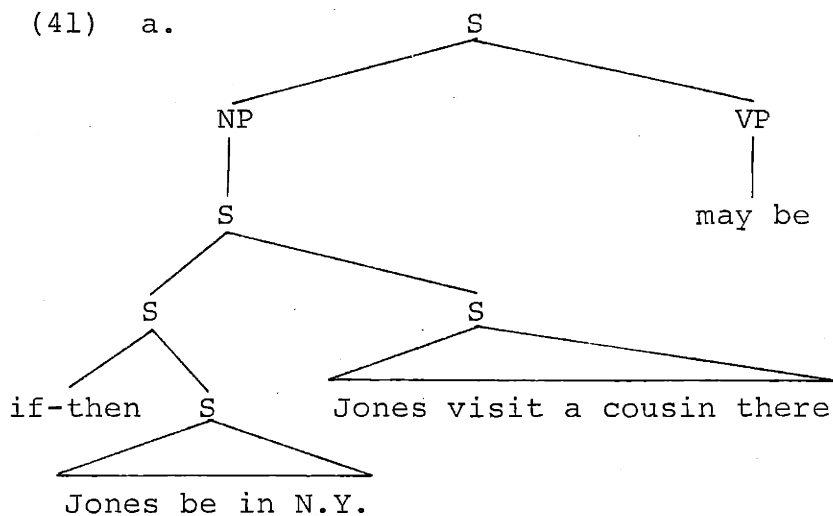
After EXTRAPOSITION, (41b) will become (40b) (If Jones was
in N.Y., then it may be the case that he visited one of his
cousins there.) However, it is also possible to apply
operations outlined in Ross (1967) to (41b) to derive (40c)
(If Jones was in N.Y., then he may have visited his cousin.)

PROTASIS LIFTING applies to raise the protasis over
epistemic, but not root modals. In fact, it is difficult if
not impossible to get a root meaning for a modal when the
sentence embedded in the modal is a conditional. I.e., if
PROTASIS LIFTING were root meaning, then (42a) would be

mapped into (42b), and eventually into (42c) by Ross'
operations.

    (42) a. John can [if the machine works, John fly
                 S
        about].
           S

      b. If the machine works, John can [John fly
                             S
        about].
           S

      c. If the machine works, John can fly about.

Notice, however, that the semantics of (42c) are not those
of (42a). That is, (42c) says that John's being able to do
something is contingent on some condition. Therefore, the
modal 'can' in its root meaning in (42c) is semantically in
the scope of the protasis. If (42a) were the deep structure
of (42c), then the wrong scope relations would be indicated.

The next problem concerns the rule which distributes
the 'if-then' in conditional sentences. That is, I have
represented 'if-then' in the deep structure of conditional
sentences as a formative preceding both clauses of the
conditional. The motivation for this is that the placement
of 'then' must follow the operation of PROTASIS LIFTING.
(The necessity for this will become even more apparent when
sentences like 'If Jones leaves, then I believe he will
trip' are discussed.) That is, if the 'if' and 'then' of
conditionals were on their respective clauses in deep
structure, then (43a) would be mapped into (43b) by
PROTASIS LIFTING.

(43) a. It may be that if Jones leaves, then he will
          trip.

      b. *If Jones leaves, it may be then that he will
          trip.

With this representation of the deep structure of conditional
sentences, it is necessary to distribute the 'if-then' at
some point in the derivation which follows PROTASIS LIFTING.
It will be seen that this rule must, in fact, be last cyclic,
for PROTASIS LIFTING can operate successively to bring a
protasis up through several clauses.

The decision to represent conditionals in deep structure
in the order of protasis-apodosis is difficult to justify on
grounds internal to the language. This decision is motivated
in part by Greenberg's (1963) universal fourteen:

> In conditional statements, the conditional clause
> precedes the conclusion as the normal order in
> all languages. (p. 66)

Chomsky (1965, p. 118) claims that such a universal repre-
sents no more than the statement of a statistical tendency,
and suffers because the framework of investigation is
limited to surface structure. However, given that this is
a universal of surface structure, one would assume in each
language that this is also the order in deep structure until
arguments to the contrary were found. Given the lack of
such arguments for English, the representation of conditions
in the protasis-apodosis order in deep structure does find
some justification on universal grounds. Let me point out,
finally, that PROTASIS LIFTING will be necessary even in a

grammar of English in which the order of conditionals in deep structure is apodosis-protasis, as will be made clear below.

4.6.2 Arguments for PROTASIS LIFTING

In this section I will argue that PROTASIS LIFTING exists in the grammar of English. The basic argument for this derives from the fact that it is impossible for a modal to appear in the apodosis of a conditional which is, at the same time, embedded in a modal. This argument will lead to the conclusion that all modals which appear in the apodosis of conditionals got there through PROTASIS LIFTING.

If modals may appear in the apodosis of conditionals independently of the operation of PROTASIS LIFTING, then, it is impossible to explain the ungrammaticality of sentences like (44).

(44) a. *It may be the case that if John turns in his card, then it may be the case that he will be drafted.

b. *It may be the case that if John turns in his draft card, then he may be drafted.

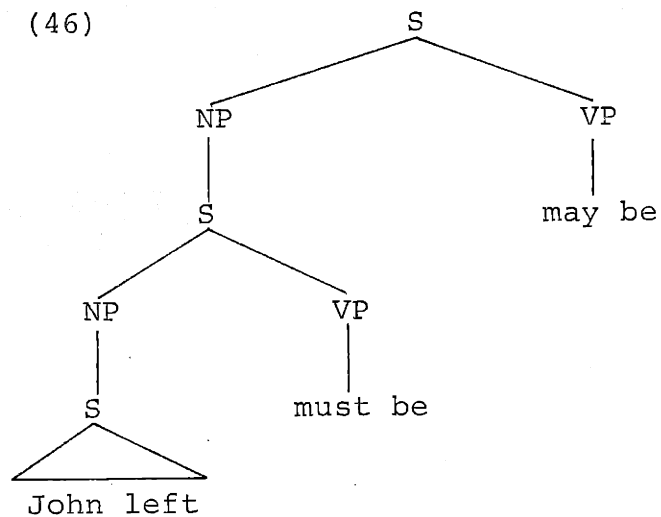c. *It may be the case that if Jones left, then he must have been tired.

Notice that the apodoses of the conditionals above may stand alone with full grammaticality.

(45) a. It may be the case that he will be drafted.

b. He may be drafted.

c. He must have been tired.

Thus, if these sentences are generated in apodosis position,

one cannot explain why the conditional can not be embedded
in an epistemic modal.

The way to block such sentences, and to block modals
from piling up in apodoses through the continued operation
of PROTASIS LIFTING, is to derive all modals in apodoses
from this operation. Thus, the sentences in (44) will be
blocked by the same mechanism which must stop deep struc-
tures like (46).

(46)

```
                        S
                    /        \
                  NP          VP
                  |           |
                  S         may be
                /    \
              NP      VP
              |       |
              S     must be
            /    \
        John left
```

Further evidence for PROTASIS LIFTING is the fact that
it operates in precisely the right way in conditionals with
two or more protases. Consider the paradigm in (47):

(47) a. It must be the case that if $2+2=4$, then,
          if $3+3=5$, then $4+4=6$.

      b. If $2+2=4$, then it must be the case that
          if $3+3=5$, then $4+4=6$.

      c. If $2+2=4$, then, if $3+3=5$, then it must be
          the case that $4+4=6$.

      d. If $2+2=4$, then, if $3+3=5$, then $4+4$ must $= 6$.

PROTASIS LIFTING allows one to account both for the synonymy

of (47a,b,c) and the fact that there is only one modal

possible in any of these sentences.

4.6.3   PROTASIS LIFTING and Negation

I will attempt to show here that PROTASIS LIFTING may

apply when a conditional is embedded in a sentence of nega-

tion (the meaning of this last term will become clear

shortly). The fact that EXTRAPOSITION has applied in (48a)

indicates that (48b) is its deep structure.

(48)   a.   It's not so that if Sam capitulates, then
            Tom will resusitate.

       b.
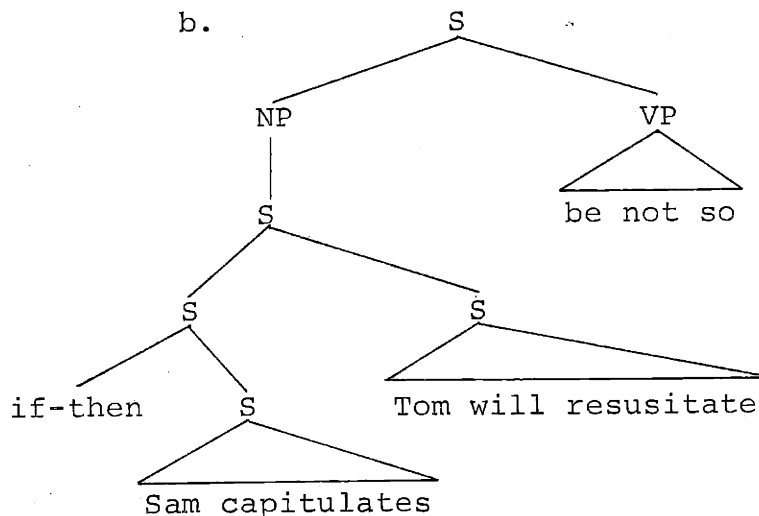
I leave open the question here as to whether 'neg' is a deep

structure verb in the matrix sentence of (48b), with a later

rule spelling out 'be', or whether 'neg' is a particle in

presentence position in this sentence.

If PROTASIS LIFTING applies to (48b), then (48c) will

result. After rules of neg insertion, (48d) will be

derived.

(48)   c.   If Sam capitulates, then it will not be the case that Tom will resusitate.

　　　 d.   If Sam capitulates, then Tom will non resusitate.

To determine whether PROTASIS LIFTING could in fact apply to (48b), it is necessary to determine whether (48c,d) can mean the same as (48a). This is the case in my dialect; in fact, (48c,d) are ambiguous with respect to the source of negation. That is, they can be either synonymous with (48a), or they can carry the meaning expected if negation is over the apodosis alone in deep structure. By this analysis (48c,d) have two sources in deep structure, thus explaining the ambiguity. Thus, PROTASIS LIFTING can apply when the conditional is embedded in a sentence of negation in deep structure.

4.6.4   The Categorical Dependency of PROTASIS LIFTING

In this section there will be an investigation of the way in which PROTASIS LIFTING may generalize to environments other than modals and negation. I will show that when one considers its operation in these environments, it will be necessary to make essential mention of categories of meaning.

As outlined above, words like 'believe' may be used expressively or reportively. It is only in the expressive use of 'believe' that the rule of NEG HOP can apply. I have claimed that the difference between expression and report is a categorical difference, and that, thus, NEG HOP

(as well as some other operations discussed above) is
sensitive to this difference. I will show below that
PROTASIS LIFTING is sensitive to the same difference, and
that it operates in precisely the same environment as
NEG HOP.

> (49) a. I believe that if the accused was in Rome
>   at the time of the deed, then he did not
>   commit the murder.
>
>   b. If the accused was in Rome at the time of
>   the deed, then I believe he did not commit
>   the murder.
>
> (50) a. I believe that if Urman ate the apple, then
>   he's crazy.
>
>   b. If Urman ate the apple, then I believe he's
>   crazy.

Let us consider (50) first, and then return to (49).
The two sentences of (50) are synonymous when 'believe' is
expressive. To see this, consider the fact that to a
question like, 'Is Urman crazy?', one might answer, (50a),
or (50b), or 'If he ate the apple, then I believe so'.
However, the following is not an appropriate answer: 'If he
ate the apple, then I believe it'. This distribution of
data shows that the 'believe' which penetrates into the
conditional construction is expressive.

One can show that the 'believe' of (49b) again is
expressive by considering the application of NEG HOP. That
is, it is possible to apply this transformation in (49b)
once the 'believe' is next to the apodosis. The result
would be (49c).

(49)   c.   If the accused was in Rome at the time of the
            deed, then I don't believe he committed the
            murder.

The derivation of (49c) from (49a) would proceed as follows:

(49)   a.   S
                        NP   VP
                        | V   NP
                        I   believe   S

                                          if-then the accused was in
                                          Rome at the time of the
                                          deed, he did not commit
                                          the murder

       b.   S
                    S   S
            if-then   S   NP   VP
                                      | V   NP
                      the accused be I   believe   S
                      in Rome at the
                      time of the deed   neg   S

                                                            he did commit
                                                            the murder

(49) c.

```
                              S
                  _____
                 |                        |
                 S                        S
             ____|____               _____|_____
            |         |             |           |
        if-then       S            neg          S
                  ____|____                  ____|____
                 /         \                |         |
            the accused was                NP         VP
            in Rome at the                 |        __|___
            time of the deed               |       |      |
                                           I       V      NP
                                                   |      |
                                                believe   S
                                                       ___|___
                                                      /       \
                                                  he did commit
                                                  the murder
```
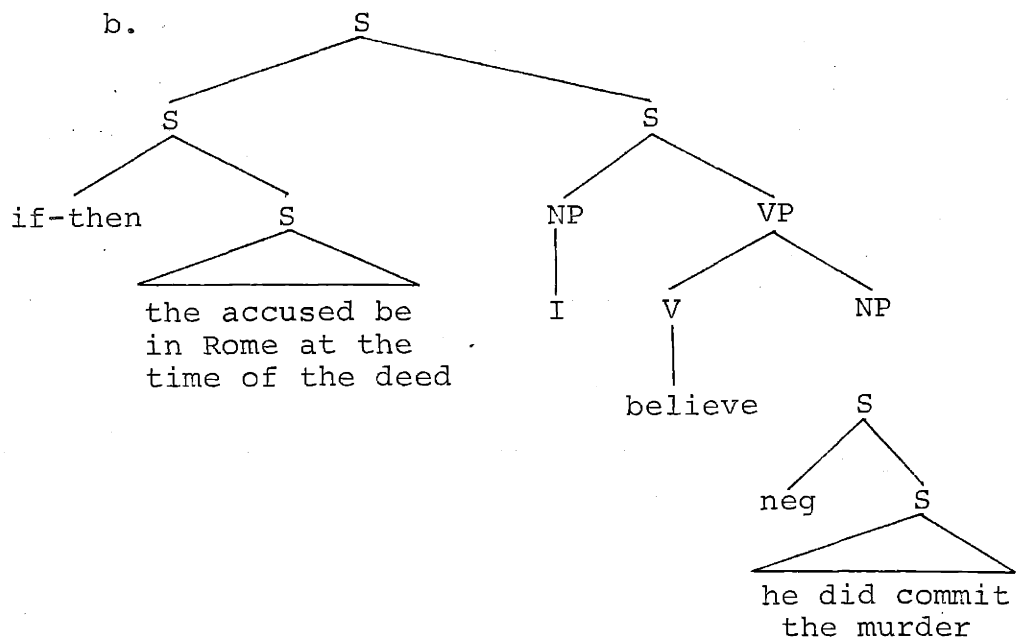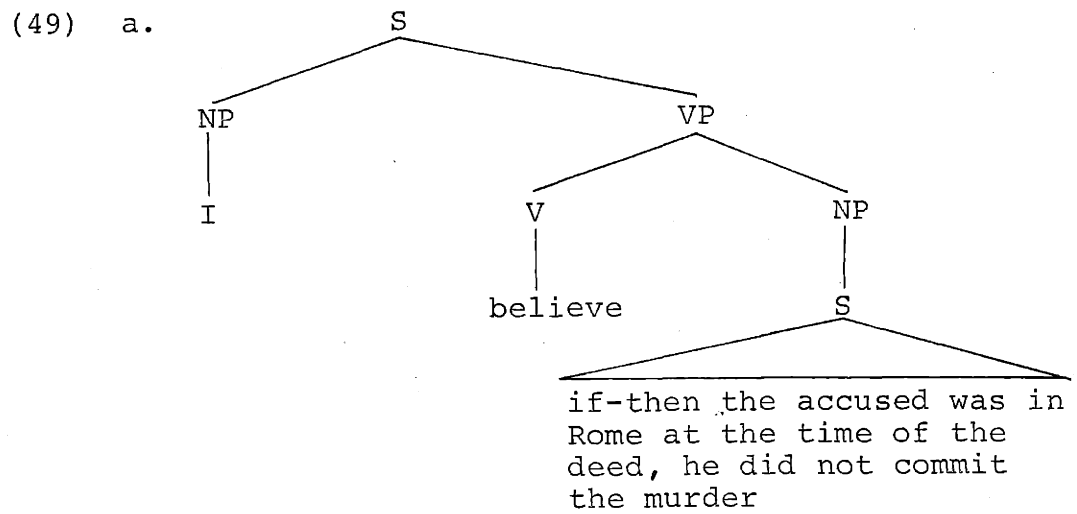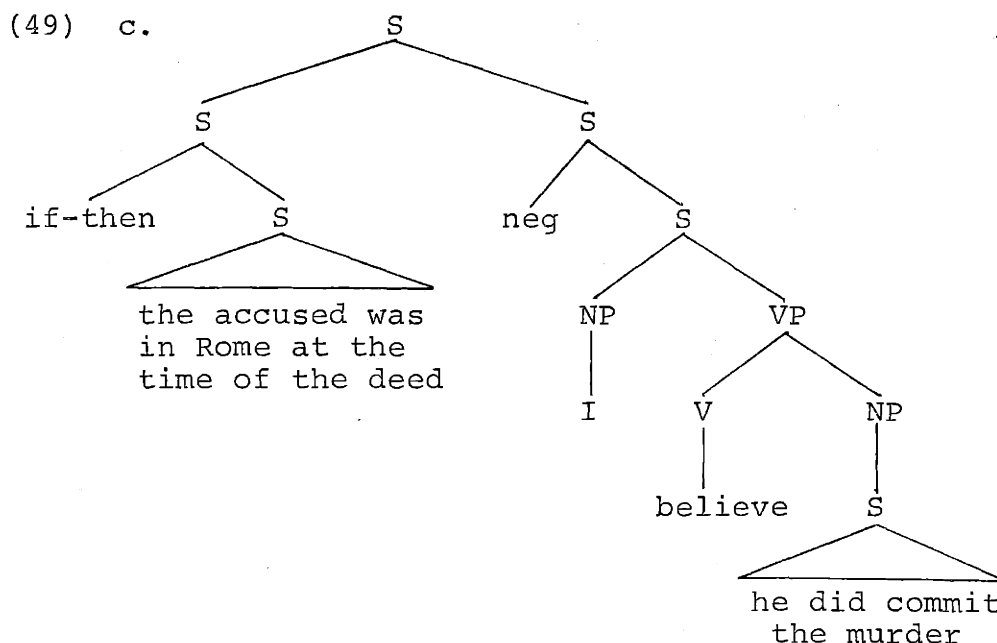
Notice, now, that the reportive 'believe' cannot under-
go PROTASIS LIFTING. To see this, contrast (51a,b).

  (51) a. If Marigold makes objections, then Hermicide
            will believe that she's not so dumb.

        b. Hermicide will believe that if Marigold
            makes objections, then she's not so dumb.

These sentences are clearly not synonymous. The first says
that the state of Hermicide's beliefs are contingent on
some condition. The second says that Hermicide will be in
some state of belief. That the 'believe' of (51) is only
reportive is guaranteed by the fact that it occurs with the
epistemic modal 'will'.

Two claims made earlier can now be justified. The
first concerns the necessity for a rule that distributes the
'if-then' of conditions. Sentences like (52a), which come
from (52b), show that the distribution of 'if-then' must

follow PROTASIS LIFTING.

(52) a. If Jones tries to fly, then I believe he'll
          not make it.

      b. I believe that if Jones tries to fly, then
          he'll not make it.

That the distribution of 'if-then' cannot be in the trans-
formational cycle is shown by sentences in which PROTASIS
LIFTING has applied successively to raise a protasis
through many sentences. For example (53a) comes from (53b)
by two applications of PROTASIS LIFTING.

(53) a. If Margaret jumps, then I believe she may
          be crazy.

      b. I believe that it may be the case that if
          Margaret jumps, then she's crazy.

The second claim is that PROTASIS LIFTING will have to
be in English regardless of what order is chosen for
conditionals in deep structure. This is shown by the ex-
pressive belief sentences; e.g., (54a) had to be a product
of PROTASIS LIFTING, regardless if (54b) or (54c) is the
deep structure.

(54) a. If Stone space is compact, then I believe
          violets are blue.

      b. I believe that if Stone space is compact,
          then violets are blue.

      c. I believe that violets are blue if Stone
          space is compact.

This completes the treatment of PROTASIS LIFTING. I
have tried to show that this transformation must be accorded
a place in English grammar regardless of the deep structure
order within conditionals, and that there must also be a

last cyclic transformational rule which distributes 'if-then'. PROTASIS LIFTING shares with NEG TRANSPORT the property of being able to apply only to expressive sentences. It differs from NEG TRANSPORT in being able to apply to modals. Still, the similarity between the two rules is sufficiently compelling that one may conjecture that they are really manifestations of basically the same transformational process.

4.7 Conclusion

The admission of the expressive-reportive distinction into the conceptual apparatus of grammar affords a solution to problems not otherwise treatable within the current framework. The necessity for the distinction can be seen most strikingly in those cases in which transformations are category-dependent. No possible use of rule features on 'believe', for example, could correctly provide the environment for the application of transformations like NEG TRANSPORT and PROTASIS LIFTING.

The expressive-reportive distinction is also of interest in the study of performatives. Expressives share some of the features of performatives, but not all. Also, in expressive belief sentences, the main verb 'believe' itself behaves like a performative. If there is an abstract performative of such sentences, then the same performative must embed expressive 'it hurts' sentences. As pointed out above, however, an expressive 'it hurts' has exactly the same

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semantic characteristics of a groan; as Wittgenstein put
it, the sentence replaces pain-behavior. Thus, it would be
difficult to argue that whatever performative appeared over
the expressive 'it hurts' did not appear over groans, in
which case the performative analysis seems to lose both
its strength and its plausibility.

While none of the remarks here are conclusive, the
discovery of the expressive-reportive distinction should
occasion some rethinking of existing performative analyses
of English.

Chapter 5

Conclusions and Speculations

In this chapter I will summarize the results of the investigations which have appeared above, and will discuss some broader implications of the theory of categories. In addition, I should like to make some speculations concerning how the concepts utilized in the theory of categories may be applied further to problems in grammar. I will begin with the speculations.

5.1 Categorical Performatives

The definition of performative employed in this discussion is that presented in the previous chapter. That is, the occurrence of a verb in a sentence is performative if the act performed in uttering the sentence is described by the verb. The verbs in sentence (1) are used performatively.

(1) a. I assert that Mary Martingale is a bird song.

b. I hereby marry you. (As said by, say, a minister)

I should like to introduce a distinction between two kinds of performatives. The distinction is brought out by considering the difference between the felicity conditions for (1a) and (1b). Felicity conditions for (1b) are culturally established, and may be changed by conscious agreement at any time. Likewise, the felicity conditions for (1b) may be different for different cultures, and in some cultures (1b) may not have a performative use at all (e.g.,

marriage could be accomplished by expression of mutual consent).

The felicity conditions for (1a) seem to be of an entirely different sort than those for (1b). The felicity conditions for (1a) are not a matter of cultural convention; no conscious agreement among men could establish or change the nature of assertion. I submit, furthermore, that a lexical item in any language which has the same meaning as 'assert' in English will have a performative use. As remarked above, this is not the case for 'marry'.

Because the felicity conditions for the successful utterance of sentences like (1b) are contingent on cultural prescription, I call these cultural performatives. On the other hand, the felicity conditions for sentences like (1a) are not established by covenant; rather, they seem to depend on some aspect of the meaning of the main verb. I shall hypothesize that the aspects of meaning involved are categorical, and accordingly call sentences like (1a) categorical performatives.

Categorical performatives involve notions of grammar, such as assertion, the interrogative, the imperative, etc. That is, there are sentences in all languages which are assertions, questions, commands, etc., without there being overtly present a performative verb. However, it is not true that all languages have sentences which can be uttered to, say, effect marriages without, or even with, the overt presence of a first person, present tense 'marry'. This is to

say that a performative like (1b) does not involve some

grammatical notion, whereas (1a) does.

To summarize the distinction, then, cultural performa-

tives have felicity conditions that are culturally determined;

a sentence which has a performative use in one culture may

not have such a use in another (even within the same language);

and cultural performatives do not involve notions proper to

grammar, but rather derive from existing cultural institu-

tions. On the other hand, the felicity conditions for a

categorical performative are not subject to cultural varia-

tion; the set of categorical performatives is fundamentally

the same for all languages; and categorical performatives

involve notions of grammar. I shall now attempt to outline

the way in which categorical performatives could be treated

within a theory of categories of meaning.

The account of categorical performatives requires two

assumptions. The first is that assertion, the interrogative,

the imperative, etc. are categories of meaning. This assump-

tion is warranted in a number of ways, for these aspects of

sentential meaning seem to have all the properties of

categories of meaning. It oculd be claimed that the inter-

rogative, say, is a non-lexical aspect of meaning, that

several transformations are dependent on it, such as

SUBJECT INVERSION and WH-FRONTING, and that complement verbs

such as 'ask' are elements of this category. Verbal elements

of the category Assertive would include 'assert', and of

the Imperative would include 'order' and 'command'.

The second assumption concerns the meaning of words like 'assert', 'ask', etc. This assumption is that 'assert', say, expresses as part of its meaning the notion of assertion, which is carried by the category Assertive.

With these two assumptions, certain properties of categorical performatives can be explained. That a sentence like (1a) is a performative comes from the fact that the sentence embedded in 'assert' carries the Assertive category, while the verb 'assert' describes the asserting by its meaning. Thus, what is performed in the utterance of (1a) by the presence of the Assertive is described by the verb 'assert'. In (1a) the embedded sentence is asserted. Likewise, the utterance of a sentence such as 'I ask whether you are going' constitutes a question because the embedding carries the Interrogative category. It is a performative because 'ask' describes the action performed in the embedding.

The account suggested above in terms of categories of meaning leaves several aspects of categorical performatives unexplained. For example, the restrictions on person and number in performatives are not accounted for, although the same may be said of Ross's treatment (Ross, 1969). Notice, further, that restrictions on person and tense are common to both cultural and categorical performatives. This indicates that this feature of performatives is outside the range of explanation of the theory of categories.

The class of sentences which are categorical performatives by the treatment sketched above includes cases that may

not have been counted as performatives by Austin (1955). I claim, however, that this may demonstrate the advantage of the classification proposed here over Austin's. Contrast (2a,b).

    (2) a. I wish that Harry would leave.

         b. I wish Harry to leave.

The most natural reading of (2b) is as an expression of desire, whereas (2a) seems to be most naturally reportive. This can be seen by noting that (3a,b) are synonymous but (4a,b) are not, again in the most natural case.

    (3) a. I wish Harry not to leave.

         b. I don't wish Harry to leave.

    (4) a. I wish that Harry would not leave.

         b. I don't wish that Harry would leave.

The explanation for this, as discussed above in Chapter 4, turns on the fact that the transformation of NEG TRANSPORT applies only to expressive sentences.

By the treatment of categorical performatives sketched above, (2b) is a categorical performative. That is, we may hypothesize the existence of a category, the Optative, which is carried by all sentences embedded in desiderative verbs like 'wish', 'want', 'desire', and 'hope'. Sentence (2b) constitutes an expression of a wish (it carries the Expressive category as discussed above), and at the same time, the main verb carries inherently the notion of the optative. As suggested above, however, Austin probably would not count (2b) as a performative.

Sentences like (2b) have rather interesting properties.
They seem to be able to take 'hereby', like other performa-
tives, although sentences like (5b) are less acceptable than
(5a). (5b) is clearly better than (5c), however.

(5) a. I hereby assert that grass is blue.

     b. ?I hereby wish grass to be blue.

     c. *I hereby wish that grass were blue.

A second property is that (2b) has no grammatical past tense.

(6) *I wished Harry to leave.

This fact is placed in some perspective when (2b) is viewed
as a categorical performative, but it should be the source of
some amazement when viewed through the perspective of Chomsky
(1965). That is, if tense is introduced as the rewrite of a
rule expanding the Aux node, as Chomsky proposes, then it is
unimaginable how one might exclude the past tense from
appearing in (6).

This completes the discussion of categorical performa-
tives. It is clear that no definitive treatment of perform-
atives is yet possible within category theory, but the outline
of such a treatment described above seems to have promise.
An account of aspects of sentential meaning such as assertion
is the kind of thing that one would expect category theory to
provide; conversely, the study of such problems may throw
light on how the theory of categories ought to be constructed.

5.2 Conclusions

The section above has dealt with some speculations concerning how the notions developed in this work might be applied to problems connected with performatives. In this section I will present the major conclusions of this investigation, and will discuss their possible significance within a broader perspective. These conclusions are, respectively, that categories of meaning are not traceable in deep (or surface) structure to any grammatical or lexical formative, or to any feature; that there are verbal elements of categories; and that some transformations are category dependent. They will be taken up in turn.

5.2.1 Deep Structure and Categories of Meaning

I have argued throughout htis work that categories of meaning are not represented by any grammatical material in deep structure. I have not shown in each case that such representation is impossible, but only that generalizations of various kinds would be lost. Perhaps this should be expected, for given the current looseness of grammatical theory, it is probably impossible to show that a certain phenomenon is intrinsically out of the range of the generative capacity of a transformational grammar. (cf. Kimball, 1967)

In the Philosophical Investigations of Wittgenstein, one may find passages which suggest that certain aspects of sentential meaning are non-lexical and non-grammatical. This is

seen specifically in the quotes provided above in Chapter 4 concerning linguistic replacement of pain-behavior, and more generally in Wittgenstein's remarks about meaning and use.

Although the point that there are aspects of meaning which are not lexical and not grammatical in origin may not be difficult to establish, the proposition that such aspects of meaning must be accounted for in the theory of grammar is by no means trivially true. It is exactly this matter which is the subject of the claim made above that categories of meaning have no representation in deep structure.

This question is empirical, but it is not without philosophical reflexes. That is, those who would reject Wittgenstein's discussion of sensation expressions cited above might also be inclined to reject the theory of categories proposed here. The point fundamentally at issue concerns where words and sentences get their meanings, and this leads directly into the question of verbal elements of categories below.

5.2.2 Complement Verbs and Categories of Meaning

It is now almost a cliche in discussions of meaning in texts in linguistics to distinguish between what are called grammatical meanings and nongrammatical meanings of lexical items. A word like 'boy' would be of the latter type, in that at least part of its meaning comes from the fact that it refers to some extralinguistic object or class of objects. On the other hand, a word like 'of' is counted as having a

purely grammatical meaning; i.e., its meaning is hypo-
thesized to come from its grammatical function, or else from
the fact that it designates some grammatical notion (such as
case).

The idea that some words derive their meaning by signify-
ing some grammatical function has merit, but no author has
given it a precise formulation. The hypothesis that there
are verbal elements of categories represents an attempt to
make this notion precise.

If there were no assertions, it is difficult to imagine
that there could be a meaning for a word like 'assert'. That
is, the existence of the grammatical institution, as it were,
makes possible a word like 'assert'. The meaning of such a
word is derived from a source internal to language.

The hypothesis that categories should have verbal
elements, in the sense defined above, is an attempt to give
some content to the intuition that some words derive their
meanings from notions of grammar. In this case, the words
concerned are complement verbs, and the hypothesis is that
part of their meaning derives from the fact that by being
elements of categories, their complements can have meanings
only of certain types.

The converse to the hypothesis above is that every com-
plement verb is an element of some category. Too little is
known about categories at this point to be able to say much
about such a conjecture. If something like this is true,
then the theory of verbal elements will need to be altered in

various ways. For example, there seem to be clear cases of verbs which take embeddings with one of at least two different categories. Thus, 'ask' can take an embedded question or imperative, as in (7a,b), respectively.

(7) a. I ask whether he hit the jackpot.

　　　b. I ask that he hit the jackpot.

If it is the case that every complement verb is the element of some category, then grammarians will have a powerful tool for the classification and treatment of such verbs.

5.2.3 Transformations and Categories of Meaning

The third major hypothesis of this work is that transformations are category dependent. This thesis is, again, difficult to establish because of the richness of the formal mechanisms available within the current theory of grammar. Specifically, transformations may refer in their structural descriptions to particular lexical or grammatical formatives, category symbols, features, etc., and the application of transformations can be controlled by rule features. Thus, to show that category dependency is necessary in the theory of grammar is difficult. The cases in which this conclusion is most secure are those involving the Expressive and Reportive categories.

It is important to get an overview of the consequences of the hypothesis that some transformations are category dependent, for it appears that this hypothesis, if correct, yields a number of interesting results.

Under the Katz-Postal (1964) hypothesis, transformations do not change meaning. The transformations which were optional in Syntactic Structures (Chomsky, 1957) became obligatory in this analysis. Thus, whereas QUESTION FORMATION was optional and changed meaning, the optionality was relegated to the phrase structure component, which could associate a Q marker with a sentence, and the transformation became obligatory. Since all transformations were hypothesized to preserve all varieties of meaning, transformations could not be used in the study of meaning. That is, if it is true that all transformations preserve total meaning, then semantics has no reflexes in the transformations.

The theory of category dependency hypothesizes that transformations may be sensitive to certain kinds of sentential meaning, namely categories of meaning. By this hypothesis, transformations are not neutral with respect to meaning. It may be possible to use transformations which are category dependent in a characterization of various aspects of meaning. That is, if some transformation, T, applies only to category C, then an examination of the internal construction of T may contribute to the understanding of C.

The idea that one might use transformations to characterize meaning is new in the study of grammar. However, formally similar methods of approach to some subject matter are common in methematics. The basic procedure is that one starts out with some set of formal objects (sentences), properties of these (semantics), and formal operations

(transformations). One then investigates which of the pro-
perties involved are invariant over the application of the
formal operations. A common move in such studies is to use
the set of operations across which some property is invariant
as a characterization of that property.

The Katz-Postal hypothesis, viewed in this framework,
is that all transformations characterize all aspects of
semantic interpretation. (Notice how different this formu-
lation is from the one given in Katz-Postal, namely, that
deep structure alone determines meaning.) This hypothesis,
if true, is uninteresting from the point of view outlined
above. If all transformations preserve all meaning, then
transformations cannot be used to classify and characterize
different kinds of meaning.

The hypothesis that transformations are category
dependent is motivated by the considerations outlined above.
If true, it may allow one to use transformations to gain
an understanding of at least some aspects of sentential
meaning.

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