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MOSTLY SYNTAX AND SEMANTICS

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Table of Contents

Ambiguity Tests and How to Fail Them*

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Abstract

A number of tests used by linguists to distinguish ambiguity
from lack of specification are described and illustrated, with
brief critical commentary. The tests appeal to semantic, syntactic,
and pragmatic principles. Special attention is given to tests using
transformations whose applicability depends upon identity of sense;
these tests can help to decide the status of examples for which
other tests give no evidence. But there is a class of cases where
the identity tests predict ambiguity, even though common sense (and
tests not involving identity of sense) says that these cases involve
special uses of sentences, not meaning proper, and other tests for
ambiguity agree. These cases are characterized, and their anomalous
behavior is explained on the grounds that they require suspension
of the sincerity principle of conversation (that one means what one
says).

1. Background.
    The notion of ambiguity plays a fundamental role in syntactic
argumentation. Indeed, much recent discussion turns on whether
particular examples are or are not ambiguous, and if they are, in
what way. The existence of a rule of neg-Transportation depends
ultimately on whether sentences like

        (1) I don't think she's bald.

are ambiguous (between a reading like that of It's not the case that
I think she's bald and one like that of I think she's not bald) and
the treatment of sentence types and speech acts involves a decision
about how many readings examples like

        (2) Why don't you ask her for help?

have (question and suggestion, in this case). The cases can be
listed for pages: phrasal conjunction, tough Movement, Psych Movement,
sloppy identity, referential opacity, and so on. In each case,
the question is how many underlying (or semantic) representations

1

should be assigned to a particular example; if there are two or more, then transformational rules neutralizing these underlying distinctions must be posited.

The choice is between <u>ambiguity</u>, several underlying syntactic (or semantic) representations[1] for (1) and (2) and similar examples,[2] and a single representation corresponding to different states of affairs.[3] This second situation has been called <u>generality</u> (Quine 1960:125-32), <u>vagueness</u> (G. Lakoff 1970) and <u>indefiniteness of reference</u> (Weinreich 1966:412), though <u>neutrality</u>, <u>unmarkedness</u>, and <u>lack of specification</u> would be equally good terms. The sentence

     (3) My sister is the Ruritanian Secretary of State.

is unspecified[4] (general, indefinite, unmarked, vague, neutral) with respect to whether my sister is older or younger than I am, whether she acceded to her post recently or some time ago, whether the post is hers by birth or by merit, whether it has an indefinite tenure or will cease at some specific future time, whether she is right-handed or left-handed, and so on.

On the other hand, examples like

     (4) They saw her duck.[5]
     (5) He cooked her goose.

are clearly ambiguous; they must be assigned two quite different semantic structures. Many other examples are not at all clear on first inspection. For these, linguists have developed a collection of tests that separate the clear cases of ambiguity from the clear cases of lack of specification, and so can be extended, tentatively at least, to the problematic examples. Like all grammatical tests (those for constituency, category membership, and the like), these fail to apply in some situations, and they sometimes give unclear answers. Nevertheless, their range of applicability is wide enough to make it worthwhile for us to give a list of the tests in common use by syntacticians.

Our aim here[6] is primarily descriptive of current practice, rather than prescriptive, although we have taken some care to examine lines of argumentation critically. It should be noted that grammatical tests in general, and ambiguity tests in particular, reflect the theory within which they are framed, so that we often find it appropriate to discuss the rationale behind particular tests (see especially sections 1.2.1, 1.2.2, and 1.3.3). Moreover, since the tests are not theory-neutral, they can be seen as giving insight into the central assumptions of the theories used by generative grammarians; occasionally, as in section 1.3.3, we consider meta-theoretical issues arising from the connection between theory and test, though such issues are not our main concern here.

1.2. <u>Semantic tests</u>.[7]

It will not do, of course, to argue that a sentence is ambiguous by characterizing the difference between two understandings.[8]

Sentence (3), for instance, isn't many-ways ambiguous just because we can perceive many distinct classes of contexts in which it would be appropriate, or because we can indicate many understandings by paraphrases. A difference in understanding is a necessary, but not a sufficient, condition for ambiguity.

Nevertheless, philosophers perenially argue for ambiguities on the basis of a difference in understanding alone, and even linguists are not immune. Thus, Zwicky 1969 maintains that

(6) Melvin became as tall as any of his cousins.
(7) Melvin became taller than the average Ohioan.
(8) Melvin became the tallest linguist in America.

have two semantic representations each, one 'in which Melvin changes, one in which other circumstances change so that Melvin's relative height changes' (293)--but without any support beyond the articulation of this difference in understanding.

In certain circumstances, however, some evidence as to ambiguity or the lack of it can be obtained from observations about semantics. The following subsections treat three such cases.

1.2.1. <u>Appeals to semantic differentiae.</u>
Sentences--like (3)--that are unspecified with respect to some distinction have otherwise quite similar understandings, so that the distinction in question must be the sort of thing that languages could plausibly fail to specify. Consequently, the burden of proof falls on anyone who insists that sentences like (4) and (5) are unspecified rather than ambiguous. Take (4). The distinction between the two understandings is that between two understandings of the object phrase <u>her duck</u>--a certain sort of bird belonging to a woman and a certain kind of action performed by a woman. First, we know of no language in which there is a regular, formal indication of just the difference between the understandings of (4). This argues either that we have either a lack of specification or an unsystematic ambiguity. But, second, the two understandings of (4) have little in common, so that a lack of specification is implausible.

The first argument refers to the <u>plausibility of systematic ambiguity</u>: if a distinction in understanding is a systematic ambiguity in some language, then that distinction is potentially realizable by a formal mark in some other language:[9] conversely, a distinction not formally realizable is either a systematic lack of specification or an unsystematic ambiguity. If languages don't formally mark the distinction between some sort of bird belonging to a woman and some sort of action performed by a woman, then this difference of understanding in any particular language (like English) is either a systematic, that is general, failure to specify the difference between sorts of birds belonging to a woman and actions performed by a woman, or else it is an (unsystematic) ambiguity.

The second argument refers to the <u>plausibility of lack of specification</u>: if some distinction in understanding is systematically unspecified in language, then it must be a simple distinction.[10] This argument is customarily used in a negative form, as above:

distant and complex semantic differentiae point to ambiguity rather than lack of specification.[11]

Note that from the facts that a particular semantic differentia is simple and that it is formally marked in some language, we can conclude nothing about the status of this distinction for any particular example in any language; both lack of specification and systematic ambiguity are consistent with these facts. For instance, from the facts (a) that the older sister/younger sister understandings of (3) differ minimally, and (b) that there are languages that mark this difference formally (by different suffixes, or by a series of different lexical items, say), the strongest conclusion that can be drawn is that it is not implausible that the difference in understanding is an ambiguity; but these facts are consistent with both lack of specification and ambiguity. The fact that age differences, sex differences, specificity in noun phrases, inclusivity in plural pronouns, factivity in complement clauses, and so on are formally marked in some languages tells us nothing about the status of particular examples in English; we are not entitled to dismiss a claim of ambiguity out of hand, but the plausibility of the differentiae doesn't choose between ambiguity and lack of specification.

This caveat about appeals to differentiae holds even within a language. Thanks to the fact that English distinguishes a set of lexical items that are masculine (man, boy, king, etc.) from corresponding items that are feminine (woman, girl, queen, etc.) and the fact that English pronominal reference systematically distinguishes between masculine and feminine, the differentia masculine/feminine plays a part in the semantic system of English. But from this we can conclude nothing about the status of lexical items like person, actor, chairman, secretary, dog, or goose, all of which can be understood as either masculine or feminine; the existence of a systematic distinction elsewhere in English says only that a claim of ambiguity for such items it not implausible, but it doesn't tell us whether any one of them is or is not ambiguous.

It will be useful here to give some terms for two familiar types of distinction in understanding: polar opposites and privative opposites. Two understandings U_1 and U_2 are polar opposites with respect to some semantic feature F if they are identical except that U_1 can be represented as having +F where U_2 has -F, or the reverse.[12] Mother and father have understandings that are polar opposites with respect to a gender feature. U_1 and U_2 are privative opposites[13] with respect to F if U_1 can be represented as being identical to U_2 except that U_1 includes some specification for F which is lacking in U_2. Parent and mother have understandings that are privative opposites with respect to a gender feature; so do the technical term dog 'male canine' and the ordinary-language term dog 'canine'.

Note that polar opposites are contradictory, while one privative opposite (the more specific understanding) implies the other (the more general understanding). As we shall see in later sections, the logic of privative opposites makes it difficult to distinguish ambiguity from lack of specification whenever a privative opposition is in question.

1.2.2. Contradiction.

One way of detecting an ambiguity between privative opposites uses the fact that one semantic representation is more specific than the other. As a result, it should be possible to assert the general while denying the specific, without contradiction. To see this, compare

(9) That's a dog.

which our intuitions (and all standard dictionaries) would suggest is ambiguous, with

(10) That's a lion.

where we have no such intuitions (nor do dictionaries). Asserting the general while denying the specific gives us, respectively:

(11) That's a dog, but it isn't a dog.[14]
(12) ?That's a lion, but it isn't a lion.[15]

or, in a simple sentence:

(13) That dog isn't a dog.
(14) ?That lion isn't a lion.

Observe that (11) and (13) are not contradictions, while (12) and (14) are; additional information brings this out:

(15) That dog isn't a dog; it's a bitch.
(16) ?That lion isn't a lion; it's a lioness.

Example (15) can be understood as asserting that some animal is a canine but not a male canine, in fact that it is female. This possibility depends on dog having two semantic representations. (16), on the other hand, is a contradiction, which indicates that there is no way to assert one understanding of (10) and deny another. Even supplying the specific difference in understanding, as in (16), will not help. It is not, of course, necessary to give the appearance of paradox, as in (11)-(16), to test for ambiguity by investigating contradiction. It is sufficient to assert the general understanding and supply material that implies the denial of the specific understanding, as in

(17) That isn't a dog; it's a bitch.
(18) ?That isn't a lion; it's a lioness.

or

(19) That's a bitch, not a dog.
(20) ?That's a lioness, not a lion.

1.2.3. <u>Inconstancy under substitution</u>.

Other things being equal, synonyms, near-synonyms, and (in general) semantically related lexical items have similar privileges of occurrence. In English, <u>must</u> and <u>have to</u>, <u>chrysanthemum</u> and <u>flower</u>, <u>bull</u> and <u>cow</u> can be expected to occur in pretty much the same linguistic environments. If there is an environment in which only one of a pair can occur, and if this difference in distribution can't be attributed either to such meaning differences as are present in the items or to simple exceptionality, then we should suspect that the environment includes an idiom involving one of the items. This test can be used to support arguments from implausible differentiae (as in section 1.2.1). Thus, we expect that (5) is ambiguous rather than unspecified, since the distinction between the preparation for eating of a fowl belonging to a woman, and the irretrievable undoing or ruining of a woman is not the sort of thing languages fail to specify. Also, substituting <u>bake</u> for its hypernym <u>cook</u>, or <u>swan</u> for <u>goose</u>, eliminates one of the two understandings of (5)--

(21) He baked her goose.
(22) He cooked her swan.

--and this inconstancy of (5) under substitution supports the argument from implausible differentiae by pointing to an idiom in (5) involving the words <u>cook</u> and <u>goose</u>.[16]

Similar arguments from inconstancy of substitution are given by Sadock 1972 in support of the claims that all of the following are ambiguous rather than unspecified:[17]

(23) That was a great idea.
(24) You bet it's cold.
(25) Why don't you feed the emu?
(26) What was the name of Paul Revere's horse?

Sadock also gives the reverse argument, that <u>constancy</u> of understanding under substitution indicates lack of specification rather than ambiguity, with reference to

(27) That was a brilliant idea.

(understood either literally or sarcastically), in contrast to (23) (with <u>great</u> understood either like <u>excellent</u> or <u>important</u>). However, the appeal to constancy of substitution is valid only insofar as we are not prepared to countenance systematic ambiguities in the lexicon. There are three alternatives: (a) each positive evaluative adjective (<u>brilliant</u>, <u>smart</u>, <u>clever</u>, <u>good</u>, <u>intelligent</u>, <u>neat</u>, <u>enlightening</u>, etc.) has two semantic representations associated with it, but these representations are related by a 'lexical implication rule'--a case where 'the existence of one lexical item implies the existence of another' (McCawley 1968:130); (b) there is a transformational relation between sentences with one understanding of (27) and those with the other understanding (like the transformational

relation that has been asserted between the inchoative and causative understandings of verbs like cool, melt, burn, freeze, etc., as in G. Lakoff 1970a:32-43); or (c) there are double semantic representations for the entire class of positive evaluative adjectives, without any statement at all in our grammatical description of English about the relationship between the two classes of semantic representations. For (27), a transformational relation is unlikely, since there is no independent motivation for it, and simply to posit double semantic representations leaves a generalization uncaptured by any principle of grammar. Consequently, a lexical implication rule (if we are willing to admit such rules) would be the only way to save the position that (27) and similar examples are ambiguous rather than unspecified.

Note that if there is other evidence indicating that (27) is unspecified rather than ambiguous, an argument from constancy of substitution is good supporting evidence. Standing alone, however, constancy of substitution merely makes a claim of lack of specification plausible.

1.3. Syntactic tests.

A number of types of tests for ambiguity use syntactic evidence. The assumption here is that, other things being equal, sentences with two distinct syntactic structures also have two distinct semantic structures.[18]
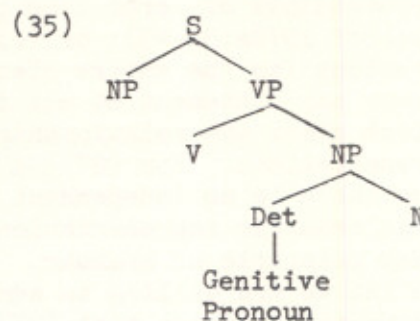
1.3.1. Intersection of patterns.

A syntactic test closely related to inconstancy under substitution uses the fact that ambiguous sentences often exhibit two different structures, each of which is visible in unambiguous examples.[19] This test has been discussed by Hockett 1954 and is emphasized by Kooij 1971. To argue that (4) is ambiguous rather than vague, we adduce unambiguous[20] sentences like

(28) They saw her $\{{}^{\text{sparrow}}_{\text{turkey}}\}$.

(29) They saw her $\{{}^{\text{wander}}_{\text{orate}}\}$.

(30) They saw $\{{}^{\text{him}}_{\text{us}}\}$ duck.

(31) They saw $\{{}^{\text{his}}_{\text{our}}\}$ duck.

(32) They saw her duck down into the cellar.
(33) They saw her huge duck.

Examples (28) and (29) suggest that duck belongs to two different syntactic classes, N and V, while (30) and (31) suggest that her belongs to two different syntactic classes, Objective Pronoun and Genitive Pronoun. These differences in category are also illustrated in (32) and (33), which can be used to argue that her duck in one understanding of (4) is an NP, in the other an NP (her) followed by a VP (duck). Taken together, these observations suggest that (4) represents two different surface syntactic patterns, which happen

(by accident) to intersect:

(34)
```
            S
          /   \
        NP     VP
              / | \
             V  NP  VP
                |    |
           Objective V
            Pronoun
```

(35)
```
            S
          /   \
        NP     VP
              /  \
             V    NP
                 /   \
               Det    N
                |
             Genitive
             Pronoun
```
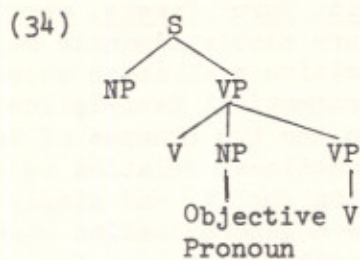
The claim that two understandings represent different patterns
can sometimes be supported by sentences in which <u>both</u> patterns occur
as parallel constructions. If these sentences are grammatical, and
not semantically redundant, they give evidence that the constructions
are indeed different. This is the major line of argument[21] Chomsky
1965:101 gives for the ambiguity of

(36) He decided on the boat.

He notes that the two constructions realized in (36)--NP V+Particle
NP and NP VP Preposition+NP--can occur together:

(37) He decided on the boat on the boat.

1.3.2. <u>Special distribution</u>.
     A test that will not work generally is that of adding material
to sentences to force one understanding. It won't do to claim that

(38) She wore a sweater.

is ambiguous between understandings including 'colored sweater' and
'white sweater' on the grounds that it is 'disambiguated' by the
addition of the modifier <u>colored</u> or <u>white</u>. If (38) is merely
unspecified, the added material will <u>supply</u> the necessary semantic
content, and if (38) is ambiguous, the added material will <u>select</u>
the necessary semantic content. That is, the extra elements fail
to distinguish between amgiguous and unspecified examples.
     Despite its inapplicability in general, the appeal to added
material ('cooccurrence restrictions') is quite common in the
literature. For instance, Sadock 1972 supports his claim that (24)
is ambiguous rather than unspecified by saying that 'it occurs
unambiguously in contexts which exclude one or the other meaning'
(333), citing

(39) You bet it's cold but you didn't say it was.
(40) You bet it's cold, so why didn't you wager it.

But if (24) is unspecified with respect to whether it's an expression
of the speaker's agreement with a statement of the addressee's or a

report of a wager, the added material in (39) and (40) would simply
supply enough information to exclude one of these understandings;
and if (24) is ambiguous (as indicated by other tests), the added
material selects one semantic representation in each example.
The added material tells us nothing about the status of (24).

However, in especially fortunate circumstances--when the
distribution of the added material is restricted in ways that are
not explicable on semantic grounds alone--this test can give real
evidence.

For example, there is a well-known double understanding displayed
by nominals such as

(41) the shooting of the hunters

Here <u>hunters</u> can be understood either as agent or patient. Notice
that on either understanding the phrase describes an occurrence
and can therefore appropriately take point-time adverbials. Example

(42) the shooting of the hunters last week

still has both understandings. Furthermore, on either understanding,
prenominal modifiers are permitted:

(43) the illegal shooting of the hunters

But prenominal modifiers related to point-time adverbials succeed in
eliminating one understanding of such phrases;

(44) last week's shooting of the hunters

has only the understanding where <u>hunters</u> is the direct object of
<u>shooting</u>. Therefore, since the agentive understanding of (44) is
not ruled out on semantic grounds--that is, it is not contradictory--
some structural difference must be imputed to the source of (41) on
the agentive understanding and its source on the patient under-
standing, so that the grammar can correctly associate the genitive
time adverbial with one of these and not the other.[22]

It is characteristic of good special distribution arguments
that they use <u>arbitrary</u> features of the syntax of a language. The
restriction on genitive time adverbials appears to be an idio-
syncracy of English. The same is true of the distribution of post-
nominal <u>else</u> as reviewed in Zwicky (to appear) and various phenomena
surveyed in Sadock 1972--the obligatory absence of <u>that</u> in (24),
the location of stress in (24) and (25), postposed <u>please</u> in (26),
and expletive <u>the heck</u> etc. inside <u>wh</u>-phrases in (26). It is not
necessary to have an explanation for the special distributions of
these items; we need only be satisfied that the distributions don't
follow entirely from what the items mean. However, since the arbitrary
aspect of special distribution arguments is essential, there will
often fail to be pertinent items to detect real ambiguities in a
language. The existence of an item whose distribution is in part
arbitrary and in part dependent upon the presence of a particular
element of semantic representation is a happy accident.

1.3.3. <u>Transformational potential</u>.

The previous two types of syntactic tests can be used by linguists of many persuasions. These lines of argumentation would be acceptable to traditional grammarians, structuralists, and transformationalists alike. However, they have quite restricted domains. Intersection-of-pattern arguments can detect only those ambiguities that are manifested in surface syntactic differences-- immediate constituent division and membership in syntactic categories. Special distribution arguments can detect ambiguities with no surface syntactic reflexes, but only in a few lucky cases. There are more sensitive--and more theory-bound--tests, which can be extended to some of the many problematic examples not amenable to the other tests. These widely used tests call upon transformational operations to detect ambiguities.

The argument goes as follows: if the semantic representations for certain sentences lack specification of some piece of meaning, then the applicability of transformations to them cannot possibly depend on whether or not this piece of meaning is present. If a sentence is unspecified with respect to some distinction, this lack of specification must be preserved by every transformational operation. But if a sentence is ambiguous, then it is possible for a transformation to apply in some, but not all, of the cases, so that the effect of the transformation is to eliminate one or more understandings of the sentence.

For instance, no transformation applied to structures containing the structure of (3) affects the multiple understandings of (3):

> (45) Is my sister the Ruritanian Secretary of State?
> (46) What my sister is is the Ruritanian Secretary of
>   State.
> (47) My sister is the Ruritanian Secretary of State,
>   isn't she?
> (48) My sister, (who is) the Ruritanian Secretary of
>   State, is a turophile.
> (49) I knew my sister to be the Ruritanian Secretary
>   of State.

are all consistent with my sister's being younger or older than I am, with her having acceded to the post recently or long ago, and so on. On the other hand, the understandings of (4) are affected by some transformations:

> (50) Her duck was seen by them.
> (51) It was her duck that they saw.
> (52) Her duck, which they saw, had a bright green head.

have only one of the two understandings of (4). This indicates that (4) is ambiguous, while (3) is unspecified.

An argument from transformational potential requires an independently motivated transformation, of course, just as a special distribution argument requires an element whose distribution is not

completely predictable from its meaning. It would not do to claim that

> (53) Susan and Matilda talked.

is ambiguous between a sentential conjunction understanding and a phrasal conjunction understanding on the grounds that the rule of Conjunct Movement eliminates one understanding. It is true that

> (54) Susan talked with Matilda.

has only one of the understandings of (53). But it is the very relationship between (53) and (54) that motivates the rule of Conjunct Movement in the first place. Unless there is independent evidence for Conjunct Movement, it cannot be used to argue for the ambiguity of (53).[23]

The structure of arguments from transformational potential is, in fact, even more complex. Consider a familiar sort of example:

> (55) We expected that the psychosemanticist would examine George.
> (56) We expected the psychosemanticist to examine George.

The question is whether (55) is ambiguous as to who is the object of our expectations, the psychosemanticist or George, or whether it is unspecified. Sentence (55) has both understandings, sentence (56) only the former. We can conclude from these observations that

> if (i) Raising doesn't 'change meaning',
>
> and if (ii) the applicability of Raising depends only upon its input structures, or at least upon some set of syntactic structures or semantic representations,
>
> and if (iii) there is independent evidence for the transformational rule of Raising,
>
> then either (iv) (55) has two syntactic structures, and Raising applies to only one of them,
>
> or (v) (55) and (56) have somewhat different syntactic structures, being related as privative opposites, and Raising applies only to the structure of (56).

Let us take these clauses one by one.

First, if some transformations can 'change meaning', then it is possible that Raising is such a transformation. It might be that applying Raising to (55) 'changes the focus' and yields (56). Unless we can argue on independent grounds that Raising is not a meaning-changing transformation, the difference in understanding between (55) and (56) sheds no light on the ambiguity issue. In

theories that prohibit meaning-changing transformations, the understandings of (55) and (56) must bear on this issue, subject to the following qualification.

Second, if the applicability of some transformations depends upon material not in semantic or syntactic structures--if, for instance, the applicability of some transformations depends upon purely pragmatic considerations--then it is possible that Raising is such a transformation. It might be that the applicability of Raising to (55) depends upon who the speaker of (55) has in mind. Unless we can argue on independent grounds that Raising is not dependent on pragmatic considerations, the difference in understanding between (55) and (56) sheds no light on the ambiguity issue. In theories that prohibit pragmatically conditioned transformations, the understandings of (55) and (56) must bear on this issue, subject to the previous qualification.

It follows that in relatively unconstrained syntactic theories--those allowing meaning-changing transformations or pragmatically conditioned transformations--it is very difficult, if not impossible, to apply ambiguity tests using transformational potential. In fact, theories permitting pragmatically conditioned transformations also make difficult the tests from intersection of patterns and special distribution, since in such theories pragmatic considerations might have influences at any level of grammar. Since we are treating normal argumentation, in which transformational potential is taken to be significant, we continue this discussion by assuming a constrained syntactic theory.

Third, it must be established on independent grounds that there is a rule of Raising. If there is no evidence for Raising, or if arguments for Raising are based entirely upon the relation in understanding between (55) and (56), then facts involving Raising don't lead to any clear result about the ambiguity of (55).

If all the preceding conditions are satisfied, we are still entitled only to one of two conclusions: either that (55) is ambiguous by virtue of having two distinct syntactic structures, or that (55) has a somewhat simpler syntactic structure than (56), the difference in structure being the element that conditions Raising for (56). For if Raising can't be demonstrated to map the structure of (55) into the structure of (56), or if the only evidence that Raising performs this mapping comes from the realtion between (55) and (56), then (again) facts involving Raising don't lead to any clear result about the ambiguity of (55). We can posit different structures for (55) and (56), parallel to current analyses of interrogatives, negatives, imperatives, passives, and the like.

Arguments for ambiguity then depend very much on arguments for the form of transformational rules. Well-established rules like wh-Question Movement provide an excellent basis for transformational potential arguments. Rules like Passive and Raising are less useful, because the examples we are most interested in are just those that are crucial in deciding the form of the rules.

A few words on arguing for lack of specification by means of transformational potential: such arguments are ex silentio;

to claim that a particular example is unspecified, on the basis of transformational potential, is only to claim that we know of no transformations that eliminate one of the understandings of the example (as in the discussion of (3) earlier in this section). Arguing in this way is suggestive, though not (of course) decisive.

We now turn to an especially interesting subclass of transformational potential tests.

1.3.4. Identity tests.

These use certain rules that refer to identity of constituents--pronominalization and deletion rules requiring identity of sense (rather than identity of reference). The utility of Conjunction Reduction for this purpose has been recognized in generative grammar since Syntactic Structures, where this rule was used to determine the boundaries and the category of a constituent (Chomsky 1957:35-6). Roughly, to be eligible for reduction, two conjoined clauses must be of the forms X - A - Y and X - B - Y, where A and B are constituents of the same type. This condition on A and B can be used to support arguments distinguishing ambiguity and lack of specification, as in the case of (4). If (4) is ambiguous, then her duck in one understanding is not of the same type as her duck in the other; one is an NP composed of Det plus N, the other is composed of the two constituents NP and VP (recall (34) and (35)). The sentence

> (57) They saw her swallow.

has the same two understandings. It follows that Conjunction Reduction should be possible only when (4) and (57) have matching understandings;

> (58) They saw her duck and (her) swallow.

should have two understandings, not four--which is correct. The two non-matching, or crossed, understandings, are excluded by the condition that A and B be of the same type.

With respect to the material X and Y which must be identical, Conjunction Reduction provides an even more stringent test. If

> (59) Morton tossed down his lunch.

were unspecified, rather than ambiguous, as to whether Morton bolted his lunch or threw it to the ground, then the parallel example

> (60) Oliver tossed down his lunch.

would also be unspecified, and the reduced sentence

> (61) Morton and Oliver tossed down their lunches.

would have four understandings, not two, because the identity condition on Conjunction Reduction can't require identity of elements that aren't part of syntactic structure. But (61) lacks the crossed

understandings (except as a joke), and we conclude that (59) is
ambiguous. To support our intuition that (61) lacks the crossed
understandings, we can add contextual information so as to favor
different understandings in the two predicates:

> (62) ?Morton, as always a greedy eater, and Oliver,
>   who continued to refuse food on principle,
>   tossed down their lunches.

Contrast the long-standing versus recent understandings of (3),
which are paralleled in

> (63) My sister is a prominent composer.

but which are not eliminated by the identity condition on
Conjunction Reduction:

> (64) My sister is the Ruritanian Secretary of State
>   and a prominent composer.

has all four understandings, as we can see by appending contextual
information forcing different understandings in the two predicates:

> (65) My sister is the Ruritanian Secretary of State,
>   and has been for years, and a prominent composer,
>   thanks to her Concerto for Bassoon and Tympani
>   that was published last week.

If (64) lacked the crossed understandings, (65) would be anomalous.
    Other deletion-upon-identity transformations give the same
results. The sentences

> (66) She called Jane a cab.
> (67) He called Jane a dog-cart.

each have two understandings, and the result of Gapping--

> (68) She called Jane a cab, and he a dog-cart.

--still has only two (again excluding obvious jokes). Similarly,
VP Deletion, as in

> (69) I wouldn't call her a cab, but George might.

excludes the crossed understandings.
    G. Lakoff 1970b has increased the stock of rule tests by
reference to identity transformations that yield pro-forms, in
particular a rule that gives so, as in

> (70) I called her a cab, and so did George.

to which we may add the rule that gives do so as a pro-form for
activity VPs--

(71) I called her a cab, but George wouldn't do so.

and some rule or rules generating the same (thing)--

(72) Margaret abhors Melvin's cooking, and the same
        (thing) goes for Selma and Sherman.
(73) Yesterday my best friend was denounced as a
        Bloomfieldian counterrevolutionary, and today
        the same (thing) happened to me.
(74) This morning my sister sold her self-portrait,
        and this afternoon I did the same (thing).

It is important to note that the identity tests support the other
tests, in the sense that they never predict lack of specification
when other tests predict ambiguity. In certain instances the
identity tests seem more stringent than other tests; these are
treated in section 2.3 and the appendix. We continue our discussion
of the identity tests in section 2.1 below.

1.4. Pragmatic tests.
    A limitation on the use of the identity tests for ambiguity
arises from the possibility that some crossed understandings are
excluded by virtue of pragmatic, rather than semantic, considerations.
Let us consider an example in some detail.
    Heinämäki's recent treatment of before clauses like the one in

(75) John shut up before Harry got mad at him.

tries 'to show that the context determines which one--the before-
clause or its negation--is understood to be a valid inference'
(Heinämäki 1972:140), without taking a stand on whether the two
understandings of (75) are distinct in semantic representation. An
identity test seems to indicate ambiguity:

(76) John shut up before Harry got mad at him, and
        so did Chuck.

doesn't allow the crossed understandings (in which Harry didn't
get mad at John but did at Chuck, or the reverse). However, as
Richmond Thomason has pointed out to us, it might be the case that
there is only one before in semantic structure, and that this before
is usable in two different classes of contexts, being roughly
paraphrasable by and then in one class of contexts, by and so...not
in the other. Thomason also points out that there is a testable
difference between the pragmatic account and the semantic one: in
the pragmatic account, the crossed understandings should be absent
in the unreduced sentences.[24] The question is then whether sentences
like

(77) Mary shut up before Bill left, and Jane shut up
        before Harry got angry; Bill left, and Harry
        didn't get angry.

are anomalous or not. Our own judgment in this case is that (77) is no more anomalous than sentences like

> (78) Julia declined a cocktail, and then Iris declined
>   an irregular verb.
> (79) Stan croaked [like a frog], and then Ollie croaked
>   [died].25

which have two homophones, differently understood, in close proximity. Presumably the difficulty in obtaining the crossed understandings in such cases has to do with psychological set and not with differences in contextual conditions; this view is supported by the fact that the anomaly of examples like (78) and (79) can be alleviated by supplying a previous discourse favoring the crossed understandings, e.g., for (79):

> (80) Stan has often amused us with his imitations of
>   animals. Unfortunately, Ollie had both a weak
>   heart and a violent fear of frogs and toads.
>   Stan croaked, and then Ollie croaked.

The same is true of (77):

> (81) Bill announced that he was about to leave, and Harry
>   said that he'd be furious if Jane didn't shut
>   up. Mary shut up before Bill left, and Jane
>   shut up before Harry got angry; Bill left, and
>   Harry didn't get angry.

We cannot conclude that there are no cases for which a pragmatic account of non-crossing is correct--only that (76) seems to require a semantic account.

One way in which pragmatic considerations certainly do eliminate crossed understandings is in the application of transformations requiring identity of reference, as Conjunction Reduction does for definite NPs. Both (3) and (63) can be understood as referring to a younger sister or an older sister; the reduced conjunction (64) does not allow an understanding in which a younger sister is the Ruritanian Secretary of State and an older sister a prominent composer, or the reverse. Non-crossing here follows from the fact that Conjunction Reduction requires identity of reference for the two occurrences of my sister. The pragmatic reflex of this requirement is that the two occurrences of my sister must be understood as referring to the same person in every context in which (64) is appropriate; consequently, the two occurrences cannot have different properties.

2. Identity tests for ambiguity.

2.1. Introductory remarks.

In the recent literature (following G. Lakoff 1970b) identity tests have been much used to decide cases for which other tests for

ambiguity are inapplicable or unclear.[26, 27]   Thus Lawler 1972:250
argues from identity tests that

> (82) Ken drives a truck.

is ambiguous, not vague, between a habitual and an occupational
reading, while Green 1972:92 argues that

> (83) Miranda hammered a coathanger.

is vague, not ambiguous, with respect to whether the resultant state
is flatness or straightness.

There are still other cases where the identity tests bear on
the truth of some unobvious claims. For instance, Dahl 1972
maintains that sentences like

> (84) Bill loves his wife, and so does Harry.

are not ambiguous between an understanding in which Harry loves his
own wife and one in which he loves Bill's wife (as all other writers
on the subject have assumed). However, the position that (84) is
unspecified is not verified by identity tests:

> (85) Bill loves his wife, and so does Harry, and the
>   same thing goes for Sam and Mike.

has several understandings, but not one in which Harry loves Bill's
wife while Sam and Mike each love their own, nor one in which Bill
and Harry each love their own wives while Mike loves Sam's. These
crossed understandings should be possible if (84) were unspecified.

There are other cases where application of identity tests yields
no significant results. Lakoff and Peters 1969 analyze both

> (86) John and Martha left.
> (87) John and Martha are married.

as ambiguous between sentential conjunction and phrasal conjunction,
the latter corresponding to sentences like

> (88) John left (together) with Martha.
> (89) John is married to Martha.

respectively. David Dowty, Larry Martin, and Carlota Smith have
suggested to us that identity tests indicate that (86) is unspecified
and (87) ambiguous:

> (90) John and Martha left, and so did Dick and Pat.
> (91) John and Martha are married, and so are Dick and Pat.

According to them, (90) allows the crossed understandings, (91) does not.

But it seems to us that the crossed understandings are available
for (91) as well, since anyone who is married is married to someone.
Similarly, it is not surprising that (90) can have crossed under-
standings, since anyone who has left together with someone has left,
and the fact that someone has left does not exclude the possibility
that he left together with someone. We are dealing here with
privative oppositions, so that no matter what the linguistic state
of affairs, by applying identity tests we will always conclude that

we are dealing with a lack of specification; the existence of the
less specific understanding guarantees that we will get all possible
understandings.

The same is true of other cases of privative oppositions.
Consider the sentence

(92) I saw a dog, and so did Harold.

as a relevant datum bearing on the putative ambiguity of

(93) I saw a dog.

Now (92) is to be derived by an identity-of-sense transformation
from

(94) I saw a dog, and Harold saw a dog.

which has four understandings in which the phrase a dog is understood
to be nonspecific:[28]

(95) I saw a dog, and Harold saw a dog.		UNDERSTANDING #
+MALE	+MALE	1
+MALE	no gender indicated	2
no gender indicated	+MALE	3
no gender indicated	no gender indicated	4

The identity-of-sense condition on so should eliminate understandings
2 and 3. But how can we tell? Even if we have strong intuitions
about what (92) and (94) say, how could we elucidate these intuitions
to someone who doesn't share them, or is puzzled about them? No
appeal to contexts will help, because every context in which the
crossed understandings (2 and 3) are appropriate is also a context
in which the parallel understanding 4 is appropriate. Therefore, we
can't test the possible understandings of (92)--or (94), for that
matter--by supplying a context that forces one of the crossed under-
standings, as we did in the discussion of (61)-(62) and (75)-(76); if
we eliminate the parallel understandings, we also eliminate the
crossed understandings.

Yet another example involves verbs that may be understood
factively, but are not necessarily so understood (Kiparsky and
Kiparsky 1970:163). If someone hypothesizes that a sentence like

(96) The police reported that the culprit had fled.

has a factive understanding and an understanding with no commitment
as to factivity, we cannot use identity tests to support or to
attack the hypothesis; the factive understanding implies the other.

In fact, ambiguities involving privative opposites will be
extremely difficult to argue for with any syntactic test. Intersection-
of-pattern arguments will be very hard to come by, since we will need
not only a diagnostic element with a distribution that is syntactically
constrained in part, but also one constrained semantically to occur
only with items having the more general understanding; a restriction
to occurrence with the more specific understanding would not be
detectable, since any sentence with the more specific understanding

is consistent with the more general understanding. Thus, in the case of dog we would need an element constrained to occur only with nouns whose gender is not indicated (person, lion, friend, neighbor, and the like) and nouns with one semantic representation in which gender is not indicated (dog, goose, duck, and so on), and constrained syntactically in addition. Much the same is true for transformational potential tests other than those using identity of sense: we would need a transformation whose applicability depended upon the occurrence of the more general understanding, hence which applied only to structures that lacked indication of the value of some semantic feature. It isn't clear that there are any such transformations, or even that these are any diagnostic elements with the required sort of distributional restriction.

In contrast, a very promising area for the application of identity tests is that of illocutions and perlocutions. For the purposes of the following discussion, we will use the term illocution to refer to those speech-act types that are distinguished in the semantic representations of a particular language. It follows that one of the ways in which languages can differ is in their sets of illocutions, and this seems to be so. For any particular language, our task is to decide what its illocutions are and how they are realized in terms of linguistic form. Some illocutions will have forms unique to them, like the English reduced sentences that are unambiguously suggestions:[29]

(97) Why not move to Chicago?
(98) How about giving yourself a treat?

Much more commonly, however, the surface forms of different illocutions will coincide in part, and we are confronted with the problem of deciding which sentences are illocutionarily ambiguous and in what ways. This problem is made more difficult by the fact that a given sentence will have many different understandings, as far as its possible uses are concerned, but that only some of these require representation in semantic structure. Those uses which do not require representation we term perlocutions.[30] We now turn to an examination of the properties of perlocutions with respect to identity tests.

2.2. The unexceptional perlocutions.

We wouldn't expect identity tests to be sensitive to perlocutions, since these effects (or the intention of the speaker to accomplish them) are not part of the semantic representations of sentences. In most cases this expectation is fulfilled. Suppose, for example, that the assertion that Bill dated Martha would surprise an addressee in some circumstances. Then in these circumstances, the same addressee would be surprised by any of the following sentences:

(99)   Bill dated Martha and so did Harry.
(100) Harry dated Martha and so did Bill.
(101) Bill and Harry dated Martha.
(102) Harry and Bill dated Martha.

      (103) Bill dated Martha and Harry Cynthia.
      (104) Harry dated Cynthia and Bill Martha.

Notice in particular that the surprisingness of the assertion that
Bill dated Martha is entirely independent of whether or not the
other conjunct is surprising. That is, the crossed understandings
are available regardless of what reduction rules have applied.
Observe also that a speaker might intend either one, or both, or
neither of the underlying conjuncts in the sentences above to be
surprising, so that the crossed understandings having to do with
the speaker's intentions are available as well.

    Many other typical perlocutions share this behavior. Thus,
either of the conjuncts in (99)-(104) can be intended to mislead
and could succeed in misleading. In a suitable context any conjunct
in (99)-(104) could amaze, please, offend, or hurt the addressee,
make the speaker seem petty, forthright or ridiculous. In all of
these cases the reduction tests give believable results: sentences
are not many-ways ambiguous as to perlocutionary intent or effect;
they are unspecified.

2.3. The exceptional perlocutions.

    In isolation, any strong assertion is open to both a literal
and a sarcastic understanding; the stronger the assertion, the more
plausible the sarcasm. Thus

        (105) Grobman is a real genius.

can be used to convey something on the order of

        (106) Grobman is a complete idiot.

Now consider the following sentences:

        (107) Grobman is a real genius, and so is Chomsky.
        (108) Grobman and Chomsky are real geniuses.
        (109) Grobman is a real genius and Verhalt an absolute
              prince.
        (110) Grobman and Verhalt are a genius and a prince,
              respectively.

The second conjunct in (107) and (108) has been chosen so that the
sarcastic understanding is far-fetched. The result is that the
first conjunct cannot be understood sarcastically either. In (109)
and (110), where we have no special prejudices which could influence
the understanding, the conjuncts may be literal or sarcastic. But
both must be literal or both sarcastic; the crossed understandings
do not exist. According to the identity tests, then, we must adjudge
the difference between a literal and a sarcastic understanding as an
ambiguity. This result it tantamount to the problematic claim
that the noun genius (and all similar lexical items) is ambiguous
between an understanding 'exceptionally intelligent individual'
and an understanding 'exceptionally stupid individual'; compare the

discussion of <u>brilliant</u> in section 1.2.3.

Let us consider metaphor next.

(111)   Irving has jumped into a pit of alligators.

could be used to signify something on the order of the literal sense of

(112)   Irving has embarked on a dangerous course of
        action.

Now with this metaphorical interpretation, notice that only a parallel metaphorical understanding is available for the second underlying conjunct in any of the following sentences:

(113)   Irving has jumped into a pit of alligators and
        so has Gebhardt.
(114)   Irving has jumped into a pit of alligators and
        Gebhardt has too.
(115)   Irving and Gebhardt have jumped into a pit of
        alligators.

Thus the reduction test informs us that the metaphorical sense of the first conjunct is one pole of an ambiguity. But there is no obvious bound on the number of metaphorical uses of a given sentence, so the identity tests tells us that every potentially metaphorical sentence is infinitely ambiguous.[31]

Similarly, the following sentence cannot be taken as a non-literal insult followed by a serious assertion:

(116)   Your father drives a semi and so does your
        brother Mark.

Nor is there any understanding of

(117)   The Polish Academy of Sciences just announced the
        first successful appendix transplant and so
        did the Bulgarian Academy of Sciences.

in which the first conjunct is a joke while the second is a statement of fact.

(118)   ?There are about a million students in my
        introductory class and about a half million
        people in Greater Winnipeg.

is likewise odd unless the first conjunct expresses a reasonable estimate of the size of the class. And finally,

(119)   ?Alfred eats like a horse and so do zebras.

can only be taken as indicating that Alfred is a grazing animal or

something of the kind. These examples illustrate that insults,
jokes, exaggerations, and similes work like metaphor in limiting
the understanding of subsequent reduced conjuncts.

Several of these perlocutions share an additional behavior
with respect to the identity tests, a behavior that makes it
certain that the tests need revamping: if the first conjunct is
understood literally, a second reduced conjunct may be understood
nonliterally. That is, for several of these perlocutions, an
identity test yields neither the straightforward result that the
difference in understanding is an ambiguity (two understandings),
nor that it is a lack of specification (four understandings).
Instead, there are three understandings. To see that this is so,
consider again example (116). This sentence can certainly be
understood as a serious assertion of the beliefs or as a double
insult. In the latter case it could be felicitously uttered when
the speaker does not believe that either person in fact drives a
semi. As has already been pointed out, (116) doesn't have an
understanding in which the first conjunct is nonliteral but the
second conjunct is literal. But if the speaker of (116) believes
that the addressee's father does indeed drive a truck and that the
addressee knows he believes this, he could well intend the second
conjunct to be understood nonliterally as an insult. The first
conjunct, the literal one, would serve to soften the addressee up
for the blow of the second, nonliteral, conjunct.

One totally unacceptable interpretation of the fact that some
reduced sentences have three understandings would involve the claim
that the range of ambiguity of underlying clauses is partially
dependent on whether they are first or second conjuncts. Such a
conclusion could be accommodated in a generative grammar only by
means of a novel sort of semantic well-formedness constraint.

2.4. <u>An interpretation of the facts.</u>
It is clear first of all that there is a property shared by
all of the anomalous perlocutions which distinguishes them from the
perlocutions that behave in the expected manner. The anomalous
perlocutions involve a suspension of a fundamental principle of
conversation: the sincerity principle (Grice's supermaxim of
quality: 'Try to make your contribution one that is true'). Joking,
irony, sarcasm, metaphor, simile, and nonliteral insults all involve
the speaker's saying something he does not literally mean.[32]
Furthermore, the speaker wants the addressee to <u>recognize</u> that he
is not speaking sincerely. In contrast, the unexceptional
perlocutions either require no suspension of the sincerity principle
(as in pleasing, shocking, offending, etc.) or else involve the
speaker's concealment of a suspension (as in misleading, lying,
some flattering, etc.).

The fact that the speaker wants the addressee to recognize his
insincerity can help to explain why the anomalous perlocutions can
be signalled nonlinguistically by winks, jabs in the ribs, and so
on. There is also a tendency for these perlocutions to become
partially conventionalized in the forms of the language--that is,

for them to become illocutions. Thus a dialect of American English
which employs nasalization to indicate sarcasm has been reported.[33]
Similarly, it is possible to mark an utterance as a joke by putting
on a W. C. Fields or Groucho Marx accent. In English and Russian,[34]
literal comparisons can be distinguished from similes.

> (120) He eats like a bear does.
> (121) On jest kak medved'.

can only be literal, whereas

> (122) He eats like a bear.
> (123) On jest medvedem.

can also be exaggerated similes. Of course when these intentions
become codified, the original effect is weakened or lost. A joke
is better if told with a straight face, and sarcasm is more biting
if the pretense of seriousness is maintained. Hence there is also
a tendency for differences between the literal and nonliteral inten-
tions to disappear. Note that there is no form in English or Russian
that signals that an utterance is to be taken as a nonliteral simile.
Now observe that the ways of understanding (103)-(105) are just
those available for the unreduced sentence

> (124) Irving has jumped into a pit of alligators, and
>   Gebhardt has jumped into a pit of alligators.

The same is true for examples involving the other exceptional
perlocutions. In each case, the absence of one crossed reading is
a pragmatic phenomenon, not a semantic one; recall the earlier
discussion (section 1.4) of Thomason's suggestion. That is, identity
tests for ambiguity are irrelevant for cases like (103)-(105). But
why should the anomalous perlocutions--those involving the suspension
of the sincerity condition and an intent on the part of the speaker
that this suspension be recognized--fail to have one crossed under-
standing in examples like (124)?
A plausible line of explanation is the following. Once a
conversational principle has been violated, the hearer has no way
of telling when the rule will be back in force and tends to assume
that the violation will continue for some time. Thus, the violation
persists through some stretch of discourse. For certain conversational
principles, those concerning politeness, for instance, the span of
violation is considerable. Once a speaker has failed to 'keep his
distance', he cannot easily resume a polite stance. Consequently,
once he has asked a personal question, it is strange for him to use
the formula if you don't mind my asking to introduce another personal
question; he has already been presumptuous:

> (125) A. How much did that dress cost?
>   B. Twenty dollars.
>   A. ?If you don't mind my asking, where did you
>   buy it?

Note that the same questions, but with the formula first, are in no
way odd:

(126) A. If you don't mind my asking, how much did
              that dress cost?
        B. Twenty dollars.
        A. Where did you buy it?

The same persistence effect explains why the unreduced example
(124) lacks the crossed understanding metaphor-literal statement,
and why

(127) There are about a million people in San Antonio
           and there are about a million people in my
           introductory class.

lacks the crossed understanding hyperbole-literal statement, and why

(128) ?There are about a million people in my
           introductory class and there are about a
           million people in San Antonio.

is odd.

The anomalous perlocutions, then, do not provide true exceptions
to the identity tests for ambiguity; their properties seem to follow
from their nature and from the pragmatic considerations sketched
above.

Appendix. Intentionality and identity tests.

The problem of intentional versus nonintentional understandings of sentences like

     (129)   John cut his arm with a knife.
     (130)   John hit the wall.
     (131)   Bruce stumbled coming down the stairs.

is considered by G. Lakoff 1970b, who argues for an ambiguity by applying the identity test with _so_;

     (132)   John cut his arm with a knife and so did Harry.
     (133)   John hit the wall and so did Harry.
     (134)   Bruce stumbled coming down the stairs and so
            did Herb.

are said by Lakoff to lack both crossed understandings. He cites one language, Cupeño, that appears to distinguish intentional from nonintentional understandings by morphological means, thus offering the defense that the differentia between the understandings of (129) -(131) is not implausible (compare the discussion in section 1.2.1). Lakoff's conclusion has been disputed by Catlin and Catlin 1972.

There are several difficulties in these discussions. First, there is some terminological confusion; the terms _intentional_ (versus _nonintentional_ or _unintentional_), _volitional_ (versus _nonvolitional_), and _purposive_ or _purposeful_ (versus _nonpurposive_ or _accidental_) have been used by one writer or another. But these words do not mean quite the same thing in English, and it is not clear which of them, if any, correctly describes the difference between the understandings of (129)-(131).

Second, it is hard to tell how the negative terms are to be understood: do they indicate polar oppositions or privative oppositions? Both Lakoff and the Catlins seem to take the former position, but without any argument on the point. Note that in the latter position the identity tests would be inapplicable, as we pointed out in section 2.1.

Third, it is not obvious that the differences in understanding exhibited by (129)-(131) are a matter of intention alone. Sentence (130), for example, might be claimed to exhibit two different understandings of the subject (_John_ versus _John's body_), a difference in agentivity, a difference in the sense of _hit_, or a difference in deleted adverbials (_with his fist_ versus _with his body_, or either of these versus no adverbial element in semantic structure). Sentence (130) might, in fact, have more than two readings in semantic structure. One possibility, based on analyses in Dowty 1972:ch. 5, is that (130) has three semantic representations[35]--intentional agentive, nonintentional agentive, and nonagentive. In the intentional agentive understanding, John intends to hit the wall and accomplishes this; in the nonintentional agentive understanding, John intends to act, but doesn't necessarily intend to hit the wall; in the nonagentive understanding, John doesn't necessarily intend to act. Note

that the distinction between intentional and nonintentional agentives,
as well as the distinction between agentives and nonagentives, is a
privative rather than a polar opposition, so that identity tests
will not be applicable.

Fourth, different speakers give somewhat different judgments
on the ways in which sentences like (129)-(131) can be understood.
Catlin and Catlin claim that the two understandings of (129), like
those of (130) correspond to two quite different physical acts,
'John's nicking his arm while peeling potatoes versus gouging his
arm to the bone' (507). Our own feeling is that the difference in
the actions doesn't correlate at all with intentionality, that (129)
has all four possible understandings.

Furthermore, on reductions with so, the Catlins disagree
directly with Lakoff, who claims that (132) 'can involve two pur-
poseful, or two accidental, cuttings. But (132) cannot mean that
John accidentally nicked his arm (while slicing potatoes) and Harry
purposefully slashed away at his, nor the reverse' (359). The
Catlins say that in (132), Harry 'in a particularly violent episode
of sleep-walking can have nonvolitionally...cut his arm with a
knife, in a manner sufficiently similar to John's parallel intentional
actions that the conjunction with so + Aux is perfectly acceptable'
(507). The question is then whether sentences like

(135) ?John, intended to commit suicide, cut his arm
with a knife, and so did Harry, who accidentally
ran into a bread knife while sleepwalking.

are peculiar because they involve an internal self-contradiction.
Our own acceptability judgment on (135) is that it merits at
best a question mark. Lakoff should reject it, the Catlins accept
it, given their respective positions on (132). Our opinion of the
other crossed understanding is the same:

(136) ?John, accidentally running into a bread knife
while sleepwalking, cut his arm with a knife,
and so did Harry, who tried to commit suicide.

is quite peculiar.

Fifth, different identity tests give different results. Identity
tests using deletion appear to be more stringent than those using
so and do so, since the crossed understandings of

(137) John and Harry (both) cut their arms.
(138) John cut his arm, and Harry his leg.

are quite impossible for us.

Sixth, different examples have different properties. Example
(129), for which both crossed understandings are peculiar, contrasts
with (131). We agree with the Catlins that (134) may report a
situation in which 'Bruce may have drunk too much to make his way
down a flight of stairs without mishap. Herb wants to demonstrate

how clumsy Bruce looked coming down the stairs and repeats Bruce's
performance, this time stumbling on purpose' (506). Thus,

> (139) Bruce, the drunken oaf, stumbled coming down
>   the stairs, and so did Herb, who was cruelly
>   making fun of Bruce.

isn't odd. But the other crossed understanding is much more
difficult:

> (140) ?Bruce, illustrating how he portrayed a drunk
>   on stage, stumbled coming down the stairs,
>   and so did Herb, who was so interested in the
>   demonstration that he wasn't looking where
>   he was going.

is somewhat odd.

The difference between (129) and (131) can be accounted for
if (as David Dowty has suggested to us) stumble on purpose is
treated as a nonliteral phrase. If the meaning of stumble
specifically involves lack of intention, then stumble on purpose
ought to be a much odder phrase than cut on purpose, and using it
should require some extension of the literal sense of stumble.
Certainly it is odder. Its nonliteral character is indicated by
the oddness of the unreduced sentence corresponding to (140):

> (141) ?Bruce, illustrating how he portrayed a drunk on
>   stage, stumbled coming down the stairs, and
>   Herb, who was so interested in the demonstration
>   that he wasn't looking where he was going,
>   stumbled coming down the stairs.

That is, saying stumble on purpose is a sort of temporary redefinition
of stumble; this temporary redefinition shows the same properties
as the other exceptional perlocutions discussed in section 2.3.

The difference between deletion rules and pro-formation rules
is general and has a plausible explanation. Consider the exceptional
perlocutions of section 2.3--hyperbole, for instance. The unreduced
sentence

> (142) Astorville has about a million people in it,
>   and Penntown has about a million people in it.

can be understood as two literal statements, two exaggerations, or
a literal statement followed by an exaggeration. A pro-formation
rule applied to (142) yields a surface sentence with two VPs and
having the same three understandings as (142):

> (143) Astorville has about a million people in it,
>   and so does Penntown.

A deletion rule applied to (143), however, yields a surface sentence
with only one VP:

(144) Astorville and Penntown (each) have about a
       million people in them.

To obtain the crossed understandings, a hearer must perceive a
single occurrence of the VP have about a million people in it as
both literal and nonliteral, which is, of course, d fficult. This
perceptual difficulty óccurs in (137) and (138) as well.

The difference between speakers is harder to account for.
Perhaps different speakers have somewhat different sets of semantic
interpretations; such variation has been attested for other
constructions in English. However, this difficulty is overshadowed
by the problem of determining exactly what the readings of (129) and
(130) are for any particular speaker. If the suggestion above is
correct for (130), there are more interpretations than Lakoff and
the Catlins give, and identity tests will shed no light on the
subject. In any event, the discussion by Lakoff and the Catlins is
quite inconclusive, and new sources of syntactic evidence are needed
to decide the issues.

Footnotes

*This is a considerable revision and expansion of 'Failing the
Ambiguity Test', read before the Linguistic Society of America at
Ann Arbor, Michigan, in August 1973. During 1972 and 1973 versions
of parts of this paper were presented to several audiences at the
Ohio State University, the University of Chicago, the University of
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Sciences Board.

1. Most of what follows applies equally to underlying (or deep)
syntactic representation and to semantic representation. Consequently,
the discussion below uses only one term, semantic representation
(also known as semantic structure, (semantic) interpretation,
(semantic) reading, semantic description, logical representation,
logical form, logical structure, sense and meaning by various writers).
When a distinction might be important, there is brief discussion in
a note.

2. The term ambiguity is used here only in this sense. For
a survey of the variety of applications of the terms ambiguity and
vagueness, see Binnick 1970.

3. For the distinction, compare the discussion of ambiguity
in Katz 1972:59-63, in response to Weinreich.

4. The following discussion uses the term unspecified
throughout.

5. This useful example is due to Dennis Stampe, with the collaboration of Thomas Patton.

6. Sections 1.2.1, 1.2.3, 1.3, and 2.1 are based upon section 2 of Zwicky (to appear).

7. To argue for a difference in semantic representations is also to argue for a difference in underlying syntactic representations, in some (but not all) theories of grammar. If it is possible for a single underlying syntactic representation to correspond to two or more semantic representations, by virtue of rules relating the former to the latter, then an argument for a difference in semantic representations will not necessarily count as an argument for a difference in underlying syntactic representations. There might, for instance, be a rule saying that every underlying syntactic representation of type X corresponds to semantic representations of types X' and X". In theories that countenance such interpretive rules, only syntactic tests are truly decisive.

8. From here on the count noun <u>understanding</u> as a neutral term to cover both those elements of 'meaning' (in a broad sense) that get coded in semantic representations and those that do not. Each understanding corresponds to a class of contexts in which a linguistic expression is appropriate-- though, of course, a class of contexts might correspond to several understandings, as in examples like <u>Someone is renting the house</u> (courtesy of Jerry Morgan).

9. The assumption referred to here is the <u>substance principle</u>, discussed in Zwicky 1971.

10. There is more to be said here. A particular systematic lack of specification might involve the product of several distinctions, of course (right-handed younger sister vs. left-handed older sister in (3), for instance). Also, the reference to 'simple' distinctions presumes at least a rough classification, on the part of linguists, of the universe of meaning distinctions.

11. Plausibility of lack of specification is treated by Richman 1959 as the sole (and rather unsatisfactory) criterion of ambiguity:

> The dispute over [a general term] T's ambiguity arises presumably because that T denotes can be divited into two (or more) classes, α and β, with defining character-istics ϕ and ψ respectively. The question of the ambiguity of T turns on the question of whether or not α and β are sub-classes of a larger class, or of whether ϕ and ψ have some characteristic in common. The obvious answer that α and β are sub-sets of $\alpha V \beta$, or that ϕ and ψ share the characteristic '$\phi V \psi$' is not intuitively satisfactory. The question is this, are ϕ and ψ <u>sufficiently alike</u> (in some unspecifiable way)? If they are, T is unambiguous; if not, not. (91f.)

12. For ease of exposition here, we make the simplifying assumption that understandings can be compared by means of binary semantic features.

13. '<u>Privative Oppositionen</u> sind solche, bei denen das eine Oppositionsglied durch das Vorhandensein, das andere durch das Nichtvorhandensein eines Merkmales gekennzeichnet sind' (Trubetzkoy 1958:67).

14. Some speakers will have difficulty in accepting (11), because of the repetition of the word dog with two different meanings. Compare the discussion of psychological set in section 1.4.

15. The question mark (here and throughout this paper) indicates an anomaly other than ungrammaticality, in particular internal contradiction or inappropriateness.

16. Implausible differentiae and inconstancy of substitution are the methods used by Alston 1971:38-42 to distinguish different senses of run. Alston's treatment includes a nice discussion of the way in which these arguments depend upon a systematic development of the semantics of a language, and of how they can nevertheless be used (provisionally) in the absence of a fully developed semantics.

17. Thus, That was an excellent idea has only one of the understandings of (23), You wagered it's cold only one of the understandings of (24), and How come you don't feed the emu? only one of the understandings of (25). The ambiguity of (26) is supported by reference to other sentences with interrogative form, some of which have paraphrases lacking one of the understandings of (26) (true question vs. 'requestion'): Is it raining (please)?, Do you suppose it's raining (*please)?

18. Compare Leech 1970:269--
Many ambiguities will manifest themselves in separate
deep grammar representations for the same formal item.
The question of what ambiguities should be distinguished
in deep grammar is largely a question of the "economics"
of the total language description...All we assert by means
of [our definition of ambiguity as the 'condition of
one formal item satisfying more than one semantic
description' (29)] is that they have to be distinguished
in semantics.

19. Weinreich 1966: 404 remarks that
The typical examples of syntactic ambiguity are of a
'bifocal' kind, e.g. The statistician studies the whole
year or He left his car with his girl friend. That is
to say, if an insufficiently delicate subcategorization,
as in (9), were to be brought to a degree of

(9)

```
                    S
          ┌─────────┴─────────┐
         NP                   VP
          |            ┌───────┴───────┐
         He            V              NP
                       |         ┌─────┼──────┐
                    studied  Determiner Quant  N
                                  |       |    |
                                 the    whole year
```
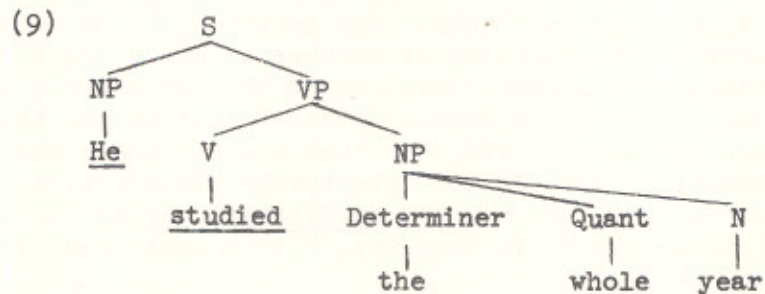
delicacy at which the ambiguity were to be exhibited, two interconnected revisions would have to be made: Verbs would have to be divided into transitive and intransitive, and NPs would correspondingly have to

be divided into objects, dominated by VP, are adverb-
like Temporals. The great rarity of unifocal
ambiguities in grammar--even in languages with very
poor morphology...--is itself an interesting comment
on the design of language. However, unifocal syntactic
ambiguities do exist, as do bifocal semantic ones.[18]
Footnote 18 cites She threw a ball and He arranged the music.

20. Unambiguous in the relevant respect. (28) is still
ambiguous, since it can be used to report habitual acts of sawing
birds, and (37) can also describe the (rather unlikely) escorting
of a duck into a cellar.

21. He also gives an argument from transformational potential
(section 1.3.3), based on the fact that the phrase on the boat
can be preposed only on one understanding of (36).

22. It may well turn out that the facts surrounding the
distribution of prenominal genitive adverbials deserve a trans-
formational account. The restriction may turn out to be one on
a rule of grammar which produces the genitives from adverbial
source structures. But from the point of view of methodology--which
is the main concern of this paper--simply the distribution of these
adverbials relative to understandings can be used in sound arguments
for the existence of syntactic ambiguity, without commitment to any
specific analysis of the relevant phenomena.

23. The discussion of phrasal conjunction in Lakoff and Peters
1969 uses Conjunct Movement in just this way.

24. A similar point is made by Dieterich 1973.

25. This sentence must be read with full stress on the second
occurrence of croaked. Destressing repeated occurrences of a
lexical item is itself an identity-of-sense transformation.

26. We discuss Lakoff's cases and the response to them by
Catlin and Catlin 1972 in an appendix; the phenomena are much more
complex than would appear from this exchange.

27. An interesting question which will not be pursued here
is why identity tests work as well as they do in distinguishing
ambiguity. There is no obvious reason why at least some reductions
could not take place blindly and subsequent to the falling together
of two source structures. In such cases, the tests would fail to
reveal genuine ambiguities.

28. For ease of exposition we disregard the specific under-
standings of (92)-(94).

29. These examples are to be read without contrastive or
emphatic stress. The main stress in (97) falls on Chicago, in (98)
on treat. With stress on not and about, respectively, the examples
are both ambiguous between suggestion and question.

30. We adopt this terminology as the simplest for our purposes
here. In Sadock ms., following L. J. Cohen and others, perlocution
is used as a general term encompassing illocutions.

31. There is a way out of this trap. It could be claimed
that the ambiguity the identity test leads us to postulate between
a literal and a metaphorical intent does not involve the specific

interpretation of the metaphor in question but only the <u>fact</u>
that the sentence is to be taken metaphorically. That is, one
might claim that one of the literal senses of example (111) is
accurately captured by a paraphrase such as <u>Metaphorically speaking</u>,
<u>Irving has jumped into a pit of alligators</u>.

    32. Compare Austin 1961:45--

    When we make an assertion such as 'There is a goldfinch
    in the garden' or 'He is angry', there is a sense in
    which we imply that we are sure of it or know it
    ('But I took it you <u>knew</u>', said reproachfully), though
    what we imply, in a similar sense and more strictly,
    is only that we <u>believe</u> it.

Searle 1969:57 treats sincerity as one of the 'normal input and
output conditions' on utterances.

    33. By R. Lakoff in oral presentations.

    34. For English see Morgan 1972. The Russian examples were
pointed out to us by William Daniels.

    35. Dowty's arguments do not carry over directly to (130),
since they concern the understandings of accomplishment verbs with
<u>by</u>-phrases.

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Comparative Simplification

Michael L. Geis

In an unpublished paper (Geis ms.), I argued that there is
a systematic transformational relationship between sentences like
(1) and (2) that contain adverbial occurrences of earlier than and
later than and sentences like (3) and (4) that contain adjectival
occurrences of these comparatives.

(1) John left earlier than Sue did.
(2) John arrived later than Sue did.
(3) John left at a time that was earlier than the
       time at which Sue left.
(4) John arrived at a time that was later than the
       time at which Sue arrived.

I further argued that the rule that relates (1) and (2) to (3) and
(4), respectively--a simplification (SIMP) rule that deletes the
underlined elements of (3) and (4)--must have a global derivational
constraint imposed on it. The results of this paper were briefly
presented by Lakoff 1970 in support of his contention that global
constraints are required to account for a wide range of phenomena.
    Baker and Brame 1972 have since argued that there is a simpler
description of sentences like (1) and (2) than that suggested above,
one that does not require postulation of a global constraint. In
this paper, I shall present a strengthened version of my original
argument, as well as provide additional evidence in support of it,
and then go on to point out some major difficulties with the analysis
provided by Baker and Brame.

I.

    Sentences like (1) and (2) which contain adverbial occurrences
of earlier than and later than (adverbial time comparatives or
AdvTC) differ from sentences like (3) and (4) which contain adjectval
occurrences of these comparatives (adjectival time comparatives or
AdjTC) in that AdvTC are unacceptable if their main and subordinate
clauses have different verbs, while AdjTC are acceptable. Sentences
(5)-(8) illustrate this difference.

(5) *John left earlier than the volcano erupted.
(6) *John arrived later than Sue's party ended.
(7) John left at a time that was earlier than the time
       at which the volcano erupted.

> (8)   John arrived at a time that was later than the
>   time at which Sue's party ended.

These data might appear at first to be evidence against the
hypothesis that there is a systematic transformational relationship
between AdvTC and AdjTC. However, I shall demonstrate that a
proper formulation of the constraint responsible for blocking
derivations of AdvTC like (5) and (6) actually requires that AdvTC
be derived from AdjTC.

   To account for the fact that (7) and (8) are unacceptable, we
might, as a first approximation, impose constraint A on derivations
of AdvTC.

> (A)   The main and subordinate clauses of any AdvTC
>   must each contain an occurrence of the same
>   verb.

Note, however, that sentences (1) and (2) do not satisfy A, but are
nevertheless acceptable. This problem can easily be resolved, of
course, if we assume that (1) and (2) are derived from (9) and (10),
respectively, by an application of VP deletion and assume that
constraint A applies prior to the application of this deletion rule.

> (9)   John left earlier than Sue left.
> (10) John arrived later than Sue arrived.

   Although constraint A will account for the simplest cases of
AdvTC, it is clearly too weak to account for certain more complex
cases. Note, for example, that (11)-(14) satisfy A but are
unacceptable.

> (11) *John <u>left</u> earlier than the girl who <u>left</u> died.
> (12) *John <u>left</u> later than we made the claim that he
>   would <u>leave</u>.
> (13) *John <u>left</u> later than Sue suggested that for
>   Harry to <u>leave</u> would be a crime.
> (14) *John <u>left</u> earlier than we knew that Bill <u>left</u>.

The comparative clauses of (11)-(14) do not have a greal deal in
common: the subordinate occurrence of <u>leave</u> is in a nominal
complement in (11), a relative clause in (12), a sentential subject
in (13), and the object complement of the factive verb <u>know</u> in (14).
However, there is one property that they share, namely that these
subordinate occurrences of <u>leave</u>--the only verb in the comparative
clauses of these sentences capable of satisfying constraint A--are
in constructions that constituents cannot be moved out of.
   Let us consider example (12) in some detail. Pairs like (15)
and (16) are very similar in meaning, but differ syntactically in
the important respect that the <u>that</u>-clause of (15) is within a
complex NP (cf. Ross 1967), while the <u>that</u>-clause of (16) is not.

(15) We claimed that John would leave.
(16) We made the claim that John would leave.

One consequence of this difference is that constituents of the that-clause of (15) can be moved out of this clause while constituents of the that-clause of (16) cannot. In this light, note that (17) is ambiguous while (18) is not.

(17) When did we claim that John would leave?
(18) When did we make the claim that John would leave?

In (17) when can be interpreted as modifying either claim or leave, for the time adverbial underlying when can have been moved to initial position from either clause of this sentence. In (18), on the other hand, when can be interpreted as modifying made the claim, but not leave, for Ross' complex NP constraint (CNPC) would block the movement of when (or, rather, the constituent underlying when) out of the clause containing leave, but not out of the clause containing made the claim.
     Now compare the unacceptable sentence (12) with (19).

(19) John left later than we claimed he would (leave).

In (19), the subordinate (deleted) occurrence of leave--the verb that satisfies constraint A--is not within a complex NP and the sentence is acceptable, but in (12), as we noted above, the subordinate occurrence of leave is within a complex NP and the sentence is unacceptable. This important difference between (12) and (19) can be exploited if we assume that AdvTC are derived from AdjTC, for in ths derivation of AdjTC, a time adverbial (cf. at which in (20) and (21)) is moved to clause-initial position.

(20) John left at a time that was later than the time
          at which we made the claim that he would leave.
(21) John left at a time that was later than the time
          at which we claimed he would leave.

Note that (20) is unacceptable if at which is interpreted as modifying leave, the only verb in the unacceptable AdvTC (12) that satisfies constraint A. On the other hand, (21) is acceptable if at which is interpreted as modifying leave, the only verb in the acceptable AdvTC (19) that satisfies A. Thus, we may conclude that a given AdvTC will be acceptable if, in the derivation of its corresponding AdjTC, at which can be moved out of the clause containing the verb that satisfies A.
     The above correlation between AdvTC and AdjTC can be captured if we assume that AdvTC are derived from AdjTC by SIMP and if we revise A along the following lines:

(B) SIMP may apply to a given AdjTC if and only if
         there exist a verb V_i in the main clause and a
         verb V_j in the subordinate clause such that

(a) $V_i = V_j$ and (b) <u>at which</u> originated in the
same clause in underlying structure as V_j.

Let us briefly see how B works. In AdjTC (20), we do have an
occurrence of the same verb in the main and subordinate clause.
Thus B(a) is satisfied. However, the subordinate occurrence of
<u>leave</u> in (20) cannot satisfy B(b), thanks to the CNPC. Thus, (12)
cannot be derived from (20). In the case of AdjTC (21) we
have verbs which satisfy both B(a) and (b). Thus (19) can be derived
from (21).

 The need to state B as a global derivational constraint is
clear. We must impose constraint B after <u>at which</u> has been moved to
clause-initial position in the derivation of AdjTC, if the CNPC is
to do its work. On the other hand, after <u>at which</u> has moved to the
front of a given AdjTC, it is impossible to determine what clause <u>at
which</u> came from unless we allow B to look back at some earlier stage
of the derivation of that AdjTC. I have chosen to have B look back
to underlying structure, but I have no compelling argument that it
must look back that far. However, it is certain that B must look
back to a stage in the derivation of AdjTC that precedes the movement
of <u>at which</u> to initial position.

 Returning to (11)-(14), we note that the deviance of (11), like
(12), is due to the CNPC. The AdjTC corresponding to (11), namely
(22), is unacceptable if <u>at which</u> is interpreted as modifying <u>leave</u>:

  (22) John left at a time that was earlier than the
     time <u>at which</u> the girl who <u>left</u> died.

A somewhat different explanation is required for (13) than that
given for (11) and (12), since Ross' sentential subject constraint
(SSC) is involved. The AdjTC corresponding to (13), namely (23), is
acceptable, but not if <u>at which</u> is interpreted as modifying <u>leave</u>:

  (23) John left at a time that was later than the time
     <u>at which</u> Sue suggested that for Harry to <u>leave</u>
     would be a crime.

In this case, <u>leave</u> occurs within the sentential subject of <u>would be
a crime</u> and the SSC blocks movement of <u>at which</u> out of the clause
containing <u>leave</u>, the only verb capable of satisfying B(b). Still
another explanation is required for (14), for its unacceptability
is due to the fact that constituents cannot be moved out of the
complements of factive verbs. Observe that the AdjTC corresponding
to (14), namely (24), is unacceptable if <u>at which</u> is interpreted as
modifying <u>leave</u>.

  (24) *John left at a time that was earlier than
     the time <u>at which</u> we knew that Bill <u>left</u>.

(Sentence (24) is also unacceptable if <u>at which</u> is interpreted as
modifying <u>know</u>, for reasons of no interest to us here.)

Although constraint B accounts for a wider class of AdvTC than does A, it is also too weak. Observe that (25) and (26) satisfy B, but are unacceptable nevertheless.

> (25) *The boy who <u>left</u> died earlier than Sue <u>left</u>.
> (26) *That Harry <u>left</u> upset me later than Sue <u>left</u>.

The explanation of the deviance of (25) and (26) is quite straight-forward. Note that (27) and (28), the AdjTC corresponding to (25) and (26),respectively, are acceptable, but not if <u>at a time</u> is interpreted as modifying the superordinate occurrences of <u>leave</u> in these sentences.

> (27) The boy who <u>left</u> died <u>at a time</u> that was earlier
>   than the time at which Sue left.
> (28) That Harry <u>left</u> upset me <u>at a time</u> that was later
>   than the time at which Sue left.

In order to account for (25) and (26), we need only revise B along the lines of C:

> (C) SIMP may apply to a given AdjTC if and only if there
>   exist a verb V_i in the main clause and a verb V_j
>   in the subordinate clause such that (a) $V_i = V_j$,
>   (b) <u>at which</u> originated in the same clause in
>   underlying structure as V_j, and (c) <u>at a time</u>
>   originated in the same clause in underlying
>   structure as V_i.

Constraint C(c) need not, of course, be formulated as a global constraint, but since C(b) must be so formulated, there is no harm in formulating C(c) in a similar way.

The focus of the above argument has been on a proper formulation of constraint A. However, we must not overlook the fact that the proper formulation of this constraint appears to require that we assume that AdvTC are derived from AdjTC, for only on this assumption can Ross' constraints on movement rules be exploited. In what follows, I provide additional evidence for this analysis.

Observe that (29) is self-contradictory.

> (29) *John was born earlier than he was (born).

Not surprisingly, the AdjTC corresponding to (29), namely (30), is also self-contradictory.

> (30) *John was born at a time that was earlier than
>   the time at which he was born.

The presence of the time adverbials in (30) is crucial to an explanation of the fact that it is self-contradictory. We can factor (30) into the three propositions of (31).

(31) a. John was born at t_i.
     b. John was born at t_j.
     c. t_i was earlier than t_j.

However, since John can only have been born once, t_i and t_j must be the same time, but t_i cannot both be earlier than t_j and the same as t_j.

Since (29) contains no time adverbials, we cannot account for (29) in the way that we accounted for (30)--unless, of course, we derive AdvTC from AdjTC. But it would not be rational to provide different explanations for the fact that (29) and (30) are self-contradictory. Consideration of a more complicated case will drive this point home.

As we noted earlier, if the verb in the comparative clause of any AdvTC which satisfies C(a) is in the complement of a factive verb, the AdvTC will be unacceptable. This is the case with (32).

(32) *John was born earlier than we knew he was.

Sentence (32) not only violates constraint C, it, like (29) and (30), is also self-contradictory, a property not normally associated with violations of C. Now, suppose we were to claim that what is wrong with (29) is that it asserts that the state of affairs 'John was born' obtained earlier than the state of affairs 'John was born'. Such an explanation is reasonable and does not require reference to the presence of time adverbials. However, this ploy will not work for (32), since there is no conflict in saying that the state of affairs 'John was born' obtained earlier than the state of affairs 'we knew that John was born'. On the other hand, if we factor (32) into the three propositions of (33), i.e. if we derive AdvTC from AdjTC, we can account for the unacceptability of (32) in a straight-forward way.

(33) a. John was born at t_i.
     b. We knew that John was born at t_i.
     c. t_i was earlier than t_i.

Proposition (33c) is, of course, self-contradictory. It would therefore appear that the hypothesis that time adverbials do exist in the underlying structure of AdvTC is correct.

Let us consider another, somewhat different, phenomenon. Observe that (34) is self-contradictory.

(34) *John left later than we will.

We might attempt to account for (34) with a constraint to the effect that the main and subordinate clauses of AdvTC must agree in tense. However, the problem is somewhat more complicated than this. Notice that the highest verb in the comparative clause of (35) disagrees in tense with the verb in the main clause, but the sentence is nevertheless acceptable.

(35) John left later than he says he did.

What appears to be going on in the case of (34) and (35) is
that the verbs that satisfy constraint C must agree in tense. This
description will, I think, work. However, it is not difficult to
see that it would be a mistake to associate this tense harmony
phenomenon with constraint C.

Observe that (36), like (34), is unacceptable, but that (37),
like (35), is acceptable.

(36) *John left at the time when we will leave.
(37)   John left at the time when he says he did.

In a previous study (Geis 1970), I showed, on the basis of data like
(36) and (37), that sentences containing temporal relative clauses
uniformly exhibit tense harmony and argued that this fact can best
be accounted for by assuming (a) that the head noun phrases of time
adverbials like those that occur in (36) and (37) have temporal
reference features assigned to them--let us say either [+past] or
[-past]--which are consistent with the auxiliaries of the clauses they
occur in, and (b) that the identity condition on relativization is
sensitive to these features. Given these two assumptions, we can
account for the fact that (36) is unacceptable by noting that the
head noun phrases of at a time and the adverbial underlying at which
must have the temporal reference features [+past] and [-past],
respectively, and, thus, that the identity condition on relativi-
zation cannot be satisfied. Sentence (37), on the other hand, is
acceptable, but only on a derivation in which where originates in
the clause containing did.

The AdjTC corresponding to (34) and (35), namely (38) and (39),
respectively, also exhibit tense harmony.

(38) *John left at a time that was later than the time
          at which we will leave.
(39)   John left at a time that was later than the time
          at which he says that he left.

If the principles used in the description of (36) and (37) are
extended to (38) and (39), it will follow that the subject of later
than in (38) must be marked [+past] and its object [-past], an
empirical impossibility, but the subject and object of later than
in (39) must both be marked [+past] (on the derivation of (39) in
which at which originates in the same clause as left), which is
empirically possible.

It should be clear that if we derive AdvTC from AdjTC, we can
account for the fact that (34) is unacceptable and (35) acceptable
in a straightforward fashion, for AdvTC and AdjTC pattern alike.
Were we not to relate AdvTC to AdjTC, on the other hand, we would
be forced to conclude that the fact that AdvTC and AdjTC function
alike with respect to the phenomenon of tense harmony is an accident.
This is, I think, an untenable conclusion.

My account of the phenomenon of tense harmony may not, of course, prove to be completely satisfactory. However, it is very important to note that the facts that comprise the tense harmony phenomenon pertain to temporal relative clauses alone. As (40) illustrates, tense harmony does not obtain in the case of locational relative clauses, and as (41) suggests, it does not typically obtain for comparatives.

> (40) John lives at the place where Joe once lived.
> (41) John runs faster now than he ever did before.

Thus, if we do not derive AdvTC from AdjTC, we will miss an important linguistic generalization.

II.

In a reply to Lakoff 1970, a paper that discussed a number of global derivational constraints, including the one presented above, Baker and Brame 1972 argue that AdvTC can be accounted for without imposing a global constraint on their derivations. In this section, I examine their counter-proposal and show it to be unsatisfactory on a number of grounds.

According to Baker and Brame, AdvTC (42) is derived from an underlying structure something like (43).

> (42) John left earlier than Bill left.
> (43) John left [$_{AP}$ [$_{Deg}$ more than [$_S$ Bill left
>   that early]$_S$]$_{Deg}$ early]$_{AP}$

Several grammatical processes are required in order to map (42) into (43), including in particular the deletion of the subordinate occurrence of that early. Baker and Brame agree that a constraint like A above must be imposed on the derivation of (42), but they do not state it. I presume that it should be formalized along the lines of D.

> (D) For comparative formation to apply (including
>   the deletion of that early from the subordinate
>   clause), there must exist verbs V_i and V_j in
>   the main and subordinate clauses respectively
>   such that (a) $V_i = V_j$, (b) V_i and early are
>   clause mates, and (c) V_j and that early are
>   clause mates.

Thus, the two occurrences of early in (43) play the same sort of role as the time adverbials referred to in constraint C.

Let us turn now to consider (44), one of the data that gave rise to the global constraint of the previous section.

> (44) *John left earlier than the girl who left died.

According to Baker and Brame's analysis, (44) would have to be derived from (45).

(45) John left $[_{AP} [_{Deg}$ more than $[_S [_{NP}$ the girl $[_S$
who left that early$]_S]_{NP}$ died$]_S]_{Deg}$ early$]_{AP}$

And they say, 'We can account for the ill-formedness of the sentences
resulting from the application of Comparative formation by assuming,
as does Ross (1967:411ff.) that this rule, like the very similar
rule that forms relative clauses, is subject to the Complex NP
constraint' (71). Thus, according to Baker and Brame, (44) cannot
be derived from (45) because the CNPC will, if extended to comparative
formation (a deletion rule), block the deletion of that early from
(45). Examples like (12)-(14) would be dealt with by a similar
extension of other constraints on movement rules to the Baker and
Brame rule of comparative formation.

Baker and Brame's assumption that their rule of comparative
formation is subject to the CNPC is absolutely crucial to the
viability of their alternative analysis. As we shall see below, there
is very good reason to doubt the correctness of this assumption.
First, however, I would like to draw attention to certain other defects.

Baker and Brame claim that their analysis is simpler than the
analysis suggested above. This claim could scarcely be more facile.
In the first place, note that the analysis of section I is semantically
as well as syntactically motivated, in that it correctly predicts
that a given AdvTC will be semantically equivalent to its corresponding
AdjTC. This semantic fact must be accounted for, presumably by mapping
AdvTC and corresponding AdjTC into semantically equivalent, if not
identical, semantic representations. Baker and Brame do not indicate
how they would propose to account for the semantic equivalence
between AdvTC and AdjTC and, until they do, it will be impossible
to determine if their analysis is simpler than the one presented
in section I.

We noted above that sentences like (46) and (47) are self-
contradictory.

(46) *John was born earlier than he was.
(47) *John was born earlier than we knew he was.

Within the framework of section I, (46) and (47) could be accounted
for without difficulty. However, it is by no means clear that they
can be accounted for at all within the framework provided by Baker
and Brame. We might stipulate that John was born early cannot be
both subject and object of more than, but this ploy cannot, as far
as I can see, be extended to account for the fact that (47) is self-
contradictory.

The phenomenon of tense harmony could be accounted for within
the Baker and rame framework by including within constraint D a
statement to the effect that the tenses of the verbs that satisfy
D(a) must be compatible. However, such a move would entail that we
miss the generalization that the phenomenon of tense harmony is
associated with temporal relative clauses. Since the Baker and Brame
proposal and the one advanced in section I both appear to work, we
must choose the one that is superior on explanatory grounds, i.e.
the proposal of section I.

Baker and Brame note that AdvTC containing <u>sooner than</u> are also subject to the like-verb constraint, and cite data like (48) and (49) in support of this claim.

(48) John left sooner than Bill did.
(49) *John left sooner than Sam slugged Pete.

They go on to point out that (48) creates a problem for the view that AdvTC are derived from AdjTC for (50), the AdjTC corresponding to (48), is ungrammatical:

(50) *John left at a time that was sooner than the
       time at which Bill left.

Baker and Brame correctly note that this problem does not arise for their analysis. However, they fail to note that (48) presents an even graver problem for their analysis than for that of section I, for according to their analysis, the main and subordinate clauses of (48) would have as their sources the semantically deviant (51a) and (51b), respectively.

(51) a. *John left soon.
      b. *Bill left that soon.

A crucial assumption of Baker and Brame's analysis is that their rule of comparative formation, the rule that deletes <u>that early</u> from structures like (43), is subject to Ross' constraints (as well as those discovered since) on movement or chopping rules, i.e. rules that move constituents over essential variables. Ross based his suggestion that comparative formation is subject to his constraints on chopping rules on data like (52) and (53):

(52) John is taller than we claimed he is.
(53) *John is taller than we made the claim that he is.

In (52), the subordinate (deleted) occurrence of <u>tall</u> is inside a complex NP and, according to Ross, if we were to impose the CNPC on this deletion rule, we could account for the unacceptability of this sentence. Similar data appeared to support the view that such deletions are subject to his other chopping constraints.

Let us now attempt to determine whether Ross' constraints on chopping rules do, in fact, apply to the deletion rule in question. First, note that (54), an admitted stylistic barbarity, is more acceptable than (55).

(54) ?John is taller than we claimed he is wide.
(55) *John is taller than we made the claim that
       he is wide.

There has been no deletion of the subordinate adjective in the case of (54) and (55), and thus we cannot appeal to any constraint on

deletion rules, including Ross' constraints on chopping rules, to account for the difference in the degree of acceptability of (54) and (55).

There are more convincing examples. Consider

> (56) The room turned out to be a little wider than
>   we thought it was long.
> (57) *The room turned out to be a little wider than we
>   knew it was long.

In (57), but not (56), _long_ occurs in a construction that constituents cannot be moved out of. However, note that extending to the deletion associated with comparative formation the constraint which prohibits movement of constituents out of factive clauses will not enable us to account for the fact that (56) is acceptable and (57) unacceptable, for _long_ is deleted from neither of these sentences.

Robert Freund has suggested to me an alternative interpretation of the facts which led Ross to think that the rule that deletes the subordinate occurrences of compared adjectives is subject to his chopping constraints. Freund noted that if we assume a comparative like (58) is derived from the structure underlying (59), we can account for all of the data that led Ross to think that comparative formation is subject to his chopping constraints.

> (58) John is taller than Bill.
> (59) John is tall to a degree that is greater than
>   the degree to which Bill is tall.

Observe that the adverbial underlying _to which_ in (59) moves in the derivation of this sentence. As a result, if we were to adopt such an analysis, Ross' chopping constraints would necessarily come into play in the derivation of comparatives. In this light compare (60) and (61) with (56) and (57) respectively.

> (60) The room turned out to be wide to a degree that
>   was a little greater than the degree to which
>   we thought it was long.
> (61) *The room turned out to be wide to a degree that
>   was a little greater than the degree to which
>   we knew it was long.

Since (60) and (61) are very complex, it is difficult to make very good judgments concerning them. However, note that the constraint that prohibits movement of constituents out of the complements of factive verbs will block derivation of (61), but will not block derivation of (60). This analysis thus correctly predicts that (56) is acceptable but (57) is not. Thus, it would appear that Baker and Brame's suggestion that their rule of comparative formation is subject to Ross' chopping constraints is not as well motivated as either they or Ross have imagined.

I would be less than honest if I failed to point out that AdvTC do not fit very nicely into the framework of this alternative

analysis of comparatives. Note how cumbersome (62) is.

(62) *John left at a time that was early to a degree
that was greater than the degree to which
Sue's leaving was early.

A major difficulty with (62) is that, to the degree to which it is
interpretable at all, early is understood in its absolute, rather
than its relative, sense. However, a close look at underlying
structures like (43) will reveal that the Baker and Brame analysis
is infected by the same problem.

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On the Global Nature of the Sentential Subject Constraint

Ronald Neeld

When the island constraints presented in Ross 1967 were first
formulated, they were regarded as transformational in nature.
Recent work indicates, however, that (at least) some of them are
derivational in nature: they do not constrain transformations
from applying, but they mark certain derivations as ill-formed.
Ross 1969 and Koutsoudas 1973a present evidence that the Complex
Noun Phrase Constraint is a derivational constraint. In this
paper I present evidence that the Sentential Subject Constraint
is a global derivational constraint, which is stated at the level
of surface structure, but makes reference to earlier stages of a
derivation.[1]
        The evidence depends upon prior assumptions about the nature of
rule ordering. There is now an extensive literature which indicates
that all rules are unordered--i.e. all constraints on the order of
application are predicted by language-universal principles.[2] I
find the evidence in favor of the Unordered Rules Hypothesis
convincing, and will adopt it for the purposes of this paper. As
a preliminary to further discussion, I present a summary of the
basic principles of the Unordered Rule Hypothesis. These appear
in Koutsoudas 1973b.

        (1) a. All restrictions on the application of rules
                 are determined by universal principles (and
                 hence there are no language-specific ordering
                 restrictions between the rules of a grammar).
             b. An obligatory rule must apply whenever its
                 structural description is met, unless its
                 application is precluded by some universal
                 principle. It follows from this requirement
                 that rules will apply simultaneously if
                 possible; otherwise they will apply sequentially.
             c. All rules are scanned for applicability to
                 each new representation in a derivation.
             d. A derivation is terminated when no obligatory
                 rules are applicable.

        The relation between rule ordering and island constraints
should be kept clearly in mind. Island constraints are defined on
certain structural configurations, e.g. sentential subjects and
complex noun phrases. There are some transformations which destroy
the structures defining islands. For example, Extraposition from NP

47

and Relative Clause Reduction destroy complex noun phrases. As
demonstrated by Koutsoudas 1973a, when complex noun phrases are
destroyed, they maintain their integrity as islands: no elements
may be moved out of them. This restriction may be expressed in
global terms by saying that nothing may move out of a constituent
if that constituent was under the domination of a complex NP node
earlier in the derivation. In this case, once some node is an
island, it remains an island.

Now let us consider the other logical possibility with respect
to the destruction of islands. It could be the case that some
node is an island, that the island is destroyed by the application
of some rule,[3] and that elements may then be moved out of the
former island. Using extrinsic ordering, we could order all
movement rules to apply after the rule (or rules) which could
destroy the island in question. But using the Unordered Rules
Hypothesis, some other approach must be taken.

The Sentential Subject constraint presents an example of
just the sort that I have outlined in the paragraph immediately
above. A sentential subject may be destroyed by the application of
Extraposition, as shown in (2).

    (2) a. That John read the book is probable.
          b. It is probable that John read the book.

When a sentential subject is destroyed, elements may be extracted
from it. Compare (3) and (4).

    (3) a. *What is that John read probable?
          b. *There is the book which that John read is
              probable.
    (4) a. What is it probable that John read?
          b. There is the book which it is probable that
              John read.

Even if we were to use extrinsic ordering, we would face a serious
problem with respect to (2)-(4). Each extrinsic ordering statement
is an ad hoc statement for a particular pair of rules, and does
not generalize to other pairs. Given that we must order Wh Q
Movement after Extraposition (to account for 4a)), there is no
reason why we should order Wh Rel Movement after Extraposition
(to account for (4b)). Any extrinsic ordering of one rule before
another carries with it implicitly the possibility that the order
could be opposite to that actually found. It would then be
completely accidental that all movement rules followed the rule(s)
which could destroy a sentential subject. No explanation could be
offered for the fact that all movement rules can operate on
elements inside the former island.

Of course, adopting the Unordered Rules Hypothesis, we must
find some other explanation for (2)-(4). I shall now sketch
an alternative explanation wherein the Sentential Subject Constraint
is viewed as a global constraint, stated at the level of surface
structure, but making reference to earlier stages in a derivation.

I shall argue that the constraint is to be stated in the following way.

(5) The Sentential Subject Constraint.
    Given a phrase marker containing a clause S' and
    a constituent C', the derivation of that phrase
    marker is ill-formed if:
    a. in surface structure S' is a sentential subject,
    b. C' is not under the domination of S' in surface
        structure,
    c. in semantic structure, C' is under the domination
        of S'.

The sentences in (3) illustrate the fact that the presence of a sentential subject in surface structure is sufficient to block movement out of the subject clause. The sentences in (4) show that the presence of a sentential subject in deep structure is not sufficient to block movement, for (4a, b) are derived from structures in which the constituents that have been moved were under the domination of a sentential subject. Furthermore, there are rules which can create sentential subjects, such as Passive. The clauses which are moved into subject position by this rule are islands:

(6) a. Bob did not know that John had read the book.
    b. That John had read the book was not known by
        Bob.
    c. *What was that John had read not known by Bob?
    d. *That is the book which that John had read was
        not known by Bob.

The above facts indicate that the presence of a sentential subject in surface structure is crucial.

Given the Unordered Rules Hypothesis, there is no restriction against applying movement rules to a clause before that clause has become a sentential subject. For example, consider the deep structure of (6d), which is given in (7).

(7)
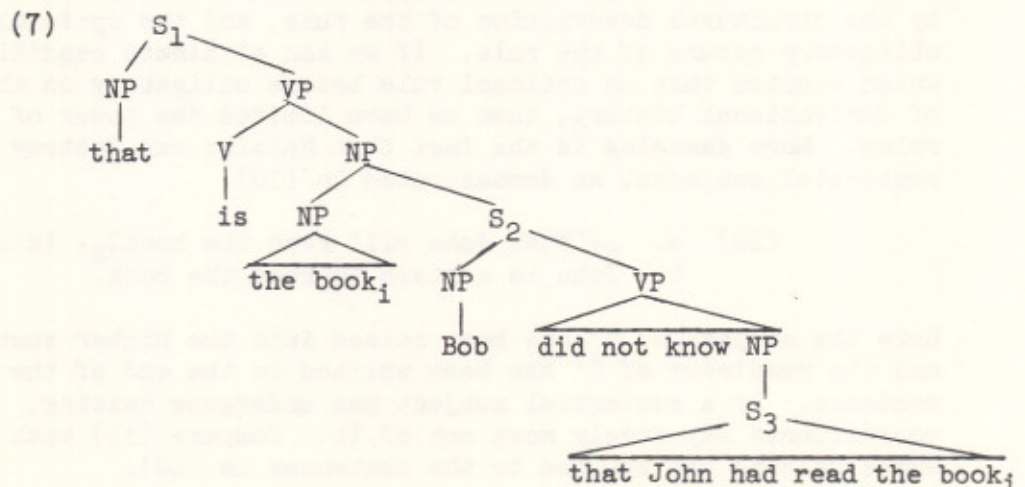
There is nothing to block Wh Rel Movement from applying to move
the book$_i$ out of S$_3$. If we left things at this stage, the result
would be:

(8)   That is the book which Bob did not know that
      John had read.

But there is no restriction against going on to apply Passive
to S$_2$ in (7) after Wh Rel Movement has applied,[4] the result of
which is (6d). There would be nothing to block (6d), and it should
in fact be generable by a grammar which contains neither extrinsic
ordering nor constraint (5). I claim that (6c, d) are ruled out
because they violate the global constraint (5). I have already
shown that the presence of a sentential subject in surface structure
is crucial, so the constraint must be stated at that level. Further-
more, in the absence of extrinsic rule ordering constraints we have
to know whether C' was under the domination of S' in semantic
structure. Therefore, we have to make reference to earlier stages
of a derivation.

There are alternatives to the formulation of the constraint
as presented in (5), but they are less than optimal. To begin with,
(3a, b) are acceptable because Extraposition has destroyed the
sentential subject. We might try to make Extraposition obligatory,
along the lines presented in (9).

(9) Extraposition is obligatory if:
     a. there is a sentential subject, S', and some
         other constituent C' outside the domination
         of S';
     b. C' was under the domination of S' earlier in
         the derivation.

The problems with (9) are twofold. First, making rules obligatory
on the basis of derivational history is an extension of the power
of global grammars. Constraints typically prevent the application
of rules in certain cases. The application of a rule is determined
by the structural description of the rule, and the optional or
obligatory nature of the rule. If we can eliminate conditions
which require that an optional rule become obligatory on the basis
of derivational history, then we have limited the power of global
rules. More damaging is the fact that Raising can destroy
sentential subjects, as demonstrated in (10).

(10) a. $_S$'[That John will read the book]$_S$' is certain.
      b. John is certain to read the book.

Here the subject of S' has been raised into the higher sentence,
and the remainder of S' has been shifted to the end of the higher
sentence. If a sentential subject has undergone Raising,
constituents may freely move out of it. Compare (11) with (12),
where Raising has applied to the sentences in (12).

(11) a. *What is that John will read certain?
      (Wh Q Movement)
   b. *That's the book which that John will read
        is certain. (Wh Rel Movement)
   c. *It's the book that that John will read is
        certain. (Cleft Formation)
   d. *What that John will read is certain is the
        book. (Pseudo Cleft Formation)

(12) a. What is John certain to read?
   b. That's the book which John is certain to read.
   c. It's the book that John is certain to read.
   d. What John is certain to read is the book.

If we chose (9), we would have to make Raising obligatory under the
same conditions given for Extraposition. In fact, we would have
to repeat the constraint expressed by (9) for any rule which could
destroy a sentential subject. But this repetition leaves unexplained
why the constraint should apply to rules which destroy sentential
subjects (based on the conditions (9a, b)) which will prevent the
conditions expressed in (5) from existing. Repeating conditions
(9a, b) for a set of rules does not express the connection which
holds between the rules in the set. The crucial factor is whether
or not a sentential subject exists in surface structure, something
not expressed by (9), where it is derivative that the rule made
obligatory happens to destroy a sentential subject. An outcome
of this discussion is that it may be possible to add the following
restriction to the class of global grammars:

(13) No rule may be made obligatory on the basis
       of derivational history.

Another alternative to (5) is the constraint given in (14).

(14) Given a clause S' and a constituent C' such that
       a. C' is under the domination of S' and
       b. S' will appear as a sentential subject in
            surface structure, then C' may not be
            moved out of S'.

The underlined restriction in (14) is necessary because of cases
like (4), where a sentential subject is destroyed. It appears that
(14) merely states constraint (5) in inverse terms. In (14) we
are blocking a rule, but on the basis of 'future history'. But
there is a conceptual flaw in (14). The deep structure of (15a, b)
is as in (16).

(15) a. *That is the dress which that Alice would buy
            was suspected by her husband.
   b. That is the dress which it was suspected by
            her husband that Alice would buy.

(16)

```
                        S
                   ┌────┴─────┐
                  NP          VP
                   │       ┌───┴───┐
                 that      V       NP
                           │    ┌──┴────┐
                          is   NP       S
                            ┌──┴──┐  ┌──┴──────┐
                       the dress_i NP          VP
                                ┌──┴──┐    ┌────┴────┐
                          her husband V         NP
                                      │          │
                                  suspected      S'
                                            ┌────┴────────┐
                                      that Alice would buy which_i
```
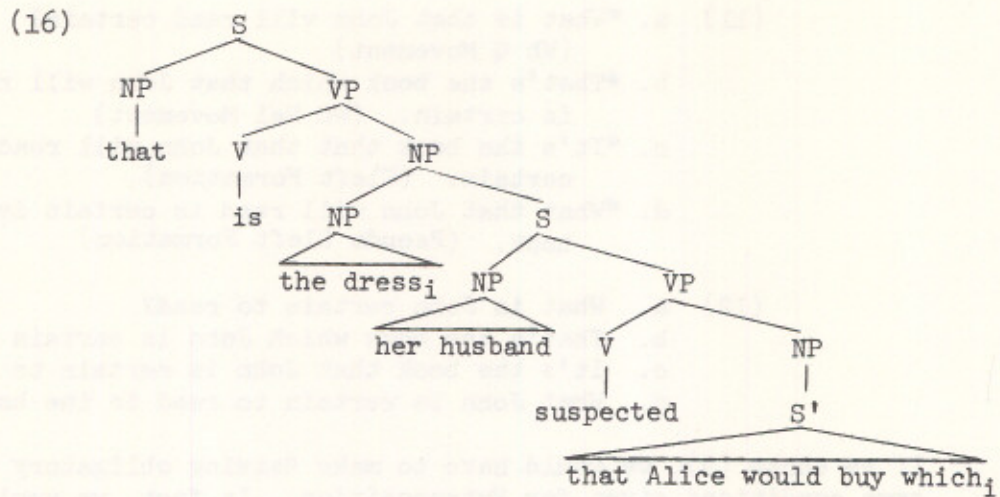
Constraint (14) claims that nothing may be moved out of a clause that <u>will appear</u> as a sentential subject in surface structure. (15a) is blocked by this constraint, while (15b) is not. But consider more closely the case in which Wh Rel Movement is blocked from applying to (16) because Passive will later create a sentential subject. If we did not apply Passive, then the conditions for blocking Wh Rel Movement would not exist, and we should not have blocked Wh Rel Movement. In essence, Passive becomes obligatory on the basis of having blocked Wh Rel Movement. We would have to add another constraint making certain rules obligatory (just those which create sentential subjects) on the basis of constraint (14). In other words, we have to block Wh Rel Movement from applying to (16) because Passive must apply, where Passive must apply just because we blocked Wh Rel Movement from applying. The circularity, redundancy, and lack of insight of this analysis is obvious. I conclude that the proper way to express the necessary constraint is as in (5). The downfall of (14) leads me to suspect that another constraint may be added to the theory of global grammar:

(17) No rule may be blocked on the basis of the
      future history of a derivation.

I have shown above that the Sentential Subject Constraint is global in nature. It should be noted that there is a surface structure constraint similar in nature to the Sentential Subject Constraint. In (18) and (19), the violation could not result from moving something out of a sentential subject.

(18) a. *What is that John did surprising?
      b. What is it surprising that John did?
(19) a. *I went out with a girl who that John showed
          up pleased.
      b. I went out with a girl who it pleased that
          John showed up.

To account for the ungrammaticality of (18a) and (19a) Ross (1967:251)

proposed the following constraint:

(20) The S-Internal NP Clause Constraint (SINPC[2]).
Grammatical sentences containing an internal
NP which exhaustively dominates S are
unacceptable, unless the main verb of that S
is a gerund.

It might be claimed that all sentences which are putative violations
of the SSC are actually violations of the SINPC[2]. But the following
considerations indicate that the SSC is necessary. The SINPC[2]
refers to internal NP: for example, Subject-Aux Inversion in (18a)
has caused the subject NP to become internal. Notice that in (22),
the deep structure of (21), the sentential subject S_3 has material
to both the left and right, but it is not clause-internal since it
is the leftmost constituent of S_2.

(21) We believe that Harry read the book is surprising.

(22)

```
              S1
         ┌────┴────┐
        NP         VP
         │      ┌───┴───┐
        we      V       NP
                │        │
             believe    S2
                    ┌────┴──────────┐
                   NP               VP
                    │              ╱ ╲
                   S3          is surprising
                  ╱  ╲
          that Harry read the book
```
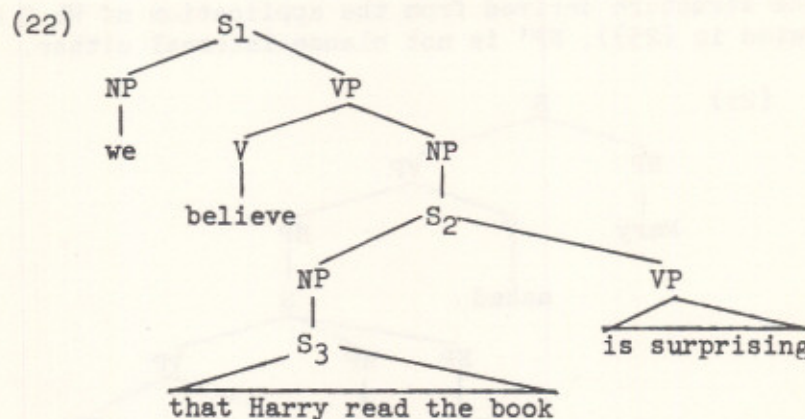
Now notice that in (24), the deep structure of (23), NP' is not
clause-internal.

(23)   a. *Mary asked what John believes that Harry
            read is probable.
       b. Mary asked what John believes it is probable
            that Harry read.

(24)

```
                    S
              _____|_____
            NP                      VP
             |              _____|_____
           Mary           V                 NP
                          |                  |
                        asked                S
                                  _____|_____
                                NP                    VP
                                 |            _____|_____
                               John        V                 NP
                                            |         _____|_____
                                        believes    NP               VP
                                                     |                 |
                                                     S             is probable
                                              _____|_____
                                        that Harry read what
```
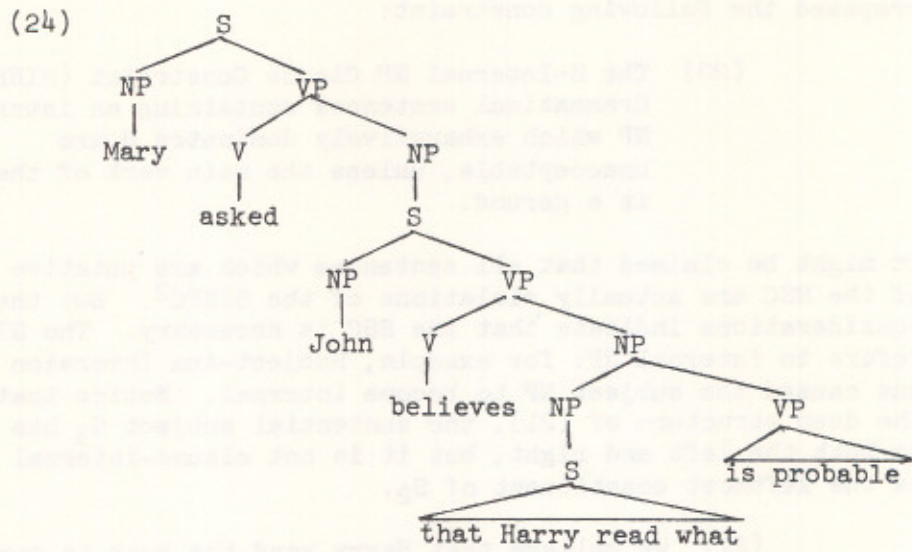
But in the structure derived from the application of Wh Q Movement
(illustrated in (25)), NP' is not clause-internal either.

(25)

```
                    S
              _____|_____
            NP              VP
             |        _____|_____
           Mary     V             NP
                    |              |
                  asked            S
                        _____|_____
                      NP      NP            VP
                       |       |      _____|_____
                     what    John   V             NP
                                    |              |
                                believed           S
                                         _____|_____
                                       NP'                 VP
                                        |                   |
                                        S              is probable
                                  _____|_____
                                that Harry read
```
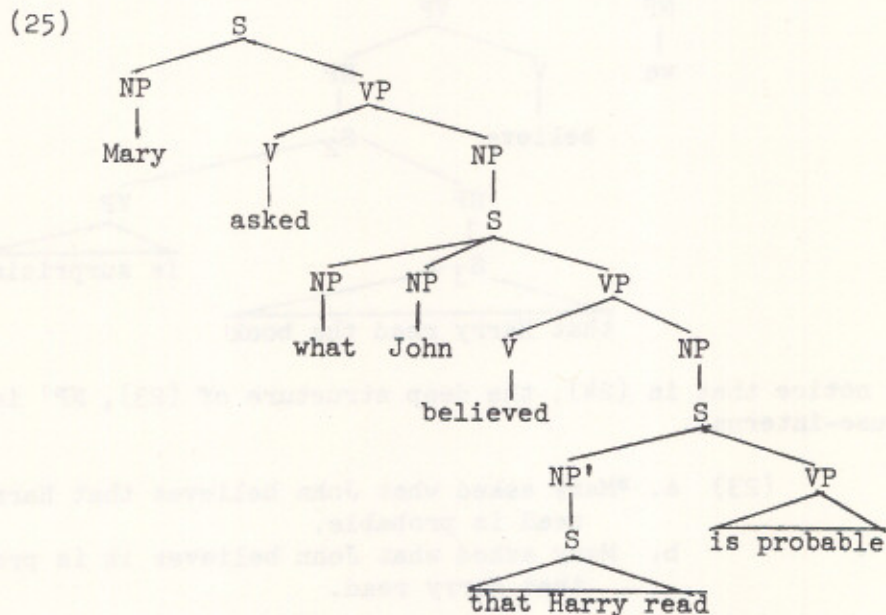
Since Wh Q Movement has an essential variable in its structural
description it may move the wh-element to the left over any number
of S boundaries. Therefore the wh-element can move over the S
which dominates the NP complement that it originated in. By virtue
of this property of Wh Q Movement, NP' in (25) does not appear as
clause-internal in surface structure. It would appear that (23a)
must be blocked because something has moved out of a sentential
subject, and that the Sentential Subject Constraint is necessary.[5]
Given that the constraint is needed in the grammar of English,
the evidence that I have given here indicates that it is global
in nature.

Notes

1. The Sentential Subject Constraint was defined by Ross 1967:134 as follows:

> No element dominated by an S may be moved out of that S if that node S is dominated by an NP which itself is immediately dominated by S.

2. For a discussion of the rule ordering issue see Koutsoudas 1973a, 1973b, Lehmann 1971, Ringen 1972.

3. When I say that a transformation 'destroys' a sentential subject I mean that it alters the phrase marker so that the former sentential subject is no longer in subject position. Likewise, when I say that a transformation 'creates' a sentential subject, I mean that the rule moves a sentence into subject position.

4. It would be possible to order Wh Rel Movement after Passive, so that a sentential subject would be present at the point that Wh Rel Movement applies. But in the absence of extrinsic ordering, this option must be rejected.

5. Ross 1967:134-8 gives two other pieces of evidence that the SSC should be included in the grammar of English.

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On Suggesting*

Patricia Lee

It has been suggested by Heringer 1971 that speech acts can be performed indirectly by reference to certain participant-based felicity conditions on those speech acts. Heringer's proposal is that some conditions on the speaker's psychological state are essential to the performance of particular illocutionary acts, and that such essential conditions can be either asserted or questioned to perform those acts indirectly. Suggestions provide an excellent opportunity to test this hypothesis because there is a great variety of ways to perform indirect suggestions. I will attempt to show that a large number of such indirect illocutionary suggestions can, as Heringer predicted, be derived from certain essential felicity conditions on direct suggestions.

Before going into these conditions, I would like to make a few comments on direct suggestions. They are a type of speech act which can be called impositive, to use Green's term; that is, like commands, requests, warnings and pleas, they are attempts to get the hearer to do something. Suggestions differ from other impositives in the relation that holds between the speaker and the hearer; for a command to be felicitous, the speaker must be in some position of authority over the hearer, while for requests and pleas, the opposite is necessary—that is, the speaker must be at least assuming a position inferior to that of the hearer. This is basically the same thing as saying that the speaker is showing deference toward the hearer. Suggestions, on the other hand, have no such requirement. For conversations in which suggestions occur, the speaker and hearer have equal status.

Suggestions also differ from most other impositives in that, for the most part, what the speaker is trying to get the hearer to do is to consider or think about a particular proposition. In other words, the perlocutionary effect of suggestions is to make the hearer think about the proposition being suggested. Furthermore, it seems that this perlocutionary effect is crucial to the performance of suggestions. In the broadest possible sense of the term 'suggestion' then, anything which serves to make someone think of something is a suggestion.

If what we're interested in is indirect illocutionary acts, we must be able to distinguish such illocutionary acts of suggesting from those acts which are suggestions only by virtue of their perlocutionary effect. The sentences (1)-(6)

    (1) It's time to go.
    (2) Well, Josie, it's about that time.
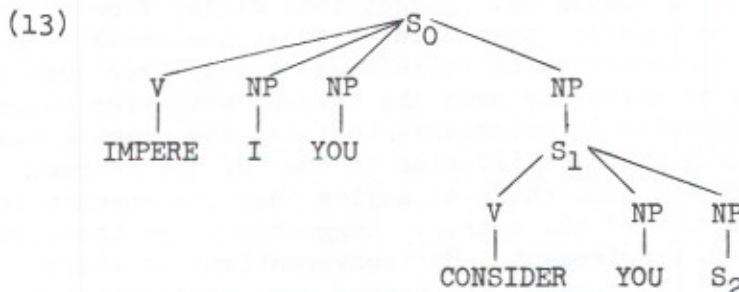
56

(3) You haven't eaten your spinach.
(4) There's rice to be cooked yet.
(5) Did you clean up your room?
(6) Should you do that?

are perlocutionary suggestions only; they cannot be predicted
systematically from the semantic structure or felicity conditions
of direct suggestions.

One way of distinguishing such perlocutionary suggestions
from indirect illocutionary suggestions is in terms of what type of
responses are appropriate to them. True indirect illocutionary
suggestions may be responded to by remarks that make reference to
either the act of suggesting or a felicity condition on that act.
Responses like (7)-(12)

(7)   That's a good idea.
(8)   That's a lousy idea.
(9)   That's a possibility.
(10) That's worth {thinking about / considering}.
(11) I'll keep that in mind.
(12) That's a fine suggestion you just made there.

are not appropriate to the perlocutionary suggestions (1)-(6), but
are to the indirect suggestions discussed below.

(13)

```
                              S₀
          _____/  _____
         V     NP    NP                       NP
         |     |     |                        |
      IMPERE   I    YOU                        S₁
                                        _____/  _____
                                       V       NP    NP
                                       |       |     |
                                   CONSIDER   YOU    S₂
```

There is a condition on CONSIDER in this structure that the speaker
believe that the hearer has not already considered the embedded
proposition, that is S_2 in the diagram (13). This is actually just a
specific instance of a more general condition on impositives, that the
speaker does not attempt to get the hearer to do something which he has
already done. According to Heringer's proposal, this condition may be
either asserted or questioned to perform, indirectly, the act of which
it is a condition (namely, the act of suggesting). Sentences (14)-(20)

(14) You haven't considered Jeremiah's doing it.
(15) You don't seem to have thought about my going to Detroit.
(16) Have you considered taking Kalanianole?
(17) How about a cup of coffee?

(18) What about visiting your in-laws?
(19) Are you aware that you could grow soy beans?
(20) You don't seem to be aware of the possibility
      of hiring women.

are examples of indirect suggestions based on this condition;
(14), (15),and (16) are relatively straightforward, but (17) and
(18) are more complicated, and there are differences between them
that I won't go into here. Basically, the how about and what about
questions ask for opinions on the matter being discussed; since
it is necessary to have thought about something to have an opinion
on it, (17) and (18) function as indirect suggestions by causing
the hearer to consider the proposition in order to give an opinion.
These questions are, as are all sentences that can be indirect
illocutions, ambiguous between a literal reading, in which the
speaker assumes the hearer has considered the proposition (and so,
the speaker is not suggesting anything), and an indirect suggestion
sense, where the speaker assumes the hearer has not considered the
proposition.

These sentences indicate that not only can conditions of this
type be asserted and questioned, but also they can be used as
presuppositions upon which questions are based, and these questions
can perform the indirect illocutionary act. That this is actually
what's going on here is not certain; it may be that how about and
what about questions are idiomatic in this respect.

The sentences (19) and (20) are also complicated; they may
even be too indirect for everyone to agree that they are actually
suggestions. The complexity of these sentences arises from the fact
that they are based on a condition of a condition (namely, that in
order to consider something one must be aware of it); in addition,
these sentences involve a second condition on suggestions concerning
the possibility of the proposition being suggested. I will return
to this condition on possibility in a moment. First, I would like
to point out that another aspect of suggestions is illustrated by
(19) and (20): as far as the hearer is concerned, these sentences
are suggestions if he was actually unaware of the possibility mentioned.
Thus, if the speaker's and hearer's beliefs do not coincide, what
may be a suggestion in the speaker's opinion may not be one in the
hearer's opinion.

Returning to the condition on possibility: this condition is
that the speaker believe that the proposition being suggested is
possible. (21)-(23)

(21) You could eat liver.
(22) It wouldn't kill you to wash your feet.
(23) Maybe she could take you to school.

assert this condition and (24) and (25)

(24) Could we move that thing?
(25) Is it possible to turn the radio down?

question it. It might be noted here that understanding (22) also requires the commonly held assumption that those actions which result in one's death are not to be considered legitimate possibilities.

I consider recommendations to be a special type of suggestion. They have the same semantic structure as suggestions, and both conditions mentioned so far also hold for them. In addition, they have the condition that the speaker believe that the action indicated in the proposition is in the best interest of the hearer, or is desirable for the hearer to do. Some indirect recommendations based on this condition:

(26) It would be nice if you visited your mother.
(27) He should learn to drive.
(28) You should read Tolkien.
(29) Shouldn't you try sketching first?
(30) It wouldn't hurt you to straighten up your desk once in a while.

Sentence (30) is complicated in the same way as (22) is, with the additional element of sarcasm being supplied by the speaker's assumption that the reason that the hearer hasn't done the recommended action is that it would in some way be harmful to his health or well-being.

There is another condition specifically on recommendations, no doubt related to the previous one: the speaker must believe that there is a good reason to do the action mentioned in the proposition. From this condition the following indirect recommendations result:

(31) There's at least one good reason to impeach the president.
(32) We'll make a lot of money if we sell now.
(33) You'll live longer if you practice yoga.
(34) Why don't we go horseback riding?
(35) Why not buy the Bishop Estate?

It is necessary to point out that there are some apparent paraphrases of (34) and (35) that do not seem to be indirect suggestions, for instance:

(36) Isn't there some reason to go horseback riding?
(37) What's the reason for not buying the Bishop Estate?

It may be that (36) does suggest indirectly, but it certainly is not as clearly a suggestion as (34). And (37) seems only to have its literal, information-seeking sense, and not to be a suggestion at all. I don't know why this should be so, but I strongly suspect it is related to the fact that stress (and ultimately, deletion) also play a part in indirect illocutions. If there is extra stress on don't in (34) the suggestion reading is lost and, of course, the reduction parallel to that exemplified in (35) cannot take place. It seems

as if there may be certain stress rules (and possibly other sorts of phonological rules) whose applicability correlates with the illocutionary force of such an utterance, and questions like (36) and (37) do not undergo such rules. The matter certainly warrants further investigation.

There is one more condition on the type of suggestion I have been discussing that I would like to mention; it is similar to the last condition given on recommendations, but more general in nature: the speaker must believe there is no reason not to do the action specified. This condition is exemplified by the following indirect suggestions:

(38) There's no reason not to have a party.
(39) There's nothing preventing us from making fudge.
(40) I see no reason not to drink wine.
(41) Is there any reason not to invite Yuriko?
(42) Does anyone have anything against eating now?

One category of suggestions has been ignored so far in this paper--those beginning with let's, as in (43) and (44).

(43) Let's think about why we're here.
(44) Let's stay for the forum at 5:00.

I believe these suggestions are basically different from the more common ones discussed above. The let's suggestions are not necessarily attempts to get people to consider things, specifically, as were the others; rather, they are attempts to get people to do things in general (and, of course, what they try to get people to do may be to think about something, as (43) does). They have the same semantic structure as impositives that are not suggestions (that is, a structure different from the one shown in (13) in that instead of CONSIDER as the first embedded verb, this more general suggestion simply has DO as the predicate in S_1). These let's suggestions are distinguishable from other impositives in that the relation between speaker and hearer is not one of ascendency, as it is in commands and requests. For the let's suggestions the conversational participants must have equal status, just as for other suggestions. I think it likely that the form of the suggestions beginning with let's is a consequence of this equal status condition, although I don't see how. It may be that this status condition needs more precise formulation, or it may just be that suggestions of this form are entirely idiomatic. Any suggestions on this matter will be welcome.

Note

*Paper read before the 1973 summer meeting of the Linguistic Society of America, Ann Arbor, Michigan.

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Discord*

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Arnold M. Zwicky

1. Introduction

The existence of various <u>styles</u>, <u>levels</u>, or <u>tones</u> of spoken
and written language has long been recognized, and there is now
a considerable literature--much of it prescriptive--dealing with
particular examples and their classification.[1] Our concern here
is with the distinction between <u>formal</u> language and <u>casual</u> language,[2]
as reflected in the lexicon, in phonology, and in syntax. In all
of the following pairs, the (a) examples are more formal than the
(b) examples:

      (1) a. She was quite tall.
            b. She was pretty tall.
      (2) a. I am unhappy with these avocados.
            b. I'm unhappy with these avocados.
      (3) a. He won't eat fava beans.
            b. Fava beans he won't eat.

The sentences in (1) are distinguished by the choice of lexical
item, the adverb <u>quite</u> as opposed to <u>pretty</u>; the sentences in (2),
by the nonapplication versus application of a phonological
contraction rule, auxiliary reduction; and the sentences in (3),
by the nonapplication or application of the syntactic rule of
topicalization (or Y-movement). Compare DeCamp 1971:352-3:
'If I shift into a formal, oratorical style, several rule-predictable
things happen to my grammar: the contraction transformation is
blocked, so that I say <u>is not</u> and <u>he has</u> instead of <u>isn't</u> and <u>he's</u>;
the ordering of the rules for case marking and for relative
attraction is reversed, so that <u>whom</u> appears in my surface structures;
conversely an otherwise dormant rule of disjunctive pronominalization
makes me sprout <u>it is he</u> and <u>it is I</u>; several phonological rules
of assimilation and vowel reduction are blocked.'

    Although there are complex interrelationships, we propose to
discuss formality separate from other categorizations of language--
for instance, categorization by geographical origin of the speaker,
social class of the participants, their sex, their ages, their
personal involvement in the discourse, politeness, occurrence of
grammatical shibboleths or simple errors, poetic texture, or <u>specific</u>
context of discourse. This idealization permits us to treat a wide

variety of cases within a single framework. The idealization also
reflects the fact that speakers seem to be able (within limits)
to make judgments about which of two examples is the more formal,
about whether a single example sentence is formal or casual, and
even about whether an example is extremely, fairly, or only a bit
formal (or casual). Now it may turn out that this ability is not
at all simple--in section 3.2 below, in fact, we consider some
possible difficulties--but it seems sensible to examine less
complex treatments of linguistic behavior before taking on
elaborate models.

Again, compare DeCamp's statement: 'Of course the socio-
logical correlates of the linguistic variation are multidimensional:
age, education, income bracket, occupation, etc. But the linguistic
variation itself is linear if described in linguistic terms rather
than in terms of those sociological correlates' (1971:354).

In general, we must stress that our work is in several ways
quite exploratory.

We have restricted our discussion largely to our own judgments
about levels of formality and about stylistic anomaly in American
English. The restriction to two informants (occasionally
supplemented by others) is a matter of convenience only; we would
hope to see careful studies of informant reactions on a large scale.
Our reference to informant judgments rather than to properties of
masses of elicited or collected data is intensional, however.
Although we recognize the significance of the work of Labov and
those influenced by him, we do not wish to dismiss informant
judgments as sources of insight into linguistic systems.

In the next section we consider a simple account of stylistic
level and observe that this account is insufficiently delicate to
categorize our judgments. Sentences exhibiting stylistically
discordant elements are then used to get at fine distinctions in
level. A more complex gradation model is outlined in section 3.1,
where a catalogue of elements is also provided, and the ways in
which this model could fail to be adequate are canvassed in section
3.2. In section 3.3 we consider several cases that might illustrate
one type of failure, the grammatization of instances of discord
into conditions on rules.

2. A simple account

A straightforward categorization of lexical entries and rules
with respect to stylistic levels would be: formal, neutral (usable
in all styles), casual. Using these categories, (1a) is formal,
(1b) casual; (2a) formal, (2b) neutral; (3a) neutral, (3b) casual.
Other examples of lexical items and rules that distinguish among the
three styles are considered below.

2.1. Some examples

A (peremptory) request with if you please is formal, while
the corresponding request with please is neutral:

> (4) a. Give me that negative, if you please.
> b. Give me that negative, please.

Interested in is neutral, but go for is casual:

    (5) a. He's not interested in yoga.
          b. He doesn't go for yoga.

The preposing of negative adverbials (together with subject-verb inversion) is formal, while sentences without preposing are neutral:

    (6) a. Nowhere does he state the nature of the process.
          b. He doesn't state the nature of the process anywhere.

A question tag with opposite polarity from its main clause (a flip tag) is neutral, but a tag with matching polarity (an alpha tag) is casual:

    (7) a. She's the chairman, isn't she?
          b. She's the chairman, is she?

A sentential subject is formal, but extraposition gives a neutral sentence:

    (8) a. That he paid only $1800 in taxes was no surprise.
          b. It was no surprise that he paid only $1800 in taxes.

The deletion of certain sentence-initial elements transforms a neutral utterance into a casual one.[3]

    (9) a. Are they going with us?
          b. They going with us?

    The phonological process of initial glide deletion in unstressed words is suppressed in the formal (10a), but applies in the neutral (10b). Flap deletion and desyllabication give the casual (10c).

    (10) It would be easier to say.
          a. [It wʊd bi izir̥ tu se]
          b. [Irəd bi izir̥ tə se]
          c. [Id bi·zir̥ tə se]

2.2. Evidence that the simple analysis is inadequate

    The three-way distinction, although initially attractive because of its simplicity, is insufficient for a comprehensive analysis of stylistic levels; and, in fact, most writers on the subject have seen more than two marked levels.[4] Intuitively, certain items or rules have a much more extreme effect than others; uncontracted let us in

    (11) Let us go now.

is much more formal than uncontracted <u>I am</u> in (2a). Preposing the
adverbial phrase of (12a) gives a more formal sentence, (12b), than
preposing the appositive, as in (12c):

> (12) a. John went back to work, somewhat ill and
> utterly depressed.
> b. Back to work John went, somewhat ill and
> utterly depressed.
> c. Somewhat ill and utterly depressed, John went
> back to work.

<u>So</u> plus a clause is felt by some speakers to be more casual than the
same clause with an alpha tag, even though the two constructions
have similar meanings and uses:

> (13) a. So you're a man-hater now.
> b. You're a man-hater now, are you?

In addition to judging relative levels directly, we can get at
fine distinctions in stylistic level by considering cases of <u>discord</u>,
conflict in level between elements. In what follows, we consider
only discord between elements from different components of grammar;
here the effects are quite striking (sometimes definitely funny),
although discord within a component deserves study too. We present
below a sampling of cases in which formal and casual lexical entries,
syntactic rules, and phonological processes are variously juxtaposed.
To indicate degrees of deviance, we have used the question mark
quantitatively--that is, the more deviant the sentence is thought to
be, the greater the number of question marks assigned to it (up to
three). The asterisk is used to mark sentences we judge to be so far
beyond the pale they are ungrammatical (though we return to these
examples in later sections).

<u>Formal lexicon, casual syntactic processes</u>. Casual topicalization
of NP conflicts with the formal lexical items in

> (14) ?Men who eschew controversy we are not in need of.

Discord results when the formal impersonal <u>one</u> appears in casual
pseudo-imperative conditionals or in a sentence with a casual tag:

> (15) *Wash oneself every day, and one's skin gets dry.
> (16) *One should eat violet leaves, should one?

<u>Formal lexicon, casual phonology</u>. Discord (in different degrees)
arises in the association of formal lexical entries with the casual
phonological processes that give <u>gonna</u>, <u>wanna</u>, and <u>lemme</u>:

> (17) I submit that what they are { $^{going\ to}_{??gonna}$ } do might
> well discredit the program in its entirety.

(18) I {want to / ?wanna} make one thing perfectly clear.

(19) {Let me / ???Lemme} assure you of my dedication to this office.

Formal syntax, casual lexicon. Adverbial preposing conflicts with the casual entries go for and you knów:

(20) ??Never did he go for rock or cool jazz, you knów.

The casual impersonal pronoun they and the predicate great are discordant with a sentential subject. Compare casual (21a) and formal (21b) with the juxtaposition of styles in (21c).

(21) a. It's great they finally caught up with those hoods.
     b. That the miscreants were finally apprehended is splendid.
     c. ??That they finally caught up with those hoods is great.

Formal syntax, casual phonology. Casual processes of flap deletion, auxiliary reduction, and desyllabication (illustrated in (22a)) are at variance with the formal sentential subject of (22b).

(22) a. [hi dIn se Id bin izɨ wr̩d tə se] He didn't say it would be an easy word to say.
     b. ??[ðæɾId bin izi wr̩d tə se dIn mærr̩] That it would be an easy word to say didn't matter.

Formal phonology, casual lexicon. Suppressing contraction renders (23) discordant.

(23) ???Let us cut out now, baby.

The sentential idioms of (24) lose their idiomatic understanding when casual phonological processes are suppressed, as in (25).

(24) a. What's up?
     b. You're telling mé!
     c. So's your old man!
(25) a. What is up?
     b. You are telling mé!
     c. So is your old man!

Formal phonology, casual syntax. The casual tag of (26) conflicts with the formal suppression of contraction.

(26) ?She is the chairman, is she?

The casual deletion in (27) conflicts with suppression of contraction.

(27) *Have not seen George around for a long time.

3.1. A more complex linear model.

Given that a three-way division is not adequate, the next possibility to explore is that there are merely more degrees of casualness and more degrees of formality, as various writers have suggested. A gradation model of this type might provide two scales deviating from the neutral, or zero, position--say, from +1 to +10 for formal elements and from -1 to -10 for casual elements (the choice of the number 10 here is without significance). Each linguistic element (lexical entry or rule) would be assigned a value between -10 and +10, and the degree of stylistic deviance of a sentence could be calculated as the difference between the values of the most extreme elements in it.[5] Thus, a sentence having a very formal element in it, one assigned the value +9, and also a fairly casual element, one with the value -5, would receive the deviance index 14, and would be predicted to be more anomalous than a sentence with the same formal element in combination with an only slightly casual (-2) element (index 11), or a sentence with the same casual element in combination with a moderately formal (+4) element (index 9).

Our gradation model is quite similar to (but distinct from) DeCamp's model. DeCamp proposes to order linguistically variable elements on a linear scale, each point on the scale separating occurrence of the element from its nonoccurrence. DeCamp does not incorporate neutral elements into his model, nor does he provide a mechanism for distinguishing larger or smaller distances between two elements (except insofar as there are intervening elements on the scale; but nothing guarantees that such intervening elements will happen to occur). On the other hand, DeCamp assumes that his scales are indefinitely divisible ('by calling it a continuum I mean that given two samples of Jamaican speech which differ substantially from one another, it is usually possible to find a third intermediate level in an additional sample' (354)), whereas the number of levels in our model is bounded by speakers' abilities in discriminating styles. This last difference between the two models points to the major distinction between DeCamp's treatment and ours: he is primarily interested in systematizing variation across speakers, while our purpose is to systematize variation across contexts for a single speaker. These are related types of variation, but not necessarily the same.

Within our framework, the linguist's problem is to determine which rules and lexical entries are stylistically marked and then to assign them values in a way that predicts both the correct ordering of elements and the correct relative ordering of discords. A first attempt at a sample of this catalogue is given in the next section.

3.1.1. Phonological rules.[6]

+10: uncontracted let us

+9: suppression of $t \rightarrow \alpha$ / __##, as in right, got, eat,

especially before word-initial consonants or in pausa; suppression of a rule that deletes morpheme-final t and d after certain continuant consonants, as in and, soft, must, especially before other consonants

+7: suppression of n → ∅ / V__C, as in can't, hand; suppression of a rule syncopating vowels, roughly

$$\begin{bmatrix} V \\ -stress \end{bmatrix} \rightarrow \emptyset \ / \ C \ \underline{\hspace{2em}} \ R \begin{bmatrix} V \\ -stress \end{bmatrix}$$

as in hindering, pedaling, happening

+4: failure to delete initial glides h and w in unstressed words, as in his, would; suppression of auxiliary reduction; failure to reduce vn to n in in, on, an and

0: obligatory morphophonemic rules

-1: rules yielding wanna from want to

-3: rules yielding gonna from going to

-5: vowel centralization (Shockey 1973 observes a significant degree of centralization in the conversational style of her subjects); flap deletion, as in magnetic and about it

-7: desyllabication after flap deletion, as in being [biŋ], be an [bin], it'd [Id]; rules yielding lemme from let me.

Note that formality in phonology largely derives from suppressing rules rather than from applying them.[7] Also note that it is very hard to find an optional phonological rule without any stylistic import whatsoever. In these respects, phonology is different from syntax, and it would be very interesting to try to explain why.

3.1.2. Syntactic rules.[8]

+10: counterfactual inversion, as in Were John here, we could discuss your problem

+8: subject-verb inversion after preposed negative elements, as in Nowhere does he state the nature of the process

+7: pied piping in questions and relatives, as in At whom are you smiling? and The person to whom he spoke was a former dean; preposing of adverbial phrases, as in To her closest friends we related what was happening

and <u>On your answer our future lives depend</u>; preposing of appositive clauses, as in <u>Feeling that he might be in danger, I ordered him to return</u> and <u>The largest single campus university in the U.S., Ohio State offers 250 programs of study</u>.

+5: failure to extrapose sentential subjects, as in <u>That the test case was disappointing surprised no one</u> and <u>For the test case to be disappointing surprised no one</u>.

+3: use of existential <u>there</u> with verbs other than <u>be</u>, as in <u>There are said to be several candidates for the job</u>, <u>There remained several matters to attend to</u>.

 0: passivization; flip tags, as in <u>This dog is handsome, isn't it?</u> and <u>This dog won't bite, will it?</u>; VP deletion, as in <u>These machines can handle that job, but the new ones can't</u>.

-2: extraposition from NP, as in <u>A man came in who was wearing a headphones stereo</u>; topicalization of NP, as in <u>This paper I'm going to regret ever having begun</u>. (Huddleston 1971:315 finds that the focusing achieved by topicalization of NP 'is effected just about exclusively' by passivization in scientific English).

-4: alpha tags, as in <u>You're going to town, are you?</u>; pseudo-imperative conditionals, like <u>Add acid and the solution will turn blue</u>; retention of pronouns in <u>Don't you talk to me that way!</u> and <u>I got me a wife</u>; left dislocation, as in <u>That guy, he's a bum</u>; right dislocation, as in <u>He's a bum, that guy</u>; emotive negative tags, as in <u>Not this bottle, you won't!</u>

-5: topicalization of VP, as in <u>Call a cab I never could</u>; emotive extraposition of NP, as in <u>It's great the way he's handling the ball</u> (Elliott 1971).

-9: various deletions of sentence-initial elements, illustrated by <u>Think I'd better get this in the mail today</u>, <u>See where he went?</u>, <u>Can't be many people here</u>, <u>Ask me, I'd say he went that way</u>.

3.1.3. <u>Lexical items</u>.[9]

+9: <u>hereby</u>

+8: performative formulas like <u>I submit</u>, <u>let me say</u>, <u>I should point out</u>, <u>I conclude</u>, etc.

+7: impersonal one (rather than you); eschew

+2: subsequently, in this respect/regard, in conjunction with, in the event

 0: then, and, after, chair, ...

-3: intensifying pretty, really, awful; you know and similar filler items; impersonal they

-5: many slang expressions, for instance exclamatory boy!, great [good], beat it [leave], step on it [hurry up], bust [arrest], go for [be interested in]

-8: obscene expressions

We return now to the discordant example sentences of section 2.2, to see what deviance indices would be assigned to them by the scheme just outlined. The table below includes all question-marked (but not asterisked) examples:

Example number	Deviance index	Question marks
(14)	9	?
(17)	11	??
(18)	9	?
(19)	15	???
(20)	11	??
(21c)	10	??
(22b)	12	??
(23)	15	???
(26)	8	?

Our assignment of values to the elements in these sentences is consistent with our original judgments of the relative deviance of the sentences; an index of 8 or 9 corresponds to one question mark, 10 to 12 corresponds to two, and by 15 we have reached three question marks. We discuss the asterisked examples in section 3.3.

3.2. Potential difficulties

The model of stylistic level outlined above could be inadequate in a number of ways. In fact, several of these difficulties are implicit in the previous discussion. But let us take up the problems one by one.

Variation in values by environment. It might be impossible to assign invariant values to an element because the degree of formality of the element is different in different linguistic environments. In particular, it might be impossible to assign an invariant value to a rule because application of the rule to different lexical items or structures yields results not on the same stylistic level. We have already seen a few cases of this difficulty. For instance, as

noted in the previous section, existential <u>there</u> with verbs other than <u>be</u> is somewhat formal. But <u>there</u> with predicative <u>be</u> is neutral; there is nothing marked about sentences like

(28) There is a car in the driveway.

Consequently, unless it can be argued that there are two or more <u>there</u>-insertion rules, we have here an example of a rule that gives different values in different environments.

Similarly, pied piping is not a rule, but a mode of application of rules. Yet the result of moving <u>wh</u>-words in questions and relatives has different values, depending upon whether or not these rules pied pipe.

We have also pointed out that topicalization of NP is less casual than topicalization of VP. For some speakers, moreover, topicalization in negative sentences is less casual than topicalization in positive sentences, so that (29) is less casual than (30):

(29) Beans I never eat.
(30) Beans I eat often.

Other cases are easy to find. Preposing of adverbials has quite different effects depending upon what sort of adverbial is fronted. Contrast the formal sentences in 3.1.2, which have preposed negative elements and the phrases <u>to her closest friends</u> and <u>on your answer</u>, with sentences with preposed time adverbials, which are stylistically neutral:

(31) Yesterday we went to Philadelphia.
(32) At the beginning of the week they should receive
    the letter.

The effect of preposed negative elements isn't constant, as a matter of fact, since the <u>not only</u> construction is not particularly marked:

(33) Not only do I read Spanish, (but) I also play
    polo.

For syntax, it seems to be that stylistically marked elements <u>typically</u> vary in their effect according to environment. Phonological rules and lexical items don't seem to exhibit variation to this degree. We have, however, illustrated a few cases of variation within phonological rules. Presumably, the rules yielding <u>lemme</u>, <u>gonna</u>, and <u>wanna</u> are drawn from the same set, yet the three results are not on a par stylistically. And perhaps the contraction in <u>let's</u> can be argued to be part of a more general contraction process, in which case this general process would have different stylistic values in different environments. Moreover, extension of phonological processes has been widely noted by students of casual speech. Nevertheless, the syntactic cases are much more striking than the phonological ones, and there is no obvious syntactic parallel to

the paths along which phonological processes extend with increasing
casualness of speech.

Complexity of the deviance function. The deviance function
might be more complex than F - C, where F is the extreme formality
value and C the extreme casualness value. The correct function
might involve coefficients, or assign different weights to different
components of grammar, or even be nonlinear. We see no indication
that this is so, except in the cases discussed in section 3.3.

Range and distribution of values. The presentation of the model
above claims that the most formal possible element is as marked as
the most casual possible element, and provides equally spaced degrees
between a neutral point and these extremes. It is not required that
each component of the grammar of a language, or even each language,
exhibit elements at the extremes. Moreover, it is not required that
the value within some component, or the total set of values for a
language, distribute themselves evenly over the range from +10 to -10.
Values might cluster at (say) +10, +8, +2.5, 0, -5, and -7. Restricted
ranges and skewed distributions are consistent with the model as
presented. But they would indicate--especially if they recurred in
many languages--that the model was insufficiently restricted. We have
not surveyed a large enough body of phenomena to tell whether this
problem arises.

At the moment, then, it appears that the major difficulty with
the gradation model is the variability of elements according to
environment. This is a very serious difficulty, and it is not
easy to see how to accommodate the sorts of facts exemplified above.
A brute force solution would be to mark subrules of rules for their
stylistic level, and to mark, in the same way, lexical items to
which rules apply--that is, to treat formality as squishy (Ross 1972)
in several dimensions 'below the level of the rule'.

David Dowty has pointed out to us that our observations can
be taken as leading to quite a different conclusion: since the
stylistic level of transformational operations seems to be psycho-
logically real, facts about discord can be interpreted as evidence
that similar operations with different stylistic levels constitute
different rules. That is, we might simply conclude that there are
two or more distinct there-insertion rules, several adverbial preposing
rules, several topicalization rules, distinct rules of wh-movement
according to whether or not pied piping takes place, and so on.
In some cases--there-insertion, for instance--this conclusion would
not be suprising, but in others--as in the pied piping examples--it
would be distasteful, since we would have to break up a number of
rules in a parallel way.

3.3. Grammatized discord
The examples in (24) and (25) of section 2.2 illustrate a
specialized form of deviation from the simple gradation model: the
combination of a casual lexical item (in each case a sentential idiom)
with formal phonology (failure to contract auxiliaries) is simply

impossible. Apparently, the English sentential idioms <u>What's up</u>, <u>You're telling mé</u>, and <u>So's your old man</u> must either be marked as obligatorily undergoing deletion of the vowels in <u>is</u> and <u>are</u>, or lack these vowels in their phonological underlying representations. Note that degree of discord by itself is not sufficient to explain our judgments; on the assumption that the sentential idioms are simply slang, or just a bit more casual than the slang expressions listed in section 3.1.3, the deviance index for (25) is only 9 to 11.

In (27) above, we saw a similar example, this time involving a syntactic deletion rule in combination with the suppression of contraction. Apparently, contraction is obligatory in certain reduced sentences. Again, the deviance index for (27) is 13, which is less than the index for (19) and (23).

Sentence (15) (similarly (16)) illustrates an interaction between a syntactic rule and the formality of the lexical item <u>one</u>. The syntactic rule in question is one that forms imperative-looking sentences from conditional remote structures. The source of (15) would be the grammatical

  (34) If one washes oneself every day, one's skin
     gets dry.

parallel to the derivation of

  (35) Wash yourself every day, and your skin gets dry.

from

  (36) If you wash yourself every day, your skin gets dry.

(understood with the impersonal <u>you</u>). Apparently, this rule of pseudo-imperative conditional formation must require the subject <u>you</u> in the antecedent of the conditional; antecedents with <u>one</u> in them cannot undergo the rule, even though there is no semantic anomaly. Although the deviance index for (15) is only 11, we suggest that the explanation for the restriction on the rule is the stylistic discord between the rule and the lexical item <u>one</u>. Like some of the perceptual constraints studied by Grosu 1972, the condition has become <u>grammatized</u>, made absolute rather than graded. Grosu notes that different languages grammatize different constraints--English, for instance, has grammatized a constraint against complex prenominal modifiers, while German has not. Similarly, we would not be surprised to find other languages in which the translations of (15) and (16) were merely somewhat odd.

We conclude that the most attractive accounts of stylistic level are inadequate in several ways. Apparently, what is called for is a descriptive device of at least the complexity of subrule hierarchies (or the partition of standard rules into many rules each), plus the postulation of conditions on rules which are motivated by stylistic discord but are categorical.

Footnotes

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1. Traditional discussions of usage--the surveys by Fowler, Gowers, Partridge, and the Evanses, for instance--tend to concentrate on lexical choices, and their judgments of stylistic levels are not clearly distinguished from judgments about grammaticality, clarity, beauty, regional or arelaistic character, and other matters. Technical linguistic discussions have concentrated on phonology (as in Dressler 1972 and Zwicky 1972b) or on correlations between linguistic and sociolinguistic variables.

2. To classify styles we use the terms _formal_ and _casual_ where Labov 1966 uses _careful_ and _casual_, respectively (he reserves _formal_ and _informal_ to characterize contexts, noting that styles and contexts are correlated but not coextensive).

3. See Schmerling 1973 for a discussion of subjectless sentences. Schmerling 582 notes that 'some elusive element of spontaneity and impulsiveness' is involved in uttering sentences like _Guess I should be going_.

4. Thus, Labov's studies see five or more stylistic levels, ranging from casual speech to the reading of minimal pairs, and Fouché 1959, treating liaison in French, distinguishes two styles (labeled _conversation sérieuse et soignée_ and _style soutenu_) more elevated than a basic style (_conversation courante_).

5. This proposal has something of the flavor of Ross' 1964 treatment of degrees of grammaticality for superlative constructions. In addition to rules which have no effect on grammaticality, there are rules whose application is said to raise or lower grammaticality by a specified number of degrees.

6. These examples are drawn from various sources, in particular Zwicky 1972a.

7. Lawrence Schourup has pointed out to us that contracted _mightn't_ and _shan't_ are more formal than uncontracted _might not_ and _shall not_.

8. The examples are taken from various sources, in particular Ross 1967.

9. Wells 1960 observes a general preference for nominal forms in formal style, where verbal expressions would be used at a non-formal level. He contrasts _at the time of our arrival_ with _when we arrive/arrived_, _in the event of his doing that_ with _if he does that_.

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On the Semantics of Futurate Sentences*

Fred Goodman

0. Introduction

G. Lakoff 1971:339 credits K. Burt with observing 'that the
future auxiliary will can be deleted in what looks like a very
strange set of environments in terms of presupposition-free syntactic
structure.' Some examples he gives:

(1) a. The Yankees will play the Red Sox tomorrow.
    b. The Yankees play the Red Sox tomorrow.
    c. The Yankees will play well tomorrow.
    d. *The Yankees play well tomorrow.
    e. I will get my paycheck tomorrow.
    f. I get my paycheck tomorrow.
    g. I will get a cold tomorrow.
    h. *I get a cold tomorrow.

Lakoff concludes that 'in terms of presupposition-free syntax
no general principle for the deletion of the will can be stated.
However, ...will can be deleted just in case it is presupposed that
the event is one that the speaker can be sure of.'

Vetter 1973:105 points out that if Lakoff's formulation is
correct then the sentences

(2) a. I'm not sure that the Yankees play the Red
       Sox tomorrow.
    b. I can't be sure whether the Yankees play the
       Red Sox tomorrow.

'would deny their own presupposition.' He concludes that 'rather
than presupposing the event to be one the speaker can be sure
about, it seems to me that the sentences without the will immediately
entail that the event is planned.'

Prince ms. 1973 uses the term futurate for present-tense
sentences that can occur with future time adverbials, a piece of
terminology I adopt here. She is particularly interested in
progressive futurate sentences, like (3d) below:

(3) a. The hostages will be trying to escape tomorrow
       until the very last minute.
    b. The hostages are trying to escape tomorrow
       until the very last minute.

76

(3) c. Mary will be taking prelims next weekend.
    d. Mary is taking prelims next weekend.
    e. Mary will be taking prelims next weekend when
       you call.
    f. *Mary is taking prelims next weekend when you
       call.

From examples like these, she concludes that 'if one derives futurate
be-ing via will-deletion, it is clear that (1) additional bizarre
conditions will have to be met, and (2) in certain cases, will-
deletion is blocked.'[1] She then proposes that no will-deletion
transformation exists, but rather that 'futurate be-ing is derived
from an underlying structure containing PLAN as its higher predicate'
and that simple futurate has 'DEFINITE or CERTAIN as a higher predicate.'
   Prince, then, disagrees with both Lakoff and Vetter on the
mechanics of a will-deletion transformation; however, she takes
basically Lakoff's notion of 'sureness' to derive simple futurate
sentences, and Vetter's notion of a 'plan' to derive progressive
futurate sentences.
   Jenkins 1972 takes an interpretivist view of the phenomena.
He considers sentences like the following:

(4) a. *John knows the answer tomorrow.
    b. I hope that the Red Sox do well tomorrow.
    c. *I know that the Red Sox do well tomorrow.
    d. He will be right back.
    e. *He is right back.
    f. It will do you some good.
    g. *It does you some good.

Commenting that 'in a theory which countenances will-deletion one
would expect all cases of will...to be able to delete' (180), he
maintains that 'there are no underlying modals later deleted by
transformational operations. Rather we argue that in each case the
specific implicit model interpretation of futurity is due to a rule
of semantic interpretation' (174). He does not, however, provide
any precise account of what those interpretations are, and is,
therefore, unable to account for the deviance of (4a), which problem
he sets aside (178).
   In this paper I consider only futurate sentences. Thus, I
will not be looking at such environments as if complements, POSS-ing
complements, and for-to complements, where no will[2] can ever appear.[3]
I believe that these must receive a separate account from futurate
sentences.
   My approach is to present a series of contrasts between futurate
and future sentences. In so doing, I hope to isolate the additional
semantic characteristics or conditions which distinguish the
futurate class. The following are those conditions as I will develop
them:

(A) The entailment that at the time of the assertion
    the speaker believes that a current state of
    affairs exists, the future result of which is
    described in the surface form;

(B) the entailment from the time adverbial that there
is a definite upper time bound for what is
described;

(C) the presupposition that the speaker has no control
over whether or not what is described in the
surface sentence will in fact result from the
current state of affairs.

1. Transformation or interpretive rule

As is obvious from my discussion of the literature, there is
considerable controversy about whether there is a transformation
or an interpretive rule involved; and, if it is a transformation,
whether there is ever a will deleted along with the higher material.
I do not know which alternative is the correct one, but I believe
that I can contribute the first step in the final analysis of futurates,
no matter from what school that analysis comes.

If a transformation (be it one that deletes will or one that
deletes higher material) is the best explanation, then the structure
which triggers that transformation must be specified in detail. If
my conditions accurately characterize the class of futurates, then
those conditions must be represented in the deep structure.

Alternatively, if an interpretive rule is involved, then the
interpretations must be specified precisely. As Jenkins points out,
if the interpretation simply consists of re-inserting the future
auxiliary, then it would be expected that any sentence containing will
should also appear in futurate form, since the two would have identical
interpretations. It must be remembered that interpretive rules
perform an important formal function, marking as deviant those
sentences which have contradictory interpretations. Within this
theory, then, my conditions, if correct, could be used as those
interpretations.

2. Condition A: current state of affairs

The first semantic requirement is the entailment that at the time
of the assertion the speaker believes that a current state of affairs
exists, the future result of which is described in the surface form.
This claim can be brought out in several ways.

Consider first the sentences below.

(5) a. Kurt will have a date with Wanda June tomorrow.
b. Kurt has a date with Wanda June tomorrow.
c. ?Kurt will have a date with Wanda June tomorrow,
but he probably won't keep it.
d. Kurt has a date with Wanda June tomorrow but he
probably won't keep it.

I chose the idiom to have a date deliberately, because it is ambiguous
in English in just the right way: under one reading, it means to
have an arrangement to go somewhere with someone, while under the
other it means actually to go.

Sentence (5a) is ambiguous between the assertion that arrangements for a date between Kurt and Wanda June will be made tomorrow, and the assertion that arrangements have already been made for them to go somewhere together tomorrow. In my speech the first of these two readings is very much preferred. Sentence (5b), however, has only the second of these two readings. It asserts that the current state of affairs is that there is an arrangement between Kurt and Wanda June that they will be together tomorrow.

The above distinction between the readings is brought out especially well by (5c) and (5d). In my speech the preferred reading for (5c) seems to be that Kurt both will and will probably not take Wanda June out, which is contradictory. I can, however, get the other reading--clearly expressed in (5d)--in which Kurt has an arrangement with Wanda June but probably won't honor it.

As further evidence for the first condition, consider the following:

(6) a. I don't know whether or not the Yankees will {be playing / play} the Red Sox tomorrow.

b. I don't know whether or not the Yankees {are playing / play} the Red Sox tomorrow.

c. I don't know whether or not the Yankees will {be playing / play} the Red Sox tomorrow, because it may rain.

d. *I don't know whether or not the Yankees {are playing / play} the Red Sox tomorrow, because it may rain.

e. I don't know whether or not the Yankees will {be playing / play} the Red Sox tomorrow because tomorrow is Memorial Day.

f. I don't know whether or not the Yankees {are playing / play} the Red Sox tomorrow because tomorrow is Memorial Day.

g. The Yankees {are playing / play} the Red Sox tomorrow, if it doesn't rain.

In (6a) and (6e) there are two possible readings, one of which is that the speaker does not know whether or not the game is scheduled and the other of which is that he does not know if the game will actually occur. The corresponding sentences (6b) and (6f) have only the first of these readings. They are perfectly acceptable because the scheduling is noncontingent--i.e. the fact that tomorrow is Memorial Day did or did not affect the scheduling of the game.

The sentences (6c) and (6d), on the other hand, can only be said to express a contingency about whether or not the game will actually occur, and not about whether or not the game is scheduled. Thus, (6c) has the second reading of (6a) and (6e), while (6d) is deviant because that reading is not in accord with condition A. Notice that in (6g) the outcome of the schedule is itself asserted to be contingent upon whether or not it is raining; (6g) is therefore acceptable.

The principle being invoked here is that a current state of affairs **cannot be contingent** upon a future state of affairs (although the current state of affairs can be such that its outcome is contingent upon some future state). This relationship can be brought out in another way by examining sentences like

(7)   a.   The Yankees will $\{^{be\ defeating}_{defeat}\}$ the Red Sox tomorrow.

       b.   *The Yankees $\{^{are\ defeating}_{defeat}\}$ the Red Sox tomorrow.

       c.   The Yankees will $\{^{be\ playing}_{play}\}$ well tomorrow.

       d.   *The Yankees $\{^{are\ playing}_{play}\}$ well tomorrow.

       e.   It is prearranged that the Yankees $\{^{are\ defeating}_{?defeat}\}$ the Red Sox tomorrow.

In (7a) a prediction is being made about the outcome of the game. The outcome of the game is a future event contingent upon the way in which the game is played, which is future with regard to the assertion; consequently (7b) is out, since it cannot pertain to a current state of affairs. Similarly, (7c) is contingent upon the state of the Yankees during the game and cannot, therefore, be expressing a current state of affairs. (7d) is thus deviant, and I can think of no context to make it acceptable.

The sentence pair represented in (7e) is particularly interesting and important. The simple futurate form is possibly acceptable, though in my speech it is questionable. If it is acceptable, it seems to be saying that the outcome of the game, the event being described, has somehow been prearranged. It is hard for me to imagine how a future event as such can be prearranged; as a result, I find the simple futurate form to be very doubtful. The futurate progressive form, on the other hand, sounds perfectly good to me. It seems to be describing the prearrangement itself, rather than the event which is yet to occur. As such, then, the futurate progressive form is describing a currently extant state of affairs and is, therefore, in accord with condition A. In contrast, the simple futurate is not fully in accord with condition A because it doesn't describe (in a direct way, at any rate) a current state of affairs.

2.1.   The notion of a plan

It is basically the above data, with the possible exception of (7e), which led Vetter to conclude that futurate sentences must describe planned events. Additional data of the type in (7e) caused

Prince to say that only futurate progressive sentences had a higher predicate PLAN. As I will now show, the notion of a plan is far too narrow to account for all the instances of English futurate sentences, be they simple or progressive.

Taking the claim quite literally, the predicate PLAN requires a subject, though this subject is apparently always deleted or lost in the interpretation of the surface sentence. Now consider:

(8) a. The sun will {$^{be\ setting}_{set}$} at 8:39 tomorrow.

b. The sun {$^{is\ setting}_{sets}$} at 8:39 tomorrow.

c. An eclipse will {$^{be\ occurring}_{occur}$} tomorrow morning.

d. An eclipse {$^{is\ occurring}_{occurs}$} tomorrow morning.

e. It will {$^{be\ raining}_{rain}$} tomorrow.

f. *It {$^{is\ raining}_{rains}$} tomorrow.

To retain the predicate PLAN for (8b) and (8d), an appeal to the notion of a divine planner would have to be made. It makes no sense to say that physical laws plan the movement of the heavens. Thus, it might be said that these futurate sentences are acceptable because there is a divine plan controlling the movement of the heavens. The same divine plan, however, could also be said to control the changes in climate, if I remember my religion correctly. The issue would not then seem to be the existence of a plan, but rather whether or not the speaker has knowledge of the workings of that plan. I showed in sentence set (6), however, that speaker knowledge of the details of a plan is not required to allow futurate forms to appear. The notion of a plan then, when combined with the fact that (8b) and (8d) are acceptable while (8f) is deviant, would seem to yield a contradiction.

Under my formulation no notion of plan is required. I must merely appeal to the fact that the position of the sun and the moon are believed to be predictable by current technology, while the state of the weather is not believed to be predictable. Thus, given any current state of the heavens, any future state is believed to be completely determined. This belief on the part of speakers is sufficient to allow futurate forms of type (8b) and (8d) under my formulation. But people have no such belief about the predictability of the weather, so that statements like (8f) about future weather conditions are prohibited. Notice that (8f) could be made perfectly acceptable if we imagine that it is offered in a different world-- say on the moon, where the weather man, rather than predicting the weather, pulls levers that control the climate in the dome.

2.2. The notion of an event

According to the formulations given by both Vetter and Lakoff, futurate sentences describe events, though the notion of event is

undefined. From an intuitive standpoint, however, it appears that
my contention, that what is described must merely be something
which the speaker believes can result from a previous state of affairs,
is broader than the contention that these sentences must describe
events.

Consider the following futurate sentences:

> (9) a. I am busy tomorrow.
>   b. I can't see you tomorrow.
>   c. The computer is down tomorrow.

Each of these sentences is clearly stative. To test this, consider
that each could be the subject of _seems_ and none could be the object
of _force_. I see no way in which they could be said to describe
events, even in the broadest interpretation of that term. Rather,
each describes a state which will result from some state of affairs
currently obtaining: hence, each is perfectly acceptable.

2.3. The notion of certainty or sureness

I now examine the contention that the occurrence of futurate
sentences is in some way dependent on speaker sureness or certainty.
Lakoff says that this notion must be presupposed, and Prince says
that it appears as a higher predicate in simple futurate sentences.
I will now show that no such notion is necessary.

Considering first the claim that this sureness is presupposed,
it would follow that those environments in which the sentence is
presupposed to be true would be ideal for futurate sentences. Factive
verbs are known to supply such environments in their complements.
But compare

> (10) a. It's too bad that the Yankees will $\{{}^{be\ playing}_{play}\}$
>   well tomorrow.
>   b. *It's too bad that the Yankees $\{{}^{are\ playing}_{play}\}$
>   well tomorrow.

For sentence (10b) the speaker presupposes that the complement
sentence is true; therefore, it should follow that the futurate form
is acceptable. But it is deviant. In fact, the distribution of
futurates within complements of factives is practically identical
to their distribution in nonfactive environments. I will leave it
to the reader to verify this fact for himself. This fact argues
against the claim that sureness is presupposed.

That no higher predicate of the form CERTAIN or DEFINITE, as
proposed by Prince, need be present can be seen by examining again
sentence sets (2) and (6). In those sets there are futurate simple
sentences as complements of negated _be sure_ and _know_. The claim
that these futurate simple sentences have a higher predicate CERTAIN
would entail that CERTAIN could be dominated by its own negation,
which would be a contradiction. This difficulty argues against the
higher predicate analysis.

3. Condition B: a definite upper time bound

The second semantic condition in my formulation is that a time adverbial must specify a definite upper time bound for what is described. As a first demonstration of this principle consider the contrast between until, before, and by in the following sentences.

(11)   a. The computer will be down until 10:00 tomorrow.
         b. The computer is down until 10:00 tomorrow.
         c. The computer will be down before 10:00 tomorrow.
         d. ?The computer is down before 10:00 tomorrow.
         e. The computer will be down by 10:00 tomorrow.
         f. *The computer is down by 10:00 tomorrow.

To describe the differences between the above three time adverbials in general let T be some fixed point in future time and $P(t)$ be some proposition whose truth is predicated over time. Then

$P(t)$ until T means that $P(t)$ is true if and only if t is not later than T;

$P(t)$ before T means that if t is earlier than T, then $P(t)$ is true;

$P(t)$ by T means that if $P(t)$ is false then t is earlier than T.

Applying this formalism to the sentences in (11), we see that in (11a) the assertion is made that the state will last no later than 10:00 tomorrow. There is a clear upper time bound asserted, and consequently (11b) is acceptable. In (11c) the assertion is made that the state will obtain at a time earlier than 10:00 and no assertion is made about any time after that. (11d) is, therefore, marginally acceptable, and does seem to imply that the computer will no longer be down after 10:00. (11e), however, clearly asserts that the state will come into being prior to or at 10:00. The implication that the state will continue beyond 10:00 is present, so that (11f) is deviant.

3.1. Retentive predicates

To extend the analysis slightly, notice that there is a class of predicates in English whose properties, once ascribed to an individual, are assumed to be retained by that individual for an indefinite period into the future--for instance, knowing the answer and being dead. Once someone knows an answer he is assumed to know it for an indefinite period into the future, and once someone is dead he is assumed to be permanently dead. I do not mean that the property cannot be lost, only that the normal assumption is that it is retained indefinitely into the future. I will term these predicates retentive. It is the existence of retentive predicates, among other things, that caused Jenkins to conclude that no trans- formation could be specified to account for futurate sentences.

The behavior of retentive predicates with regard to until, before, and by is the precise inverse of that of futurate sentences, as can be seen in the following sentences.

(12) a. *John knew the answer until 10:00.
        b. *John was dead until 10:00.
        c. John knew the answer before 10:00.
        d. John was dead before 10:00.
        e. John knew the answer by 10:00.
        f. John was dead by 10:00.

Thus, the until sentences are deviant and the by sentences are acceptable. The before sentences are acceptable but cannot have the reading that the state described no longer pertained after 10:00.

In conclusion, since the retentive predicates cannot be upward time bounded, their futurate forms should be deviant, which is correct:

(13) a. John will know the answer tomorrow.
        b. *John knows the answer tomorrow.
        c. John will be dead tomorrow.
        d. *John is dead tomorrow.

Neither the notion of certainty nor the notion of plan can account for the facts in (13), since the attainment of these predicates can be both planned and certain—as in the case of studying all night to learn the answer, or of having terminal cancer.

3.2. Present perfect forms as retentive predicates

Vetter points out that will never deletes in the future perfect. This is just what we would expect, given the observations in the preceding section. Sentences like

(14) a. It seems that the Yankees have played the
            Red Sox.
        b. *I forced the Yankees to have played the Red Sox.
        c. It seems that the computer has been down.
        d. *I caused the computer to have been down.

show that the present perfect sentences are stative. In addition, these states are retentive, since once the Yankees have played the Red Sox it will always be the case that they played them, and once the computer has been down it is always the case that it was down then. It follows then that since present perfect verb forms are retentive predicates, they cannot have futurate surface realizations:

(15) a. The Yankees will have played the Red Sox
            tomorrow.
        b. *The Yankees have played the Red Sox tomorrow.
        c. The computer will have been down tomorrow.
        d. *The computer has been down tomorrow.

3.3. The adverbial in a moment

Another important datum that lends strong support to the formulation of condition B has to do with the relationship of achievement versus nonachievement verbs to the future time adverbial

in a moment. This adverbial describes an extremely narrow time
bound, but is nonetheless still clearly a future time adverbial
under one reading. Given condition B, then, we would expect that
in a moment would be very restricted in its appearance in futurate
sentences. This is in fact the case.

Dowty 1973b presents four classes of verbs--describing states,
activities, accomplishments, and achievements. Under his analysis,
only achievement verbs have a COME ABOUT as the highest verb in
their remote structure representation. That is, only achievement
verbs represent a change of state at the moment of their realization.
Thus, only achievement verbs would seem to guarantee an upper time
bound, and we would then expect only achievement verbs to occur in
futurate sentences with the adverbial in a moment. Note the following
contrasts:

STATE
    (16) a. The computer is down tomorrow.
           b. *The computer is down in a moment.

ACTIVITY
           c. The Yankees play the Red Sox tomorrow.
           d. *The Yankees play the Red Sox in a moment.

ACCOMPLISHMENT
           e. Nixon delivers a Watergate speech tomorrow.
           f. *Nixon delivers a Watergate speech in a moment.

ACHIEVEMENT
           g. Dean begins his testimony tomorrow.
           h. Dean begins his testimony in a moment.

Only with achievement verbs is the described state completed
at the point in time to which it is ascribed. Thus, the moment that
Dean actually begins to testify, the state of beginning his testimony
is completed. Thus, only achievement verbs can occur in futurate
sentences with in a moment. As additional evidence, notice that
sentence (16d) has a nonactivity reading (in which the game will
begin in a moment), and that this reading is acceptable.

3.4. Indefinite future time adverbials
As a result of the progressive forms of the following sentences

    (17) a. Mary will { be taking / take } prelims next weekend
             when you call.

          b. * Mary { is taking / takes } prelims next week when you
             call.

          c. Joe will { be cooking / cook } dinner tomorrow when
             he's unexpectedly shot.

          d. * Joe { is cooking / cooks } dinner tomorrow when he's
             unexpectedly shot.

(17) e. Sue will $\{ \begin{smallmatrix} \text{be mowing} \\ \text{mow} \end{smallmatrix} \}$ the lawn tomorrow when
she discovers the body.

f. *Sue $\{ \begin{smallmatrix} \text{is mowing} \\ \text{mows} \end{smallmatrix} \}$ the lawn tomorrow when she
discovers the body.

and the apparent problems associated with predicting their occurrence,
Prince decides that the futurate be-ing must be derived from a
higher PLAN predicate. But she completely fails to notice that the
same restriction applies to simple futurate sentences as to
progressive futurate sentences. As a result, her contention that
the two must have separate sources no longer seems correct.

The significant characteristic of (17), and of most of Prince's
other examples, is that they contain an indefinite future time
adverbial. The times when the call will be made or when the body
will be found are not known and are therefore indefinite. The
unacceptability of (17b), (17d), and (17f) then follows directly
from my condition B, which says that there must be a definite upper
time bound. Notice that each sentence also contains a specific
binding time phrase, such as next week or tomorrow, and that these
combined with after (rather than when) would make (17b), (17d), and
(17f) all acceptable.

3.5. Some special idioms
Jenkins observes that there are some special idioms in
English which can never appear as futurates:

(18) a. He will be right back.
     b. *He is right back.
     c. It will do you some good.
     d. *It does you some good.
     e. It (the sweater) will do.
     f. *It (the sweater) does.

He concludes that anyone advocating a transformational approach
to futurates would have to mark these idioms as not undergoing the
rule. Such marking would not be necessary with an interpretive rule.
As (18h) shows, the problem with (18b) derives

(18) g. He will be back in a moment.
     h. *He is back in a moment.

from the fact that right back is the same type of adverbial as
in a moment--i.e. it requires that a change of state occur at the
moment of its realization; therefore, (18b) is completely predictable
from condition B.

In the case of (18c) and (18e), both the do predicates are
retentive. Therefore, (18d) and (18f) are regular. The fact that
these idioms cannot appear in futurate form does not require marking.

4. Condition C: No speaker control

The third and last condition is that futurate sentences have the presupposition that the speaker has no control over whether or not what is described in the surface sentence will in fact result from the current state of affairs. That an additional restriction of the above type is needed can be seen from the sentence pairs in (19).[4]

> (19) a. Kurt has a date with Wanda June tomorrow.
> b. I have a date with Wanda June tomorrow.
> c. Kurt dates Wanda June tomorrow.
> d.?*I date Wanda June tomorrow.

The problem is that (19d) is odd, whereas (19c), where the speaker is not the subject, and (19b), where a slightly different assertion is being made by the speaker about himself, are perfectly acceptable. As it turns out, there are analogous phenomena. In (20), (20a) is acceptable while (20b) is deviant.

> (20) a. John believes it's raining out even though
> it's not.
> b. *I believe it's raining out even though it's
> not.

The contrast derives from the fact that simple assertions presuppose that the speaker believes them to be true. Consequently, (20a) has among its entailments:

> (21) a. John believes it's raining out.
> b. The speaker believes it's not raining out.

These entailments are in no way incompatible. They simply involve a disagreement between two individuals. (20b), however, has (22),

> (22) The speaker believes it's raining out.

instead of (21a), as one of its entailments. (20b) then involves the contradiction that the speaker both does and doesn't believe that it's raining. Hence the deviance of (20b).

It is my contention that a similar type of contradiction causes the deviance in (19d). Notice first of all that having a date for some future time differs from dating at some future time in that in the first, all arrangements have already been made, while in the second, action on the part of the participants is required for the action to be realized. (19d) is then different from the other three sentences in that only (19d) requires that the speaker perform some action after the time of the assertion and before the time of the achievement of the state described. Only (19d) is contingent upon future speaker action.

My hypothesis, then, is that for a futurate sentence to be acceptable, what is described by that sentence must be presupposed not to be contingent upon future speaker actions. If this

presupposition is present, then an argument similar to the one about (20b) could be made to show that of the sentences in (19), (19d) and only (19d) denies its own presuppositions and is, therefore, deviant.

As further evidence for **condition C, consider** (23).

      (23) a. Dean testifies before the Senate Watergate committee tomorrow.
            b. [...as asserted by Senator Ervin, the chairman of the committee]
            c. [...as asserted by Dan Rather, a CBS reporter]

(23c) seems to be merely reporting the facts, while (23b) seems to be insisting that the testimony will be given.

Again, the contrast can be explained by reference to analogous phenomena. Consider the contrast in the following two sentences:

      (24) a. It's too bad that John hates you.
            b. It's too bad that I hate you.

The that-clause in these two sentences is presumed by the speaker to be true. In (24a) the speaker is assuming something to be true over which he has no control; consequently, the sentence seems perfectly natural. In (24b), however, the speaker is asserting that something about himself which he assumes is true and over which he presumably has control, is too bad, so that (24b) has a funny flavor.

Similarly, in (23b) by Condition C, Ervin presumes that he can do nothing about the fact that Dean must testify. Since Ervin could in fact cancel Dean's testimony, (23b) amounts to an insistence on Ervin's part that he refuses to do so.

5. Conclusion

Without couching my analysis within any specific school, I have presented three semantic conditions which must be present for a sentence to appear in futurate form. To the best of my knowledge, the conditions account for all the distributional characteristics of these sentences.

Footnotes

*This paper was originally written for a syntax course in the spring of 1972 taught by Michael Geis, who spent many hours with me on this paper and provided many of the insights--especially condition C. I would also like to thank David Dowty and Jerrold Sadock for their help and comments on the first version, and Arnold Zwicky for his help and comments on this version.
    1. Prince also notices that examples like

(i) The plane was exploding at 2 p.m. until the money
     was delivered at noon.
(ii) *The plane would be exploding at 2 p.m. until the
     money was delivered at noon.

show that in some environments the <u>will</u> can never be present. A
great deal of her analysis pertains to past forms of <u>will</u>, and it
may be that her notion of PLAN for this class of sentences is correct.

2. It should be pointed out that there are two <u>wills</u> in English--
the volitional <u>will</u> and the future <u>will</u>. My discussion concerns
only the future <u>will</u>. Volitional <u>will</u> may appear in <u>if</u>-complements.

3. One other set of constructions which I will not examine is
in the complements of <u>hope</u> and the imperatives of such verbs as
<u>assume</u>, <u>suppose</u>, <u>imagine</u>. It is my belief that even a third process
is going on here, having to do with the fact that with these
complements no assertion whatsoever is being made about the actual
state of the world. That is, one can hope for, or command someone
to imagine, anything whatsoever, including round squares.

4. These facts were first pointed out to me by Michael Geis.

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Adverbial -ing

Clare M. Silva

In a recent squib Berman 1973:403 asks 'what sorts of -ing nouns' occur in sentences like

(1) I'm going fishing.

Berman attributes to Ross 1972:fn. 16 the notion that the acceptability of (1) depends upon the analysis of the -ing form as a noun (rather than a verb). I submit that (a) what appear to be -ing nouns are not verbs or nouns, but rather adverbials, and (b) these adverbials are members of a class that may be defined by general semantic characteristics.[1]

1. Syntactic properties.

The verbs which support these -ing constructions are deictic verbs of movement, including go, come, take, bring, and carry.

(2) a. Jane said she would $\{^{\text{come}}_{\text{go}}\}$ fishing with us.

b. Can we $\{^{\text{take}}_{\text{bring}}\}$ Harry camping next week?

c. He always carries that same knife hunting with him.

The do so test (Lakoff and Ross 1966) shows the -ing form to be within the verb phrase:

(3) a. John went fishing and I did so $\{^{\text{too}}_{*\text{hunting}}\}$.

b. He took a friend skiing and I did so $\{^{\text{too}}_{*\text{skating}}\}$.

The fact that these -ing forms have $\emptyset$ pro-forms, illustrated in (4), would appear to be evidence for their being verbs (and for the movement verbs' being auxiliaries); compare the effects of VP Deletion in (5).

(4) a. I went fishing and John went too.
     b. Mary's gone shopping and Janet has gone too.
(5) a. I may fish and John may too.
     b. Mary's gone and Janet has too.

However, the complements that occur with the -ing forms are like those of nouns rather than verbs. In particular, the -ing forms occur with

90

prepositional objects but not with plain objects.[2] Compare (6) with (7).

    (6) a. Jake said he'd be sailing {catamarans / in a catamaran} tonight.

         b. Sue is hunting {bear / for bears}.

    (7) a. Jake said he'd go sailing {*catamarans / in a catamaran} tonight.

         b. Sue's gone hunting {*bear / for bears}.

Despite this, and despite the fact that the _-ing_ form appears in object position, it fails to function as a noun insofar as it cannot be (a) questioned by _what_ or _which_, (b) pronominalized by _it_, _that_, or _one_, or (c) qualified by a nominal modifier:

    (8) a. *{What / Which}(fishing) are you going tomorrow?

         b. *We want to go hunting, but John doesn't want to go {it / that / one}.

         c. *We're going {our fishing / some fishing / good fishing / fishing that lasts all day}.

In the absence of evidence for the _-ing_ form as a verb or noun, the only function that it can fulfill within the verb phrase is that of directional adverbial. Positive evidence for an adverbial function is provided by the form's being used (a) in response to the question _where_, and (b) in adverbial phrases headed by _from_.[3]

    (9) a. Where are you {going? / taking him?} {Downtown / Through the tunnel / Fishing}.

         b. She has just come home from {the university / swimming}.

A peculiarity of the construction is that it may not appear with a very precise specification of place.

    (10) a. He went fishing {up north / ?under the willow by the pier / *at the marked spot}.

         b. She went shopping {downtown / ?at the Petite Boutique / *at the wig counter}.

2. <u>Semantic properties</u>.

The class of forms that function as adverbial <u>-ing</u> includes the following:[4]

(11) a.
dancing	boating	bowling
skiing	rowing	sight-seeing
skating	canoeing	caroling
hiking	sailing	Halloweening
jogging	caving	visiting
cycling	camping	calling [= visiting]
riding	swimming	

     b. fishing
        hunting
        nutting
        clamming
        mushrooming
        berrying
        shopping

Other forms may be constructed by compounding some of the above:

(12)
water-skiing	duck hunting
trout-fishing	ice-skating
deep sea fishing	motorcycling

All of the forms of (11) refer to activities which are characterized by the following properties:

(13) a. the activity is recreational;
      b. the activity is physical;
      c. the activity is relatively unstructured as far
          as game-like rules are concerned;[5]
      d. in carrying out the activity, there is continued
          motion from one undetermined location to
          another (cf. (10) above).

The forms of (11b) are further characterized by property (14):

(14) the activity involves seeking out and attempting
       to take or acquire some physical object(s).

To verify (13), we note that a nonrecreational activity will not do--

(15) *He's going $\begin{Bmatrix} \text{working} \\ \text{teaching} \\ \text{farming} \\ \text{studying} \end{Bmatrix}$.

nor will a nonphysical activity--

(16) *She went $\begin{Bmatrix} \text{puzzle-solving} \\ \text{day-dreaming} \\ \text{meditating} \end{Bmatrix}$

nor will physical, recreational activities that are structured in a game-like manner--

(17) *Let's go $\begin{Bmatrix} \text{racing} \\ \text{polo-playing} \end{Bmatrix}$.

or involve movement constrained to occur within a relatively small radius--

(18) *They've gone $\begin{Bmatrix} \text{fungo-catching} \\ \text{boxing} \\ \text{piano-playing} \\ \text{wrestling} \end{Bmatrix}$.

Berman 403 wonders what the explanation is for the grammaticality of wenching and the ungrammaticality of screwing in a pair of sentences noted by Andy Rogers:

(19) a. He's going wenching.
      b. *He's going screwing.

These grammaticality judgments are predictable, however. Both wenching and screwing can be characterized by (13a-c), since they are activities which it is our custom to view as recreational, physical, and relatively unstructured with respect to game-like rules. However, only wenching satisfies (13d), since wenching requires movement from one undetermined location to another in order to carry out the activity--i.e. from a point of departure (home, office, factory, library, etc.) to another place or places (bar, brothel, hotel, etc.)--while screwing does not necessarily involve movement from one location to another, but may be carried on within a relatively small radius. Wenching furthermore satisfies property (14) for subset (b) of (11), since wenching involves seeking out and attempting to take or acquire a wench, i.e. a female sex object.

Footnotes

1. I am grateful to Arnold M. Zwicky and Michael L. Geis for discussion and examples.

2. The one exception I find to this is with the form visiting, which will give

(i) I'm going to go visiting $\begin{Bmatrix} \text{sick friends} \\ \text{relatives} \\ \text{old classmates} \end{Bmatrix}$.

3. The adverbial -ing form cannot be pronominalized by there, as would be the case if it were a locative adverbial:

(i)   I went $\left\{\begin{array}{l}\text{downtown} \\ \text{*through the tunnel} \\ \text{*fishing}\end{array}\right\}$ and Bill went there too.

4. Note that some of these items are constrained to occur with -ing, whether in a progressive or in the adverbial -ing construction:

(i)   a. I $\{\begin{smallmatrix}\text{was} \\ \text{went}\end{smallmatrix}\}$ mushrooming this morning.

b. *I mushroomed this morning.

(ii) a. We $\{\begin{smallmatrix}\text{were} \\ \text{had gone}\end{smallmatrix}\}$ sightseeing for a while.

b. *We sightsaw for a while.

5. <u>Bowling</u> would appear to be an irregularity here, since it is structured for play and scoring.

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A Case of Early Lexical Insertion

Ronald Neeld

One of the basic principles of Generative Semantics is that
lexical insertion may follow certain transformational operations
(McCawley 1968, Fodor 1972). However, it has been an open question
as to whether there is a single level where lexical insertion
occurs, or whether it is staggered throughout a derivation.
McCawley, for example, speculates that the proper level for lexical
insertion might be after the operation of cyclic rules but before
the operation of postcyclic rules. Fodor 1972 presents evidence that
the lexical item <u>beware</u> must be inserted after Affix Hopping, and
is therefore a case of rather late lexical insertion. Fodor points
out that if all items can be inserted late, lexical insertion need
not be staggered. But if evidence for cases of early lexical
insertion can be found, then this evidence, along with the arguments
for cases of late lexical insertion presented in McCawley 1968 and
Fodor 1972, would support staggered lexical insertion.

One piece of evidence for rather early lexical insertion comes
from the study of anaphora in English. Lees and Klima 1963 present
an analysis of this area of language in which there is a rule of
pronominalization which converts a full noun phrase to a pronoun
under certain conditions. Within the framework of Generative
Semantics the semantic representation of a sentence must include,
at least in part, its logical structure. The Lees and Klima analysis
is deficient in that it does not properly explain the relation between
the logical forms and surface forms of sentences containing pronouns.
I believe that a proper explanation of this relation must have a
form roughly along the lines sketched by McCawley 1970. McCawley's
analysis maintains that noun phrases are represented as variables
in a predicate calculus, and that there are rules which specify
that some variables are replaced by a full noun phrase while the
other occurrences of the variable are replaced by pronouns. This
proposal is superior to that presented by Lees and Klima on
syntactic as well as semantic grounds, for it avoids the difficulties
inherent in the transformational rule treatment of pronominalization
(cf. Bach 1970).

Given this proposal, the constraints on prominalization must
be reformulated as constraints upon which variable can be filled
in by a full noun phrase. The major condition is that presented by
McCawley:

(1)   ...a noun phrase may be substituted for any
      occurrence of the corresponding index which
      either precedes or is in a 'higher' sentence
      than all other occurrences of that index. (176)

This constraint allows us to account for the cases noticed by Ross
1967 where forward pronominalization is impossible.[1]

(2)   a. Bill's$_i$ realizing that he$_i$ was unpopular
          bothered him$_i$.
      b. Realizing that he$_i$ was unpopular bothered Bill$_i$.
      c. *Realizing that Bill$_i$ was unpopular bothered him$_i$.

Using McCawley's theory of anaphora, the remote structure of (2)
is (using McCawley's notation):

(3)
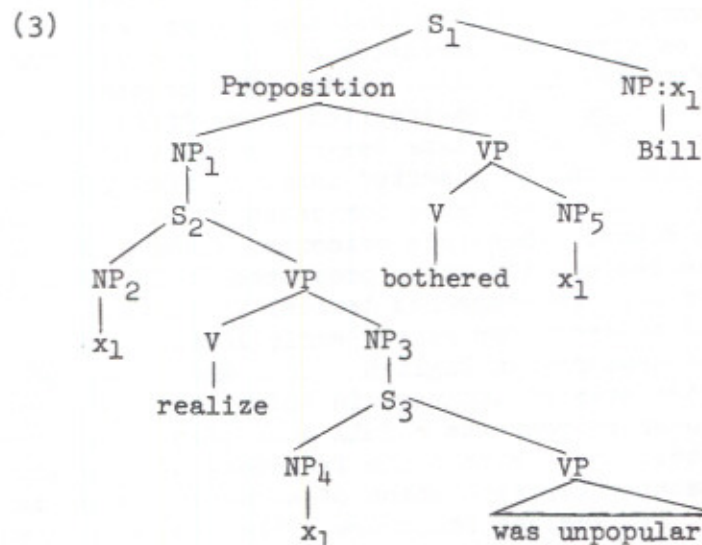
Either NP$_2$ or NP$_5$ may have the variable x$_1$ replaced by the lexical
item __Bill__. This gives either (2a) or (2b) (where Equi has applied
in the latter). However, NP$_4$ cannot be replaced by __Bill__, due to
constraint (1); the variable that NP$_4$ dominates does not either
precede or command all other occurrences of the variable. By
using the underlying variable approach to pronominalization, (3c)
can be explained by constraint (1), which is needed anyway in a
grammar of English.
     The significance of the theory of anaphora for lexical insertion
is that the replacement of variables by noun phrases must take place
before Equi applies. If Equi applied first, NP$_2$ in phrase marker
(3) would be deleted. Then, when the time came to replace the
remaining variables, constraint (1) would not be violated by replacing
NP$_4$ by the full noun phrase, and there would be no way to block
(2c).[2] After the operation of Equi, the variable which NP$_4$ dominates
in fact precedes all other occurrences of that variable (since NP$_5$
is to the right of NP$_4$). The point is that the operation of Equi
destroys part of the information needed for the statement of

constraint (1). The replacement of variables by noun phrases and pronouns is a lexical insertion process. Since this process must take place before Equi, we have a case where lexical insertion cannot take place at the end of a derivation. Since there are also cases where lexical insertion takes place late in a derivation, the evidence presented here indicates that lexical insertion should be staggered.

NOTES

1. Ross tried to explain the restriction exhibited in (2) by claiming that pronominalization is a cyclic rule. This proposal fails in several respects. To begin with, Ross is using a theory in which pronominalization is a transformational rule, and we have already seen the deficiencies of such a theory. Furthermore, there is evidence that pronominalization cannot be cyclic, summarized in Postal 1971.

2. There is no restriction in general against having an antecedent in a complement sentence, with an anaphor to the right of the complement sentence:

   (i) For Mary to hit him_i would annoy $John_i$.

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Bibliographies on Small Subjects

Arnold M. Zwicky

Editor

Introductory Remarks.

This issue of Working Papers in Linguistics inaugurates what
I hope will be a regular feature, annotated bibliographies on
topics of current interest--either on points of analysis in
particular languages or on theoretical issues. The bibliographies
are intended to be reasonably complete with respect to material
(a) published in books and the standard journals or (b) distributed
through a regular channel of 'semipublication' (working papers,
the Indiana University Linguistics Club papers, etc.). Unpublished
materials will be cited if they are likely to be published or if
they contain particularly important facts or ideas.

These bibliographies are tentative. Readers are invited to
correct entries and fill lacunae; I hope that some of the
bibliographies will eventually find their way into standard
publications (IJAL and The Linguistic Reporter, for instance).

Readers are also invited to submit bibliographies for distribution
in Working Papers, using the current bibliographies as models.

Bibliography I. Coivs*

A.M.Z.

A. Introductory remarks

A coiv (connection-of-ideas verb) is an English verb that occurs
in the frame

(1) S __ ((to) NP) S

that is, simultaneously with sentential (or indisputably desentential)
subject and object, as in

(2) That he had a false beard on suggested (to us)
        that he was a spy.
(3) Her learning to speak Mandarin fluently showed (the
        sceptics) how successful operant conditioning
        could be.

Such sentences assert that the proposition expressed by the subject
clause supports a conclusion, expressed by the object clause.
Different verbs describe different degrees of support, different
attitudes towards the conclusion, and different types of relationships
between the two propositions.[1] Because of their occurrence in (1),
Ross 1973:549 calls coivs bisentential verbs.[2]
    A coiv's subject clause is always understood factively. Coivs
in (1) are stative.
    Nearly all coivs can occur with agentive subjects:

(4) Margaret suggested (to us) that he was a spy.
(5) George showed (the sceptics) how successful operant
        conditioning could be.

(in which case the coiv is nonstative and differs in meaning from
the verb in (1)). The few which do not are marked (-A) in the list
below. The occurrence of coivs with both factive and agentive
subjects makes them a subclass of the FA (factive-agentive) verbs
(Stampe 1968:137f.); because coivs, unlike the 'psych' FA verbs
frighten, astonish, etc., can take that-clauses as objects with both
factive and agentive subjects, Stampe calls coivs FA-t verbs.
    All coivs can occur with concrete subjects:

(6) The blood on the staircase reminds me that
        caution is necessary with this fellow.
(7) His false beard guaranteed that he would be
        stopped at the border.

99

The coivs in the list below are classified according to their ability to occur with human objects (whether marked by to, as in (2), or unmarked, as in (3)) when they also have sentential objects. Such human objects are referred to as dative in the following discussion. The occurrence of coivs with simultaneous dative objects and phrasal objects is discussed in section B.

Coivs

1. Dative obligatory (unmarked only): acquaint with, awaken to, apprise of, assure, convince, inform, instruct, notify, persuade, remind; various complex constructions, like let one know/realize ..., make one think/realize/believe..., make one sure/certain/ convinced..., cause/require one to believe/suppose....

2. Dative perhaps obligatory (unmarked only): teach, tell, warn.

3. Dative optional
   a. Unmarked: guarantee, show.
   b. Marked: argue, betray, communicate, convey, demonstrate, emphasize, establish, explain, hint, illustrate, imply, indicate, intimate, make a case, mean, proclaim, prove, reveal, say, signal, signalize, signify, suggest, testify; questionable point out, betoken (-A), denote (-A); various complex constructions, like be/give[3] a sign/an indication/ proof/evidence..., make it clear/known/understandable....

4. Dative perhaps permitted (marked only): foretell, point to, predict, verify.

5. Dative prohibited: entail (-A), insure, make it sure/certain..., necessitate (?-A), presuppose.

Most coivs occur as parenthetical verbs, as in

(8) Douglas, Shirley hinted (to us), was a Lapsarian.

Preserving the classification above, I list my judgments:

Parenthetical coivs

1. All except acquaint and awaken (dative obligatory).

2. All. Dative obligatory for tell, optional for teach and warn.

3. a. Both. Dative optional.
   b. All except make a case, mean, signalize, signify, perhaps betray, and the marginal betoken and denote. Dative optional.

4. All except point to. Dative optional.

5. None.

Also, many coivs occur as quotatives, as in

    (9) 'I'd like to see your macramé', Derek reminded
         (her).

Again, I give my judgments, using the same classification:

Quotative coivs

1. Apprise, assure, inform, notify (dative obligatory); instruct,
   remind (dative optional)

2. Tell (dative obligatory), teach, warn (dative optional).

3. Dative optional:
   a. guarantee
   b. argue, communicate, emphasize, explain, indicate, proclaim,
      reveal, say, suggest, testify, point out, and perhaps
      hit, intimate, and signal.

4. Predict (dative optional), foretell and perhaps verify (dative
   prohibited).

5. None.

B. The literature

Several coivs (explain, imply, mean, predict, presuppose,
prove, say, signify, verify) have been of philosophical interest
and have therefore received considerable discussion in the philoso-
phical literature. However, little of this material bears on
general semantic or syntactic properties of the class. The extensive
treatment of mean, for instance, largely concerns examples like

    (10) 'Indolent' means lazy.

for which there are no analogues with other coivs.
   Stampe 1968 examines the grammar of mean to support two
philosophical theses: (a) that objects of mean are not referring
expressions and (b) that sentences like

    (11) A lantern placed in the tower means that the
         invasion is by sea.

are ambiguous, having one reading with the syntactic source

    (12) By a lantern placed in the tower Agent means that
         the invasion is by sea.

(supporting the philosophical analysis of 'nonnatural' mean by
Grice 1957; cf. also Grice 1968) and another with the syntactic source

> (13) The fact that there is a lantern placed in the
>   tower means that the invasion is by sea.

Stampe is careful to indicate a number of ways in which mean has
properties different from other coivs. Davis 1970 criticizes
Stampe's (a) arguments and supports the contention that (11) is
transformationally related to (12), but argues further that (12)
derived from

> (14) Agent uses a lantern placed in the tower to mean
>   that the invasion is by sea.

or

> (15) Agent uses a lantern placed in the tower, by which
>   Agent means that the invasion is by sea.

    Coivs figure, without detailed comment, in some early trans-
formational works; Lees 1960:23 lists two subclasses ('V_{t412}
demonstrate, mean, prove, show, signify, ...' and 'V_{t43} convince,
inform, persuade, tell'). A Harris-transformational description
(Vendler 1968:74 lists coivs in what is essentially the factive-
agentive class: 'Ct_{ad}^{V+}: surprise, astonish, shock, imply, entail,
indicate' (where Ct indicates a container element for a nominalization,
V that the container is a verb, + that the nominalization appears in
subject rather than object position, ad that the nominalization can
be either a that-clause or Poss-ing complement). Oddly enough, coivs
do not seem to be mentioned as a class in the Indiana University
lists of word classes (Alexander and Kunz 1964, Bridgeman et al.
1965), the Kiparskys' discussion of factivity (Kiparsky and Kiparsky
1970), or the UCLA grammar (Stockwell, Schachter, and Partee 1973).
    G. Lakoff 1968:21f., citing a personal communication from
Rosenbaum, claims that

> (16) It suggests itself to me that Harry is a liar.

supports Lakoff's criticism of Rosenbaum's earlier treatment of
subject movement, because this treatment requires Extraposition to
precede Reflexivization, whereas the derivation of (16) requires
Reflexivization to precede Extraposition.[4] But Postal ms.: sec. I.D
argues that the Lakoff criticism depends upon the (inadequate)
view that Reflexivization is a replacement rule requiring full
constituent identity and that in any event, the reflexive in (16)
'does not seem to correspond to any argument in logical structure'.[5]
    Lee 1969:52 lists verbs taking 'subject' by-clauses, as in

> (17) The bloodstain proved to us that Max was the
>   murderer by being of Type AB.

His class II (prove, demonstrate, show, verify, imply, foretell,
emphasize, guarantee, betray) contains only coivs, and his class
IV contains some (persuade, remind, convince, teach; but order
encourage, challenge, force, doom are not coivs). Lee speculates
that all the subject by-clause verbs 'are causative and take
sentential objects'. In later sections (6 and 7) he argues that

sentences with subject <u>by</u>-clauses are derived by extraction from a subjectless structure--for (17), roughly

    (18)   ∅ proved to us [that Max was the murderer] by
           [the bloodstain be of Type AB]

(cf. (12)). In Lee 1971 it is argued that 'the verbs in indirect causative constructions [like (2), (3), (6), (7), and (17)] are decomposable into <u>cause</u> plus another verb, but the verbs in direct causative constructions [like (4) and (5)] are not' (L-86); as in the earlier work, the subjects of indirect causatives are analyzed as deriving from <u>by</u>-clauses.

    Bresnan 1970:304-5 appeals to coivs in an argument that complementizers subcategorize verbs, citing the contrast between the following:

    (19) For him to eat cabbage means nothing.
    (20) *This means for him to eat cabbage.

and the ungrammaticality of

    (21) *For him to eat cabbage means that he will be sick.

To my knowledge, the constraints on subjects and objects (both phrasal and clausal) of coivs have never been investigated in detail.

    Of the coivs, only the following seem to act as <u>to</u>-Dative Movement verbs when they have phrasal, rather than clausal, objects: <u>promise</u>, <u>show</u>, <u>signal</u>, <u>teach</u>, <u>tell</u>, and marginally <u>explain</u>. Green 1971:sec. IV.B.1 notes that although <u>teach</u> and <u>show</u> occur in both

    (22) Mary taught linguistics to the class.
    (23) Mary taught the class linguistics.

these sentences are not in general paraphrases, and for these two verbs the marked dative doesn't occur with abstract subjects and occurs with many fewer sorts of abstract objects than the unmarked dative (cf. Gruber 1965:sec. 7.2 on <u>teach</u>). In the next section she argues for the derivation of (22) and (23) from structures like those underlying (24) and (25), respectively:

    (24) Intending the class to learn linguistics, Mary
          taught the class.
    (25) Mary got the class to learn linguistics by teaching
          the class.

Also, in sec. III.C.2.e she suggests that <u>explain</u> (along with <u>describe</u>, <u>recommend</u>, <u>recount</u>) might be a <u>for</u>-Dative Movement verb rather than a <u>to</u>-Dative Movement verb. This leaves only <u>promise</u>, <u>signal</u>, and <u>tell</u> as clear <u>to</u>-Dative Movement coivs.

    In a footnote (sec. IV.B.1), Green argues that the Internal Sentential NP Constraint, (3.27) of Ross 1967, is not responsible for the restriction involving abstract objects of <u>teach</u> and <u>show</u>.

In Ross 1973 it is maintained that the anomaly of sentences like

> (26) *It proves/shows/indicates/suggests/means/implies/
>   entails that he is unfond of me that his finger-
>   prints were on my throat. (549)

is due to the Same Side Filter: 'No surface structure can have both complements of a bisentential verb on the same side of that verb' (554).

The relationship of coivs to the rules of Equi-NP-Deletion and Raising is of some interest. All the coivs of groups 1 and 2 in section A above govern Equi, with the exception of assure and the possible exception of inform. Note that Grosu 1971:ch. 3 claims that Equi-governing verbs are all decomposable into CAUSE TO COME TO X, where X is a construct, like INTEND, requiring identity between its subject and the subject of the S embedded in it. The remaining coivs (groups 3 and 4) govern Raising rather than Equi, if they govern either rule; a list is given below. Some also occur with as constructions (Postal ms. 1972:sec. VI.G):

> (27) Alice revealed that Jordan was the culprit.
> (28) Alice revealed Jordan to be the culprit.
> (29) Alice revealed Jordan as the culprit.

These are marked AS in the list.

Also, most Raising coivs are subject to the Dative Object Constraint (Postal ms. 1972:sec. IX.C), that only pronouns are natural in object position, although full NP objects moved out of object position (by Passive, for instance) are permitted:

> (30) We argued him to be the long-lost king of Barataria.
> (31) *We argued Ralph Merkin to be the long-lost king
>   of Barataria.
> (32) Ralph Merkin was argued to be the long-lost king
>   of Barataria.

Coivs not subject to this constraint are marked -DOC in the list.

Raising coivs

3. a. guarantee, show
    b. argue, betray (?AS), ?communicate, demonstrate (?AS, -DOC),
        establish (AS), ?illustrate, imply, indicate (AS), make
        a case (AS), prove (-DOC), reveal (AS, -DOC), ?signal,
        suggest (AS).

4. predict (AS, -DOC), verify (AS)

5. insure, presuppose (AS, -DOC).

Footnotes

*The work reported here was instigated by the 1970 Mathematical
Social Sciences Board research seminar in mathematical linguistics,
sponsored by the National Science Foundation and held in conjunction
with the Linguistic Institute at the Ohio State University.

1. It is perhaps noteworthy that no coivs incorporate negation;
deny, conceal, deemphasize, falsify, disprove, oppose, contraindicate,
rebut, subvert, contravene, contradict, controvert, gainsay,
disaffirm, impugn, repudiate, and so on do not fit in (1).

2. Bisentential verbs in this sense must be distinguished from
various classes of verbs that have been argued in certain cases to
have remote structures with sentential subjects and objects--for
instance, causal impingement verbs, as in I hit/pushed the ball over
the fence (Fillmore 1971:46-7); stative causatives, like cause, make,
require, and two types of nonintentional accomplishments, kill
[accidentally] and [animate subject] kill (Dowty 1972); psych verbs
(McCawley 1972); and Flip-perception verbs (Rogers 1972).

3. The constructions with give, unlike the simple verbs, occur
with both marked and unmarked datives.

4. Also, since Extraposition can be argued to precede Pronominali-
zation, (14) seems to prove that Reflexivization and Pronominalization
must be distinct rules.

5. In fact, suggest is the only coiv that occurs in the construction
in (16). Moreover, since sentential subjects of suggest are factive but
its sentential objects are not, it would be remarkable if Reflexivization
were applicable. Presumably, suggest itself is an 'absolute reflexive'
(Lees and Klima 1963:24-6), like absent oneself and perjure oneself.

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Bibliography II. Cyclical Segmental Rules*

A.M.Z.

A. Introductory remarks

Along with the assertion in Chomsky 1965:ch. 3 that syntactic transformations apply (as a group) cyclically, early generative phonology assumed that at least some phonological rules applied in a group, first to innermost constituents, then to larger and larger constituents. The position was first enunciated for English stress rules in Chomsky, Halle, and Lukoff 1956. Since then it has been argued for Serbo-Croatian stress and pitch (McCawley 1962), Spanish word stress (Foley 1965:sec. 5.4 and Harris 1969:93-6, 125-7), German sentence stress (Kiparsky 1966) and intonation (Bierwisch 1966), Japanese accent (McCawley 1968:ch. 3), and various other prosodic phenomena; the analysis for English stress is developed further in Chomsky and Halle 1968:ch. 2, secs. 1-5; ch. 3.

Arguments for cycles are based on the fact that some rule A must apply before another rule B in certain forms, while B must apply before A in others, or on the fact that A must apply twice in the same form. Consequently, the cyclicity issue is tied up with problems of local ordering, iterative application, global rules, simultaneous ordering, and anywhere rules, which are not surveyed here.

Cyclical rules may be classified according to their domain of application (below the level of the word, both below and above, or only above) and according to the type of feature predicted by the rule (prosodic or segmental). It has been generally assumed that some prosodic rules are cyclic, though even prosodic cycles below the level of the word have been disputed (as in the reanalyses of English word stress by Lee 1969 and Ross 1972). The prediction of segmental features by cyclical rules, however, has always been an uneasy point. The cautious position of Chomsky and Halle 1968:349-50 is that

> Examples of cyclical application of rules seem to be
> restricted to prosodic features and segmental
> modifications associated closely with prosodic
> features...We have experimented with cyclical rules
> in accounting for segmental features...but we are
> at present inclined to believe that all cases
> explored can be handled better with noncyclical rules.
> It would, however, be premature to rule out the
> possibility that cyclical rules may play a role in
> the segmental phonology as well.

In the next section I list (roughly in order of their original appearance) the cases I know of where cyclical segmental rules have been suggested. These concern either word-internal rules or rules that apply in both internal and external sandhi; I no of no cases where an analyst has argued for segmental cyclical rules above the level of the word.

B. The literature

The first cases discussed were word-internal cycles in Russian (Halle 1961, 1963; Lightner 1962, 1963a, 1963b, 1963c, 1963e, 1965a, 1965b, 1966a) and other Slavic languages--Old Church Slavonic (Lightner 1963f, 1966b) and Polish (Lightner 1963d). There is a summary of the OCS and Russian evidence in Lightner 1972:ch. 4. The Russian analyses have been disputed by Kayne (ms. 1967).

The McCawley 1963 analysis of Serbo-Croatian stress and pitch orders several rules introducing and deleting glides and vowels within a word-internal cycle.

Cyclical application has been used to account for alternations of e and o in Indo-European languages by Bever and Langendoen 1963, with development for Old English by Bever 1963 and for Greek by Langendoen 1963.

Hale 1965:299-300 discusses a Papago rule of unstressed vowel reduction which he says 'applies cyclically from right to left' (300), adding in a footnote that

> It is almost certain that the superficial phrase marker...provided by the syntax is relevant to the correct formulation of this rule--the details are still under investigation...It appears, at present, that the correct formulation of this rule will be highly similar to the formulation of the English stress rule given by Chomsky and Halle in their The Sound Pattern of English (forthcoming).

and that a similar length alternation had been described for Tübatulabal by Voegelin 1935.

For Sanskrit, consider Zwicky 1965:sec. 2.3 (a putative case of rule repetition in internal and external sandhi) and 4.1.3. (a putative case of a word-internal segmental cycle). The latter case depends upon the unity of the so-called ruki rule, which is in question (cf. Zwicky 1970).

Schane 1968:ch. 1 treats a case of rule repetition in internal and external sandhi (the French Truncation rule). Schane's cyclicity argument is disputed by Milner 1967, and Selkirk 1972:ch. 4 gives an analysis in which cyclical application is replaced by reference to one or two instances of the word boundary # in surface structure.

Kuroda 1967:sec. 2.6 argues for word-internal cyclical rules in the Yawelmani dialect of Yokuts, a conclusion attacked by Rice 1969:275 (citing a personal communication from Halle) and Kisseberth 1970:342-4. Rice suggests an iterative-rule solution, Kisseberth a reformulation of Kuroda's rules.

The word-internal cyclic rules of <u>The Sound Pattern of English</u>

> fall together in the ordering, and all but rule (16)
> (which changes <u>i</u> to <u>y</u> and <u>y</u> to <u>i</u>) are rules of primary
> stress assignment...We noted that the justification
> for ordering (16) before [the Alternating Stress Rule]
> is not overwhelming, and there is no relation between
> (16) and [the Main Stress Rule]. If, furthermore, the
> analysis is revised in such a way as to drop rule (16)
> from the cycle, then the cycle would be restricted to
> a single elaborate schema abbreviating a complex set
> of rules...all assigning primary stress in certain
> positions. In Chapter Three we explained why we were
> unable to accept this analysis, but it seems sufficiently
> attractive for more thought to be given to its
> consequences. (Chomsky and Halle 1968:237)

The cyclical rules of Italian presented by Saltarelli 1970:
78-89 include (in addition to stress assignment) rules predicting
length of consonants, glide formation, glide deletion, vowel
ellipsis, and consonant ellipsis. The rules are cyclical by virtue
of applying both within words and between words.

Carrell 1970 argues for cyclical application of tone level rules
in Igbo, according to Harms 1968:97. Harms 99-100 also develops a
case for a word-internal cycle for a vowel insertion rule in Komi.

Drachman 1969:123-5 claims that a contradiction in rule ordering
motivates a word-internal cycle for a shwa-insertion rule in Twana.

Nasal harmony within the word in Desano is analyzed as involving
cyclical application of rules by Kaye 1971.

Klamath has been argued to have a word-internal cycle by
Kisseberth 1972a, 1972b, and Kean 1973. White 1973:ch. 4 gives
counterarguments to Kisseberth.

In a discussion of Sundanese nasalization, Howard 1972:99-105
offers a word-internal cycle as an alternative to the local ordering
treatment of Anderson 1972.

Kaye and Piggott 1973 argue for word-internal cyclical application
for the Ojibwa T-Palatalization rule.

Brame 1972b considers the general hypothesis that 'only stress-
assigning rules may be cyclic' (63), suggesting a reexamination of
the English <u>y</u> ↔ <u>i</u> rule. Brame goes on to argue that an English
vowel reduction rule and a Spanish glide formation rule are (word-
internal) cyclic. Since both rules mention stress (though they don't
<u>predict</u> stress), Brame advances the hypothesis that 'only rules that
specify the feature <u>stress</u> in the matrix of the affected segment
may be cyclic' (71). Several of the cases cited above do not conform
to this generalization, though reanalysis might well be called for.

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Bibliography III.
Forestress and Afterstress, Compounds and Phrases*

A.M.Z.

A. Introductory remarks

Of the many combinations of the form N + N, N's + N, and Adj + N[1]
in English, some have been classified as compounds, others as phrases
or syntactic groups. Aside from orthographic considerations, there
are two main criteria for classification--status as a word, and stress.
The first, and more traditional, approach treats as compound
'a combination of two or more words so as to function as one word,
as a unit' (Jespersen 1942:sec. 8.1₁), 'a combination of two
words forming a unit which is not identical with the combined forms
or meanings of its elements' (Kruisinga 1932:sec. 1581), or 'vocables
which, though felt and used as single words, are made up of two or
more elements each of which may also be used as a separate word'
(Zandvoort 1965:sec. 803). This approach is subject to the criticism
that notions like unit are intolerably vague.
The stress criterion--forestress, as in family affair, doctor's
office, and blackboard, as opposed to afterstress, as in family tree,
doctor's dilemma, and black board--is clearly enunciated by Bloomfield
1933:228: 'whenever we hear lesser or least stress upon a word which
would always show high stress in a phrase, we describe it as a
compound-member: ice-cream ['ajs-ˌkrijm] is a compound, but ice
cream ['ajs 'krijm] is a phrase, although there is no denotative
difference of meaning'. Both types of criteria are reviewed by
Marchand 1960: sec. 2.1, who maintains that stress is criterial for
certain types, while the 'underlying concept'--the nature of the
syntactic or semantic relationship between the elements in a
combination--is a significant factor in others. Quirk et al. 1972:
1040 consider stress, morphological properties, and productivity as
distinguishing factors:

It is usual to emphasize the distisction between the
word, where convention and semantic integration fix
a stress and rhythm which the individual cannot alter,
and connected speech, where the disposition of stresses
is subject to the speaker's will and the meaning he
wishes to convey. There is much validity in this but
it must not be pressed too far, since it depends on a
much sharper distinction between phrases and (compound)
words than English grammar and lexicology in fact
warrant. It will not do to say that initial stress...
indicates compounds, and final stressing...the
syntactic phrases of connected speech. We have seen

112

compounds like down 'stairs which (despite similarity
with phrases like down the 'street) we would not wish
to analyse as phrases. And still 'life (in painting),
which is usually stressed in BrE as though it was a
phrase, shows that it is a compound in having a
different plural (still lifes) from the simplex noun
(lives)...So too there are initial-stressed phrases
that linguists do not normally regard as compounds,
since (as is not general in word-formation...) we
are as free to form such sequences as we are to form
any other kind of syntactic unit:

> The 'strawberry picking⌐
> The 'cabbage weeding   ⌐ has gone well.

They go on to suggest that 'the stress distribution provides a
firm basis for distinguishing not between compound and phrase but
different underlying relations between the juxtaposed items', citing
pairs like 'toy factory - toy 'factory, 'bull fight - bull 'calf,
'French teacher - French 'teacher, and 'slate quarry - slate 'roof.
   Some estimate of how complex the problem is can be gained from
a survey of the types of N + N combinations with afterstress
(contrasting with the 'normal' forestressed combinations). Poutsma
1914:ch. 23 lists the following types:

> first nouns expressing qualities:
>> substance: cotton apron
>> indicating embodiment of a quality: giant tree, infant
>>> colony
>> state or function (appositional): parent bird, clergyman
>>> cousin
>> origin or habitat: Gladstone bag, Ceylon tea, Bengal
>>> tiger
>
> first nouns expressing relations:
>> possession, origin, agency: United States minister,
>>> pioneer work, party measures
>> object relation: tariff reform, Government defeat
>> appositive or specializing of relation: angling mania,
>>> marriage state
>> other prepositional relations: chance acquaintance,
>>> Court ladies, surprise visit, university education
>> predicatives: maiden name, schoolboy days, student life

to which we may add various types from Kruisinga 1932, among them
the lad Robert (sec. 1181), the Savoy Hotel (1182), Buckingham Palace
(1393-4), his two-volume work (1854), two dozen handkerchiefs (1855),
South America (1877), King Edward, Mr. Jones, the river Rhine, Lake
Ontario (1886), and emperor-king (1888). Even these do not exhaust
the types; from various sources, I can add: Ann-Margret, Taft-Hartley,
John Jones, Hotel Ritz, Detective Inspector, Iowa City, Madison Avenue,

Dole pineapple, Grimes apple, Cadillac Riviera, Oxford University, Eliot Hall, Tuesday meeting, science fiction, machine intelligence, 102 Broadway, Columbus, Ohio, September 1973, one hundred two, Sam Smith Junior, and TV Guide. Poutsma's classification is not, of course, definitive and may require further division or recombination.

B. The transformational literature

Nearly all transformational treatments of phrases and compounds, beginning with Lees 1960, follow Bloomfield in taking stress to be criterial. Thus, Lees limits his study of compounds to combinations with forestress, although he observes that

> It is possible that some transformation rules in the grammar differ solely in the kind of unitary stress pattern which they confer (in an as yet unspecified way) upon the transforms, for there are many cases of composites which seem to differ only in this one respect, as for example, Mádison Strèet vs. Mâdison Ávenùe, or ápple càke vs. âpple píe. Perhaps each individual morpheme is characterized by always taking in composition some one of a small number of (syntactic) junctures introduced into the sequence by the transformation itself and yielding then, by phonological rules, in the manner suggested by Chomsky, Halle, and Lukoff, the appropriate stresses. This view is supported by the fact that, at least in the author's speech, all composites in -street and -cake are compounds, while all in -avenue and -pie are invariably nominal phrases. These favored junctures would then, presumably, be overridden by certain constructions, so that, e.g., woman and doctor could combine to yield both a compound and a nominal phrase, but from differing source-sentences by two different transformational rules, say:

> > The doctor is a woman. → wôman dóctor
> > The doctor is for a woman. → wóman dòctor   (120)

In an appendix (180-5), Lees reconsiders his earlier complete separation of forestressed compounds and afterstressed phrases, noting that (a) it treats some synonymous pairs with identical syntactic structure as nevertheless in contrast, (b) it fails to explain the contrast between afterstressed combinations like young genius and child prodigy, only the former having adjectival properties, and (c) it fails to give an account of the ambiguity of phrases like legal document and logical fallacy. Accordingly, Lees develops the ideas in the long quotation above, suggesting that compounding transformations might assign both forestress and afterstress, while the shift of elements from predicate to prenominal position invariably yields afterstress. He then gives lists of 12 types of afterstressed combinations parallelling some of the 49 types of forestressed combinations treated in the main body of the work.

This proposal by Lees, that compounding transformations assign stress pattern (or, equivalently, that stress assignment rules consider earlier stages in derivations), is developed further by several authors--by Lees himself in two 1970 articles that attempt to reduce the number of source types for compounds, by Gleitman and Gleitman 1970:ch. 3, in the context of a psycholinguistic investigation, and by Levi 1973, who is interested in the derivation of combinations like electrical engineer, parallel to mining engineer (Adj + N vs. N + N: 'My claim is that both the logical structure of these two NPs, and their derivations are precisely parallel, up to the point where certain compound-initial nouns are converted into derived surface adjectives' (334)).

A survey of the literature on (forestressed) nominal compounds is to be found in Zimmer 1971 (supplemented by Zimmer 1972b), where there is also a criticism of all positive characterizations of compounds (by a listing of types or by a listing of compounding rules) and some discussion, further developed in Zimmer 1972a, of a necessary condition for compounding, the existence of an 'appropriately classificatory' relation. Zimmer 1971 includes an appendix on afterstressed combinations, with criticism of Marchand's treatment. Zimmer observes that there is 'a great deal of dialect variation which is not compatible with the neat distinction [between transpositional derivation, involving no addition of semantic elements and resulting in phrases, and semantic derivation, involving addition and resulting in compounds] that Marchand proposes' (C19),[2] that some examples do not square with Marchand's distinction in any event, and that Marchand refers to 'implicit contrast' to save his analysis.[3] Zimmer concludes:

> Given that there are a lot of idiosyncratic factors
> involved in the compound vs. nominal phrase distinction,
> it is probably still true that the relations typically
> embodied in nominal phrases are of a type rather
> different from what is found in most compounds...And
> compounds do seem to have a greater tendency to become
> idiomatized. However, it would appear that the
> condition of a relation's being "appropriately
> classificatory" applies to most nominal phrases as
> well as to compounds. (C19)

The Lees position, however developed or transmuted, involves transformational prediction of stress contours. Consequently it is at variance with restrictive theories about the relationship between syntax and phonology, which would require that only information available in syntactic surface structure can condition phonological rules. In fact, the description of combinations by Chomsky and Halle 1968:secs. 2.1, 3.9 adheres to a more restrictive theory: they assume that the stress differences correlate exactly with the distinction between compounds (which are Ns) and phrases (which are NPs), so that stress assignment rules need be sensitive only to the surface syntactic distinction between N and NP.[4]

This very Bloomfieldian analysis is also adopted by Halle and
Keyser 1971:sec. 1.2. It is subject to the criticisms put forth by
Lees and expanded on by Schmerling 1971, who concludes:

> It does seem to be the case that in some instances
> stress assignment is governed by the choice of
> head or attribute, in others by syntactic
> characteristics (whether the attributive has the
> superficial form of an adjective or a noun).
> There ought to be rules that capture these
> generalizations. In other cases stress assignment
> is an idiosyncratic property of individual
> compounds and ought to be indicated in the lexicon
> as such. The fact that stress placement is some-
> times predictable should not make us try to predict
> it always. (60-1)

Schmerling 63-4 also mentions an alternation between after-
stress in predicate compound adjectives (brând néw) and forestress
when these compound adjectives appear in prenominal position (a
brând nèw cár). She fails to see any satisfactory account for such
facts. The facts, as it turns out, have been known for some time;
a summary in Bolinger 1965b indicates that 'Jespersen credits James
Elphiston with having noted in 1765 the rhythmic shift of stress in
words like almost, forthwith, therein, for example, the laws written
therein versus the laws thérein written' (139) and lists many
examples. It remains for someone to distinguish the cases in which
backshifting of stress is obligatory, optional, and prohibited, and
to incorporate these observations in a grammar of English.[5]

Footnotes

1. Although my examples are primarily nominals, the discussion
below applies as well to adjectival and verbal constructions.
2. For other examples of dialect variation, consider the
fact that while American English typically has forestress in
combinations with Building and House, British English typically has
afterstress: Éliot Hoùse, the Brĭll Buĭlding (American), Ĩndia Hóuse,
the Clârendon Buĭldings (British).
3. The notion of implicit contrast, though unacceptably fuzzy,
has some appeal. The idea is that certain items are stressed because
they are salient (they are in contrast with a number of other items
from a large set, whereas the items with which they occur are not,

or are unmarked representatives of some class). For Marchand,
implicit contrast explains forestress in bóokstòre, hárdware stòre,
etc. (as opposed to hârdware empórium, bôok wárehouse, etc.). John
Lyons has offered to me ingenious 'implicit contrast' accounts for
the following puzzling facts about N + N combinations: (a) the
difference between Smîth Strèet and Smîth Ávenùe/Pláce/Térrace/
Láne/Wáy/Círcle..., and (b) the difference between Oxford and
Cambridge colleges with the word college in them (which are fore-
stressed: Kíng's Còllege, Néw Còllege), and those with hall in them
(which are afterstressed: Nêw Háll, Làdy Mârgaret Háll); street
and college are the unmarked designations, hence less stressed,
while other names for thoroughfares, and hall instead of the expected
college, are stressed in contrast.

Similarly, Christopher Longuet-Higgins has suggested that the
large number of afterstressed combinations with student as their
first element (student affairs/expedition/discipline/rule/vote/power/
revolt/grant/teaching...) comes from the occurrence of such
combinations in contexts where various aspects of students are under
consideration, so that only the second element is salient.

Another minor mechanism that might be supposed to explain the
position of stress in N + N combinations is contamination. Perhaps
the forestress of Brazil nut (as opposed to the afterstress of most
combinations with geographical names as their first elements) is
the result of contamination from peanut, walnut, hazelnut, chestnut,
etc.

It should be noted that although implicit contrast and
contamination are plausible accounts of the invention of, or
historical change in, certain forms, the case for reference to
implicit contrast and contamination in a synchronic grammar of
English is less clear. Perhaps the position of stress in combinations
with street is simply learned, and must be indicated as a property
of the word street in modern English, and perhaps the fact that
Brazil nut is forestressed is also learned, and must be listed as an
exception in a grammar.

4. Plus some indication of exceptionality:

The fact that a phrase is not subject to the Compound
Rule might be formally indicated in various ways:
for example, by a feature specification of the
boundary between the constituents, in which case the
rule can be limited to boundaries not containing
this feature... Alternatively, we might provide
for an ad hoc deletion of the node N dominating
such compounds. (Chomsky and Halle 1968:156).

5. Various other stress peculiarities need further study. There
are examples in which stress shifts to the right when a forestressed
combination itself appears as the first element of a compound:
hôusehòld cleánser instead of hóusehòld clêanser (compare sínk
cleànser), ôversèas rátes (compare póstage ràtes), bâck seàt dríver
(compare mótorcỳcle drîver--a minimal pair), bâll pòint pén (compare
foúntain pèn and quíll pèn, etc.

In still other cases of combinations appearing as first
elements of combinations, there is an optional shift to the right,
perhaps to avoid ambiguity: afterstressed combinations like English
language and Royal Society either keep their stress (Ênglish lánguage
reseàrch, Rôyal Socíety Profèssor), or shift it to the next element
(Ênglish lànguage reseárch, Rôyal Socíety proféssor). The first of
these options is the stress we would predict on other grounds
(compare Ênglish reseàrch 'research on English' and Ínstitute
profèssor), but it yields combinations that are ambiguous with respect
to their immediate constituent division ('research on the English
language' and 'language research in English', 'professor in the Royal
Society' or 'society professor who is royal').

Finally, there are several familiar problems surrounding the
distribution of secondary and tertiary accents--élevator bòy vs.
élevator ôperator and Lòng Ísland vs. a lông Ísland. Since these do
not concern which element of a combination receives the greater
stress, I will not review the literature here. Note, however, that
some of the afterstressed N + N types listed above have tertiary
rather than secondary stress on their first elements (Mr. Jones,
South America, King Edward, as opposed to John Jones, Eliot Hall,
Grimes apple, etc.).

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