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STUDY IN LEXICAL RELATEDNESS.

University of California, Los Angeles,
Ph.D., 1974
Language and Literature, linguistics

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Physical Perception Verbs in English:

A Study in Lexical Relatedness

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Linguistics

by

Andrew Daylon Rogers Jr.

1974
The dissertation of Andrew Daylon Rogers Jr. is approved, and it is acceptable in quality for production on microfilm.

Joseph Emonds

Terence H. Wilbur

Barbara H. Partee, Committee Chairman

University of California, Los Angeles

1974
For Gin
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>vii</td>
</tr>
<tr>
<td>VITA AND PUBLICATIONS</td>
<td>x</td>
</tr>
<tr>
<td>ABSTRACT OF THE DISSERTATION</td>
<td>xii</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>FOOTNOTES</td>
<td>6</td>
</tr>
<tr>
<td>2. COGNITIVE AND ACTIVE PHYSICAL PERCEPTION VERBS</td>
<td>7</td>
</tr>
<tr>
<td>2.0 Introduction</td>
<td>7</td>
</tr>
<tr>
<td>2.1 A Glance at Cognitive Physical Perception Verbs</td>
<td>8</td>
</tr>
<tr>
<td>2.1.1 Inchoatives and Statives</td>
<td>11</td>
</tr>
<tr>
<td>2.1.2 Pragmatics and Perception</td>
<td>18</td>
</tr>
<tr>
<td>2.2 Active Physical Perception Verbs</td>
<td>20</td>
</tr>
<tr>
<td>FOOTNOTES</td>
<td>35</td>
</tr>
<tr>
<td>3. THE FLIP PHYSICAL PERCEPTION VERBS, PART I</td>
<td>38</td>
</tr>
<tr>
<td>3.0 Introduction</td>
<td>38</td>
</tr>
<tr>
<td>3.0.1 Early Previous Analyses</td>
<td>38</td>
</tr>
<tr>
<td>3.0.2 Postal's Analysis</td>
<td>41</td>
</tr>
</tbody>
</table>

iv
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Toward an Underlying Representation</td>
<td>120</td>
</tr>
<tr>
<td>4.1.1 Properties Required of the Representation</td>
<td>120</td>
</tr>
<tr>
<td>4.1.1.1 Previously-Discussed Properties</td>
<td>120</td>
</tr>
<tr>
<td>4.1.1.2 Additional Properties</td>
<td>122</td>
</tr>
<tr>
<td>4.2 Tentative Analysis</td>
<td>127</td>
</tr>
<tr>
<td>4.2.1 Properties of If-Verbs</td>
<td>128</td>
</tr>
<tr>
<td>4.2.2 Flips as If-Verbs</td>
<td>131</td>
</tr>
<tr>
<td>4.2.2.1 The Status of CAUSE</td>
<td>132</td>
</tr>
<tr>
<td>4.2.2.2 How Well Does the Proposal Fit the Facts of 4.1.1?</td>
<td>136</td>
</tr>
<tr>
<td>4.3 Fatal Flaws and Other Problems</td>
<td>144</td>
</tr>
<tr>
<td>4.3.1 Neg-Transportation</td>
<td>144</td>
</tr>
<tr>
<td>4.3.2 Problems with Believe</td>
<td>149</td>
</tr>
<tr>
<td>4.3.3 Adjectives</td>
<td>151</td>
</tr>
<tr>
<td>4.3.4 Absent Experiences</td>
<td>153</td>
</tr>
<tr>
<td>4.3.5 Problems with Like</td>
<td>156</td>
</tr>
<tr>
<td>4.3.5.1 Complementizer Like</td>
<td>157</td>
</tr>
<tr>
<td>4.3.5.2 Similarity-Predicate Like</td>
<td>159</td>
</tr>
<tr>
<td>4.3.6 Problems of Derivation</td>
<td>163</td>
</tr>
<tr>
<td>FOOTNOTES</td>
<td>170</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>180</td>
</tr>
</tbody>
</table>

vi
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The support of a Traineeship in language development research at Florida State, an N.D.E.A. Title IV Fellowship and a Research Assistantship at UCLA, and a Research Assistantship under N.S.F. Grant #2939 to the University of
Michigan is gratefully acknowledged. If I have failed to thank anyone, it is my failure, for which I ask forgiveness and plead fatigue. I only hope there is something in what follows that may justify all the help and encouragement I have received.

Finally, because it was so important, and so constant, I would like to thank Ginny, whose help, faith, and encouragement, as well as a million other things, often in the face of no visible progress, was crucial to the completion of this work.

Needless to say. . . .
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PUBLICATIONS

Rogers, Andy.

x
Rogers, Andy.  
ABSTRACT OF THE DISSERTATION

Physical Perception Verbs in English:
A Study in Lexical Relatedness

by

Andrew Daylon Rogers Jr.

Doctor of Philosophy in Linguistics
University of California, Los Angeles, 1974
Professor Barbara H. Partee, Chairman

This dissertation is a preliminary investigation of the syntactic, semantic, and pragmatic properties of a group of twenty verbs of physical perception in English, which appear to be systematically related within the framework of the variety of Generative Grammar known as Natural Logic. Four distinct subgroups of five verbs, one for each of the commonly accepted human sensory modalities (sight, hearing, taste, smell, and touch), are isolated in terms of their syntactic, semantic, and pragmatic properties. The four classes, labelled Cognitive-Stative, Cognitive-Inchoative, Active, and Flip, are illustrated in the table below:

xii
<table>
<thead>
<tr>
<th>Cognitive-Stative</th>
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</tr>
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<td>listen</td>
<td>sound</td>
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<td>see</td>
<td>see</td>
<td>watch</td>
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In each case, evidence is given to the effect that a given class distinction must be made, the syntactic, semantic, and pragmatic properties of the class are explored, the nature of the relationship of the given class to the other classes is explored, and a Lexical Decomposition analysis, in terms of semantic-model interpretable logical forms is offered. In addition, certain difficulties and inadequacies of these analyses, as well as interesting, apparently related problems are pointed out.
CHAPTER 1

INTRODUCTION

The lexicon of a grammar is a device which describes the arbitrary relationship between the phonological form of a language's minimal meaningful overtly occurring units and the meaning of those units. It could be the case that the lexicon of a natural language consists of an atomistic unstructured list of sound-meaning pairs (which we will call lexical items), but this does not appear to be the case. What further structure is there to a natural language lexicon? In this dissertation, we will undertake a preliminary investigation of the syntactic, semantic, and pragmatic properties of a group of verbs in English having to do with physical perception in an effort to shed some light on this question. In particular, we will pursue the hypothesis that the meanings of the semantically more complex members of this set are rather simple functions of the meaning of the semantically less complex members of the set. Discovery of such functions, provided they are adequately defined, will simultaneously allow us to describe the meaning
relations among these lexical items and to partially describe the meaning of the more complex lexical items themselves.

The framework which we will assume for the purpose of this investigation is a particular variety of Generative Semantics, referred to as Natural Logic, best illustrated by the work of G. Lakoff (1972a), Dowty (1972 a, b) and J. McCawley (1972 and in Press), although it owes obvious debt to earlier work in the Generative Semantic and Generative Transformational frameworks. In particular we will assume that the task of a grammar of a natural language is to explicitly and formally relate sequences of sound to their meanings and that an adequate account of the meaning of a sequence of sounds requires the semantic-model interpretation of the most-underlying structure of that sound-sequence. While much of the work, presented here fails to reach the level of detail and rigor required of such a theory of grammar, it represents work toward that end.

We adopt this model primarily because we feel that it provides the best set of analytical tools currently available for the purpose of investigating lexical relatedness, as evidenced by the flow of interesting, though hardly unproblematical, results which it, and its predecessor variants, Abstract Syntax and Generative Semantics have
yielded.¹ We will, therefore, on subsidiary issues, assume the essential correctness of the Natural Logic model, without, however, claiming that that model is correct, point by point or that it has been shown to be more correct (whatever that would mean—or less incorrect) than, for example, 
Interpretive Semantic theories, as represented by Jackendoff (1968, 1968 a, b, 1971, 1972) and Chomsky (1970, 1971, 1972) or other competing theories. We claim only that the Natural Logic model appears to be currently more fruitful for our purposes. We hope, however, that the results of this study will shed some light on the relative merits of Natural Logic and competing theories.

The present work is, at best, exploratory in nature, and the one thing that is clear about it is that it is not, in detail, correct.² We can only claim it appears to yield interesting results in that it makes proposals concerning some facts which appear not to have been previously noticed, that it attempts deeper and less unmotivated analyses of facts that were previously noted, and that it appears to offer at least some account, however faulty, of the fact that the set of lexical items dealt with are related to one another systematically.
As a preview and preliminary overview, the basic content of Chapters 2 - 4 is the claim that there are at least four varieties of physical perception verbs in English, which I label Cognitive-Stative, Cognitive-Inchoative, Active,\(^3\) and Flip. The clearest example of the paradigm is the one involving audition, although even there, one must refer to differences in co-occurrence restrictions to separate the two varieties of Cognitives. The paradigm is presented in table (1.1).

(1.1)

<table>
<thead>
<tr>
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<tr>
<td>feel</td>
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<td>feel</td>
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In each case evidence is first given to the effect that a given lexical distinction must be made, then the properties of the class are explored. Third, the nature of the relationship between the members of a given class and the members of some other class or classes is explored, and finally, an analysis is proposed for relating members
of one class to the members of another class is proposed and discussed.

Because of the exploratory nature of the work, limitations of time, space, and energy, and because I was primarily interested in patterns of relatedness in depth rather than breadth, the data considered has been severely restricted, in almost every instance, to what I took to be the primary physical sense of each verb involved. There is a plethora of interesting problems involving obviously related senses of these verbs, what I consider extended uses of them, and a large number of additional obviously related lexical items which this work leaves untouched. One could, I am sure, make an interesting linguistic career out of such problems. One could not, however, without drawing some reasonable line, ever finish a dissertation that way.
FOOTNOTES, CHAPTER 1


2 Some of the more obvious problems are discussed in Chapter 4, section 3.

3 The term Active is from Postal (1971a), p. 39.
CHAPTER 2

COGNITIVE AND ACTIVE PHYSICAL

PERCEPTION VERBS

2.0 Introduction

It was originally intended that this dissertation deal in considerable detail with the syntactic, semantic, and pragmatic properties of the set of 20 physical perception verbs discussed in Chapter I. However, as the work progressed it became obvious that one would be hard-pressed to try to examine and begin to account for even one of the classes which they appear to divide into. Since I considered the Flip verbs linguistically, the most challenging and interesting, I ended up devoting most of my attention to them. One might conclude from the following discussion that the Cognitive and Active perception verbs are less challenging and interesting than the Flips, but it would be misleading to do so on the basis of what appears in this dissertation, since the Cognitives and Actives are treated much more superficially. Certainly there is a considerable philosophical literature on the Cognitives and Actives, ¹ a
cursory glance at which reveals a rich vein of problems. I will, however, largely refrain from comment on that literature. I have doubtless overlooked many opportunities for comment and explication in this area by concentrating exclusively on the linguistic facts.

2.1 A Glance at Cognitive Physical Perception Verbs

The Cognitive physical perception verbs have received scant attention in the recent transformational literature. Only Gruber (1967a) has, to my knowledge, had much to say about Cognitive physical perception verbs,\(^2\) much of it devoted to the relationship between look and see. My approach to the problem of lexical relatedness is, however, somewhat different from his, and he seemed primarily interested in different aspects of the meanings of the words than I am. In particular, he was apparently interested in the directional and motional aspects of look and see, which I take to be something of a pragmatic accident.\(^3\) His distinction, however, between look as Agentive and see as non-Agentive I take as significant and correct, as far as it goes and my analysis of Cognitive and Active physical perception verbs reflects that distinction.

8
Gruber's criteria for what he calls Agentivity (1967a, p. 943) are substitutivity by do something, modifi- 
ability by purpose clauses, such as in order to, and modi-
fiability by manner adverbials such as carefully. By these 
criteria, as he points out, look is Agentive and see is non-
Agentive. Similar facts obtain for all Active versus Cog-
nitive perception verbs, as (2.1) - (2.3) illustrate. 4

\[
\begin{align*}
(a) & \text{ watch} \\
(b) & \text{ *see}^5 \\
(c) & \text{ listen to} \\
(d) & \text{ *hear} \\
(e) & \text{ smell}_A \\
(f) & \text{ *smell}_C \\
(g) & \text{ feel}_A \\
(h) & \text{ *feel}_C \\
(i) & \text{ taste}_A \\
(j) & \text{ *taste}_C
\end{align*}
\]

(2.1) What John did was \{ (a) \} the crickets.

\[
\begin{align*}
(a) & \text{ watched} \\
(b) & \text{ *saw} \\
(c) & \text{ listened to} \\
(d) & \text{ *heard} \\
(e) & \text{ smelled}_A \\
(f) & \text{ *smelled}_C \\
(g) & \text{ felt}_A \\
(h) & \text{ *felt}_C \\
(i) & \text{ tasted}_A \\
(j) & \text{ *tasted}_C
\end{align*}
\]

(2.2) John \{ (a) \} the crickets carefully.
(2.3) John \[
\begin{align*}
(a) & \text{ watched} \\
(b) & \text{ *saw} \\
(c) & \text{ listened to} \\
(d) & \text{ *heard} \\
(e) & \text{ smelled}_A \\
(f) & \text{ *smelled}_C \\
(g) & \text{ felt}_A \\
(h) & \text{ *felt}_C \\
(i) & \text{ tasted}_A \\
(j) & \text{ *tasted}_C
\end{align*}
\]
the crickets in order to find out what they were.

[Examples after Gruber (1967a), p. 943]

As noted in Rogers (1971), the Cognitive verbs lack other typically Agentive properties (which the Actives have), such as intention, purpose, and responsibility. These properties have intuitive as well as syntactic consequences such as modifiability properties like those pointed out by Gruber and myself, as illustrated by (2.4).

(2.4) (a)? *John intentionally heard the crickets. 
(b) John inadverdantly heard the crickets. 
(c)? *John was responsible for the fact that he heard the crickets.

Also, as pointed out in Rogers (1971), the cognitives are syntactically stative according to G. Lakoff's (1966) criteria. See (2.5).

(2.5) (a) *See the crickets! 
(b) *I am seeing the crickets. 
(c) *I saw the crickets and George did so too. 
(d) *I persuaded George to see the crickets.
Although it would be more informative, perhaps, to discuss the Cognitive verbs in terms of properties they have rather than ones they lack, I think the above characteriza-
tion is useful, particularly in contrasting the Cognitives with the Actives. We shall in large part ignore the problem of further characterizing the Cognitive verbs, since our basic purpose is to explore the relationship between the Cognitives and two other classes, the Actives and the Flips, and it appears that linguistically, at least, the Cognitives are the more basic of these categories.

2.1.1 Inchoatives and Statives

As Vendler (1967, pp. 113 ff.) noted in his discussion of work by Ryle (1949, 1954) and Sibley (1955), there are at least two senses of see; one a "state" sense in his terms (see₁), and the other an "achievement" sense, roughly paraphraseable by spot (see₂). Vendler noted that these two senses of see have rather different temporal properties, see₁ being, in traditional terms, a durative verb, and see₂ being a point-time verb. Sentence (2.6), for example allows only the durative (see₁) interpretation. When spot is substituted for see, anomaly results, as in (2.7).

(2.6) How long did you see the killer? [Vendler p. 113]
(2.7) * How long did you spot the killer?

(2.8) and (2.9) appear to illustrate the same point.

(2.8) Do you still see the plane? [Vendler, p. 114]
(2.9) * Do you still spot the plane?

Vendler also pointed out an additional fact, which I do not claim to really understand, but which correlates with the see₁ (state)/see₂ (spot) distinction, namely that while both see₁ and see₂ allow gerundive complements as in (2.10) (a) and (b), only see₁, but not see₂ allow occurrence in structures superficially analogous to (2.10) without the gerundive suffix, as in (2.11) (a) and (b).

(2.10) a. I saw him crossing the street.
     b. I spotted him crossing the street. ⁸

(2.11) a. I saw him cross the street.
     b. *I spotted him cross the street.
     [Vendler, p. 114]

As Vendler pointed out, (2.10) is a reduction of either of two while clauses, with either I or he as subject, and has a third reading synonymous with (2.11)(a). But the while readings are not possible for (2.11). Intuitively, it is fairly clear why (2.11)(b) is out, given that see₂ and spot are point-time verbs, and one could not at a single point in time observe something which takes a stretch of time to occur. Vendler goes on (p. 118) to make the intuitively
correct claim that "seeing" [sehen] is an achievement initiating the generic state of seeing [sehen]. That is, the meaning of see, (spot) is essentially that at some time $t_i$, the state of seeing, did not hold and at some later time $t_k$, seeing, did hold and see, represents the transition at $t_j$, between $t_i$ and $t_k$ from not seeing, to seeing.

See, is, in other words, the inchoative of see, as proposed by Dowty (1972b, Chapter IV, footnote 5), in the same way that die, for example, is the inchoative of dead on Lakoff's (1970a, pp. 98-107) analysis. Under Dowty's proposal the inchoative reading of (2.12), for example, would have roughly the underlying representation (2.13), where COME ABOUT represents the predicative of inchoation and SEE represents the stative sense of see (see).

(2.12) I saw Harry.

(2.13)

```
   S
     \   /    \   /
    V  NP   V  NP  NP
   \  /   \  /   \  /
  CAME ABOUT S       
     \    /     \    /
      \  /     \  /
       \ S     \ SE
         \   /   I
          \ /   |
           \ HARRY
```
COME ABOUT is taken to be an atomic predicate of a Natural Logic (in the sense of G. Lakoff, 1972a). The definition of COME ABOUT for purposes of model-set interpretation (cf. Dowty 1972b, pp. 8-12 and 38-47), based on G. H. von Wright's (1963, 1968) analysis of the logic of change, and Lewis's (1972) suggestion for the treatment of presuppositions, is given as (2.14), where t represents any temporal world-state and t-1 represents the temporal world-state immediately prior to t.

(2.14) COME ABOUT (S) is true at t iff S is true at t and ~S is true at t-1; is false at t iff S is false at t and ~S is true at t-1; is undefined otherwise.
[Dowty's III - (20), p. 47]

Such an analysis of the inchoative sense of see would appear to allow us to account for the relationship between see, and see, and for the temporal peculiarities of see. For further details concerning this analysis of inchoation, as well as more general discussion of the framework which surrounds it, see Dowty (1972b), especially Chapters I, III, and IV.

Of course, there would be little point to this analysis of these two senses of see, for our purposes, if it were a peculiarity of see, but it does not appear to be.
The other cognitive perception verbs also appear to exist in both "pure stative" and inchoative varieties, although homophony obscures the facts even more in these cases than with see. Recall that (2.6) was unambiguously the state sense of see, since only that sense is durative, while the spot sense is point-time. Similarly, there is a reading of each of (2.15)(a)-(d) concerned with the duration of the state of cognitive perception.  

(2.6) How long did you see the killer?

(2.15) a. How long did you hear the killer?
   b. How long did you smell\textsubscript{C} the killer?
   c. How long did you feel\textsubscript{C} the killer?
   d. How long did you taste\textsubscript{C} the killer?

In a similar vein, (2.10)(a) was argued to be three-ways ambiguous (two see\textsubscript{C} readings, one with deleted while he was, one with deleted while I was and one see\textsubscript{C} reading) whereas (2.11)(a) appeared to have only one reading, the pure stative (no inchoative reading). It appears to be the case that (2.16)(a)-(d) and (2.17)(a)-(d) exhibit the same pattern.

(2.10) a. I saw him crossing the street.
(2.16) a. I heard him crossing the street.
   b. I smelled\textsubscript{C} him crossing the street.
   c. I felt\textsubscript{C} him crossing the street.
   d. I tasted\textsubscript{C} him crossing the street.  

15
(2.11) a. I saw him cross the street.

(2.17) a. I heard him cross the street.
   b. I smelled him cross the street.
   c. I felt him cross the street.
   d. I tasted him cross the street.

Finally, it appears that only the inchoative reading (ignoring the Active physical perception verb reading as irrelevant in c–e) is possible sentences such as (2.18) (a)–(e).

(2.18) a. At that instant, I \{\text{saw}_c \quad \text{spotted}\} it.
   b. At that instant, I heard it.
   c. At that instant, I smelled\text{ }_c \text{ it.}
   d. At that instant, I felt\text{ }_c \text{ it.}
   e. At that instant, I tasted\text{ }_c \text{ it.}

On the basis of what we have seen so far, it appears that the category which I have labelled Cognitive perception verbs contains at least two subcategories, the "pure stative" and the inchoative. On Dowty's analysis, which appears correct, the meaning of the inchoative sense is a simple function of the meaning of the stative, that function being the independently-motivated one of inchoation, namely COME ABOUT. What we achieve by such an analysis, in addition to an account of the meaning relationship among these pairs, is a principled economy of lexical description and a plausible starting-place for accounting for the fact that...
these pairs are systematically homophonous, i.e., that see, hear, etc. are polysemous in this particular way.

What we claim, then, is that the logical form underlying each inchoative Cognitive perception verb will be of the form (2.19), where the choice of a particular inchoative will depend entirely on the choice of embedded static Cognitive perception verb

\[(2.19)\]

\[\begin{array}{c}
S \\
\mid \\
V \\
\mid \\
COME ABOUT \\
\mid \\
S \\
\mid \\
V \\
\mid \\
V_{sc} \\
\mid \\
NP \\
\mid \\
X \\
\mid \\
Y \\
\mid \\
NP \\
\mid \\
NP \\
\end{array}\]

where $V_{sc}$ represents any static Cognitive physical perception verb and COME ABOUT is the atomic predicate defined by (2.14). The lexical entry for each of these forms will then be of the form (2.19'), after the application of predicate-raising.

\[(2.19')\]

\[\begin{array}{c}
S \\
\mid \\
V \\
\mid \\
COME ABOUT \\
\mid \\
V \\
\mid \\
X \\
\mid \\
Y \\
\mid \\
V_{sc} \\
\end{array}\]
(2.19) is, of course, simply a subcase of the more general fact that inchoatives in general derive from statives. All we have really done is to demonstrate that there exist both stative and inchoative varieties of Cognitive physical perception verbs. The independently arrived-at inchoative analysis provides us with a simple and elegant means of relating these two senses to each other.

2.1.2 Pragmatics and Perception

More speculatively, it appears likely that the five "pure stative" cognitive physical perception verbs are simply verbs characterizing the five recognized modes of physical perception—that is, forms of the general predicate perceive or sense specified as to mode of perception. If man were to develop or recognize another mode of physical perception, a new set of verbs would automatically appear, whose syntactic and semantic properties would be predictable to a very considerable extent, if not in toto by the preexisting system and the "real world" or pragmatic facts about the way that mode of perception operated.

An interesting example of a similar fictional case is to be found in Galouye (1961). In this science-fiction novel, two groups of survivors of a nuclear war are
described, both living in total darkness in a system of underground caves. One group, called the Zivvers develops infrared vision through mutation; the other replaces vision with a highly-developed sense of hearing. A number of constructions appear in the book which would, in the "real" world be ungrammatical or bizarre, which are perfectly acceptable in the context of the story. I do not claim that Galouye's usage exactly bears out all the predictions of my analyses, but rather that it supports my contention that pragmatic facts about the way in which a particular mode of perception operates partially determine what we would call the syntactic and semantic properties of verbs of physical perception in a language.

Two further instances of the interaction between pragmatic and linguistic properties are discussed in sections 2.2 and 4.1.2.

Concerning the stative meaning of cognitive physical perception verbs, it appears that the choice of a particular physical perception verb depends not upon the particular physical sensory mechanism one employs to gather sensory data with, but rather the interpretation one gives to the data. For example (cf. Rogers, 1971, pp. 206-207), if a person were born who could tell by physical contact, not
what things felt like, but how they smelled, we wouldn't say that he felt odors, rather, we would say he had a very strange way of smelling things. Similarly, if one were born blind, but an optical (or even radar) scanning device were invented (and I understand that it is being worked on) which could be connected up to you so that you could gather the kind of information that sighted people normally gather by seeing, we would describe you as seeing, even if the device worked on a basically emission-reflective process, such as radar or sonar.

2.2 Active Physical Perception Verbs

Just as there appears to be two sets of Cognitive physical perception verbs, stative and inchoative, for each of the five physical senses, so also there appears to be a class of what I have called (Rogers, 1971) Active physical perception verbs which describe, roughly, the intentional act of perceiving. As noted in section 2.1 (examples 2.1-2.5), the Actives may be distinguished from the Cognitives by tests for Agentivity (the Actives are Agentive; the Cognitives, non-Agentive) and Stativity (Actives are non-stative; Cognitives, stative).
Before attempting to present an analysis of Active physical perception verbs, I would like first to discuss their meanings discursively and the differences between their meanings. Given their Agentivity and Stativity properties, it is clear that in \( V_A \text{ing} \), the subject of \( V_A \) is doing something, but what? For example, what is the difference between the meaning of (2.20) and (2.21),

(2.20) Do you taste the garlic?
(2.21) Are you tasting the garlic?

where, because of stativity properties, (2.21) is unambiguously the Active sense and (2.20) is ambiguous between a rather generic-repetitive, Active reading, roughly paraphrasable as, "Are you the garlic-taster?", which is the reading we wish to ignore, and a stative Cognitive\(^\text{13}\) reading. In the appropriate reading, (2.20) asks, of someone who is already eating something whether he detects or perceives the flavor of garlic, whereas (2.21) asks whether what someone is doing is a particular kind of eating, namely eating garlic to see what its flavor is (is it good garlic or bad, fresh or old, sharp or mellow, etc.). The physical act involved is eating and it is eating for the purpose of perceiving the flavor or taste of something. Of course perceiving the flavor or taste of something is precisely
the meaning of the Cognitive sense of the verb (whether it is the stative or the inchoative Cognitive sense is not entirely clear, but I suspect it is the stative). The fact that eating is involved seems really quite accidental, though. One might rather say that the fact that eating is involved follows from the fact that the purpose of the act is to taste<sub>C</sub> the garlic, and we, as humans, can only do this in our mouths, and can do it most efficiently when the substance to be tasted is dispersed through the mouth, and since garlic is a solid, we must grind it up with our teeth, a process which we label "eating." Clearly, if the substance involved were a liquid, we would employ the verb drink. In fact, of course, consumption (either eating or drinking) is irrelevant, since tasting<sub>A</sub> (e.g., wine-tasting) often involves spitting out the substance tasted after it has been tasted. If human physiology were such that tasting<sub>C</sub> took place in one's belly-button, the act of placing garlic, in whatever way was necessary for the tasting<sub>C</sub> process to work in one's belly-button for the tasting<sub>C</sub> it, would be called tasting<sub>A</sub> it. 14

To take a phonologically less problematical example, consider the relationship between the Cognitive verb hear and the Active listen. Again, to listen to something is to
do something more than simply hear it. It happens that because the human auditory mechanism is designed in such a way that it is constantly open to sensory input, that no physical act is required to be able to hear, hence no physical act is involved in listening. This, of course, contrasts with the situation for tasting, where substances, in order to be perceived for taste, must be placed in contact with the appropriate sensory organ, hence the possibility of tasting normally requires a physical act so tasting involves a physical act. What one does in listening that one does not do in hearing is a mental rather than a physical act, of roughly paying careful attention to what one hears, or some aspect of what one hears.

There appear to be at least two constants to the notions expressed by taste and listen and other Active physical perception verbs: first, that the subject of the Active physical perception verb do something (the Action Condition); and second, that the performer of this action do it with the intention of perceiving (V-ting) the object of the Active physical perception verb (the Intention Condition).

In work based in part on Rogers (1971), Dowty (1972a, b) has proposed an analysis of the relationship between
Cognitive and Active physical perception verbs in terms of an atomic predicate DO, rather similar to the DO of Ross's (1972b) paper "Act." Basically, Dowty's proposal is that the Active forms consist of the Cognitive forms embedded as object of DO and identical subjects for DO and the Cognitive form, schematically represented as (2.22)

(2.22)

Following a suggestion made in Ross (1972b), Dowty proposes and argues for the claim that the notion Agent (Fillmore, 1968; Lee, 1971) of recent work in the Case-grammar framework be replaced by subject of the atomic predicate DO. While Dowty does not propose a formal semantic analysis for DO, he does suggest (1972b, p. 71) that something like (2.23) must be captured in a Natural Logic (cf. Lakoff, 1972a) to account for the intentionality property of subjects of DO.

(2.23) at any time t, \text{DO (x, f(x)) at } t \Rightarrow \text{INTEND (x, f(x)) at } t.

24
This, of course, amounts to a statement of what I earlier called the Intention Condition, but what of the Action Condition? In connection with another set of examples which Dowty (1972b) argues involve the predicate DO, such as (2.24) - (2.26)

\[
\begin{align*}
(2.24) \text{John is being} & \begin{cases} \text{polite} \\
\text{careful} \\
\text{nosy} \\
\text{a hero} \\
\text{an obnoxious bastard} \end{cases} \\
(2.25) \text{John persuaded Henry} & \begin{cases} \text{not to be rude to Mary} \\
\text{to be kind to turtles} \\
\text{to be a good guy and} \\
\text{leave} \end{cases} \\
(2.26) \text{Be} & \begin{cases} \text{good} \\
\text{polite} \\
\text{careful} \end{cases}
\end{align*}
\]

[Dowty's III, (16)-(18)]

Dowty points out (p. 67) that aside from "volition, temporariness and some notion of 'immediate controllability'" there is nothing else which the presence of DO consistently entails. In particular, the notion of physical action is not invariably involved. In a given situation, for example, one may, be polite (in the non-stative sense) by (p. 67) "refraining from acting when one has the option of doing otherwise." Similarly, as was pointed out earlier, the act of listening to something is, in the physical sense, no act at all, but merely choosing to pay attention to something
and paying attention to it. It is clear that mere intention
is not adequate to characterize the meaning of DO, for
merely intending is not DOing. For example, one may intend
at time t to listen to something and yet fail to listen to
it for a number of reasons. Obviously, the notion of action
(if indeed that is the right term for it) must be further
explicated for this analysis to hold up, but the problem of
defining the notion exists, and must be solved, independent
of this analysis. It is clear that the phenomenon isolated
by the agentivity tests is an important one, both linguis-
tically and philosophically, and one which we do not yet
understand, but to say that the DO analysis does not account
for it is only to say that there is more work to be done.
I am aware of no other analysis which accounts for it either,
and the DO analysis appears at least to offer an interesting
avenue of attack on the problem.

An apparently related problem is the following. DO
appears to be what might be called a "success" verb. That
is, given a proposition of the form (2.27), it appears
always to be the case that if the proposition expressed by
(2.27) is true, so also must the proposition expressed by
the second argument of DO, namely (2.28), be true.

26
Likewise, if \( f(x) \) is false, \( \text{DO}[x, f(x)] \) must be false. (2.27), then, appears to logically entail (2.28). Perhaps (although I doubt it—things are never that easy), this entailment relationship can be used to capture the notion expressed by the Action condition.

I bring this particular question up, not just because I believe it may lead to a solution to the action problem, but because in Rogers (1971) and Dowty (1972b), it was assumed that the Active congener of see and look at, and I no longer believe this claim to be true.

The problem, for Active visual perception verbs is that there are two fairly obvious candidates, look at and watch, which the criteria applied so far (e.g., Agentivity/non-stativity, etc.) do not distinguish between, but which obviously do not mean the same thing. The question is which, if either, is semantically and syntactically parallel to listen, smell\(_A\), feel\(_A\), and taste\(_A\). Listen appears to be a "success" verb. That is, if (2.29) is true, then (2.30) must be the case.

(2.29) I listened to the music.
(2.30) I heard the music.
It also appears, although my intuitions are considerably weaker here, that $\text{taste}_A$ and the other Active perception verbs are "success" verbs, based on the claim that if (2.31) is true so also must (2.32) be.

(2.31) I tasted$_A$ the Almond Chicken.
(2.32) I tasted$_C$ the Almond Chicken.

There exist, however, instances of looking at which are not success verbs and which do not meet the Intentionality condition. The first example is the fact that blind men are, rather ordinarily said to look at things, but, of course, do not see them, and generally know they cannot see them, so could not intend to. $^{16}$ For example, it is customary in our culture to look at whoever one is talking to, and this is a custom to which blind, as well as sighted persons generally adhere to. Presumably, the blind determine the location of their audience aurally in order to be able to do so.

The second example involves the rather common locution (2.33) in a variety of forms.

(2.33) He looked (right) at her, but didn't see her.

Dowty (1972b, pp. 90-91) took the position that look at was indeed an ordinary intentional success verb, but that
because there was a physical act involved since seeing is directional, there was another sense of look at meaning roughly "direct one's eyes toward." This position, however, entails the claim that sentences of the form (2.34) are ambiguous between the two senses of look at.

(2.34) John looked at Jake.

a claim which I seriously doubt. Aside from a general dislike for proliferating lexical entries without strong motivation, I can offer at least one argument against the ambiguity claim, involving Lakoff's (1970g) puntative vagueness/ambiguity test.

According to Lakoff's test, if look at is ambiguous, (2.35) should allow only two possible interpretations, either both lookers were successful, or neither was, whereas if look at is vague as to success, there should be four readings, with success or failure of either looker at seeing independent of the other's success or failure.

(2.35) John looked at Jake and so did Jane.

To me, John's failure or success has no bearing on Jane's. I can perfectly well utter (2.35), knowing that John is blind and that Jane did see Jake, or vice-versa, and (2.36) does not strike me as odd.
(2.36) John looked at Jake and so did Jane, but only John saw him, because Jane was too far away to be able to pick him out of the crowd.

I conclude, on the basis of "success" properties, Lakoff's test, the assumption that multiplication of lexical entries requires strong motivation, and the fact that look at is not always an intentional success verb, as well an additional case, to be discussed shortly, in which look at and listen pattern differently with regard to inchoative properties, but watch and listen do not, that look at is not related to see simply by the atomic predicate DO. Instead, I believe that the Active congener of see is watch.

Exactly what the relationship of look at to see is, I am not entirely sure, but based upon a suggestion made to me by Barbara Partee, it might well make sense to pursue an analysis along the following lines. Instead of treating look at as unitary, one might analyze the locution look at x as consisting of the unit look, which occurs also in look for, look over, look around, etc. and a directional prepositional phrase at x. One might then be able to analyze look as DO see. This should allow an account of why looking at does not entail seeing. The fact that seeing (as well as watching) entails looking at, I consider to be

30
a pragmatic fact about how vision operates, i.e., it is highly directional.

Aside from the above differences and incompletenesses, I basically agree with Dowty's analysis relating Cognitive and Active physical perception verbs via the atomic predicate DO, as represented by the logical form (2.22).

(2.22)

\[
\begin{array}{c}
S \\
V \\
\text{DO} \\
\end{array}
\begin{array}{c}
\text{NP} \\
X \\
\end{array}
\begin{array}{c}
\text{NP} \\
S \\
\end{array}
\begin{array}{c}
V \\
V_C \\
\text{NP} \\
X \\
\end{array}
\begin{array}{c}
\text{NP} \\
Y \\
\end{array}
\end{array}
\]

I am not entirely sure whether the \( V_C \) of (2.22) should be the stative or the inchoative. Co-occurrence arguments with time adverbs are of little help since durative adverbs should be allowable in either case, due to the fact that at least the stative \( V_C \) must be there in either case, and the occurrence of point-time adverbs could be accounted for by the fact that DO is a point-time predicate. It seems counterintuitive to claim that DO would allow a simple stative to be embedded under it, since that
claim amounts to saying that one can DO a state (whatever
that means). However, the cases pointed out by Dowty
(1972b, pp. 65–67), discussed earlier in this section,
namely (2.24)–(2.26) appear to be instances of embedding
statives under DO.

(2.24) John is being
\[\text{polite, careful, nosy, a hero, an obnoxious bastard} \].

(2.25) John persuaded Henry
\[\text{not to be rude to Mary, to be kind to turtles, to be a good guy and leave} \].

(2.26) Be
\[\text{good, polite, careful} \]. \quad \text{[Dowty's III, (16)–(18)]}

Dowty's cases are convincing to me, so I cannot rule out
the possibility of \(V_c\) in (2.22) being stative.

One piece of evidence against \(V_c\) being inchoative
depends on the definition of inchoation proposed in Dowty
(1972b, p. 47), namely (2.14).

(2.14) COME ABOUT (S) is true at t iff S is true at t
and \(\sim S\) is true at \(t-1\);
is false at t iff S is false at t and \(\sim S\) is
true at \(t-1\).
is undefined otherwise. \quad \text{[Dowty's III, (20)]}

If \(V_c\) were inchoative in (2.22), then the logical form of
\(V_A\) would be (2.37).
The truth conditions for COME ABOUT require that \( \sim S \) (\( S_2 \) in 2.37) be true at \( t-1 \). If \( S_2 \) is true at both \( t-1 \) and \( t \), COME ABOUT is undefined. However, it is perfectly possible for \( S_2 \) to be true at both \( t-1 \) and \( t \). That is, I can start listening to something which I have heard all along, or start watching something which I have seen all along. Since this is true, I conclude that \( V_C \) cannot be inchoative, but rather, must be stative.\(^{19}\)

The logical form (2.22) should thus be emended to (2.38) which, after Equi-NP deletion and predicate-raising will become (2.39), the form required for lexical insertion.
The pairs to be related by (2.22) are (at least) hear/listen, see/watch, taste$_c$/taste$_A$, smell$_c$/smell$_A$, and feel$_c$/feel$_A$. 
FOOTNOTES, CHAPTER 2


2 Actually, Binnick (1970, esp. pp. 539-557) discusses perception verbs in general, but it isn't clear to me, given his rather anecdotal discussion, what his conclusions are.

3 Cf. section 2.2.

4 Note that since the Active and Cognitive forms of smell, feel, and taste are phonologically ambiguous, in order to interpret the data, it must be borne in mind which sense of these forms is under consideration.

5 In the sense of go to see, which is also non-stative, (2.1b) is, of course, all right, but it is not the sense under discussion. I have not examined this other sense.

6 Although it is doubtful now that these criteria, and the result of applying them are purely syntactic, or whether stativity so defined in a unitary concept.

7 The remark of fn. (5) also applies here. Note also that Lakoff specified command imperatives.

8 For some discussion of gerunds of this type, see Emonds (1972), pp. 26-28.

9 Given the rampant homophony in the latter three modes of perception, the skeptical reader may well, in spite of intense concentration, doubt my claim here. He (or she) is asked to bear with me until the end of this section, at which point, I believe the necessary distinctions will appear at least plausible.
This example and (2.17)(d) appear to be odd for irrelevant pragmatic reasons, namely that one does not, in this world, normally gather such information through one's sense of taste.

See footnote 10.

I would like to thank John Lawler for bringing this example to my attention.

Actually, I suppose there is a third reading (also to be suppressed for purposes of this discussion), a generic-repetitive inchoative Cognitive, the conditions for whose appropriate use strike me as rather unusual.

Homophony, in the discussion of cases such as these, between taste_A and taste_C is a problem. The only solution I can offer to the reader, short of performing diagnostic tests on every example, which I refuse to do, is to suggest that he or she concentrate very hard on the little subscript A's and C's.

For some discussion of problems involved with this definition, see Ross (1972b), pp. 105-106. Dowty (1972b), pp. 63-74, 80-88 and 115-121 attacks these problems with some success.

This example is based on an observation of John Lawler's.

The problem is, as usual, more complex than is stated here. For instance, watch appears to have an obligatory durative character not clearly shared by the other V_A. Also unexplained is the apparent fact, due, I believe, ultimately to the pragmatic fact: that vision is highly directional, that both watch and look at are Active forms, whereas, for example, there is only one Active form of this type, namely listen for audition. How many such forms there are for other sensory modes cannot be determined pending an analysis of verbs such as touch, sniff, savor, etc.
(18) This anti-inchoative argument will not go through for cases like (2.25) or (2.26) because there is simply no point in persuading or ordering anyone to do something they are already doing.
CHAPTER 3

THE FLIP PHYSICAL PERCEPTION VERBS, PART I

3.0 Introduction

3.0.1 Early Previous Analyses

Perception verbs such as those in (3.1)–(3.5) were originally analyzed by Lees (1960, pp. 12-13) as members of subclasses of copulative verbs, an analysis essentially followed by Chomsky (1965, pp. 94 and 107).

(3.1) Reuben looked stoned to me.
(3.2) Fotheringay sounded interesting to me.
(3.3) The soup tasted funny to me.
(3.4) Ambergris smelled awful to me.
(3.5) Karnofsky's snout felt rough to me.

Subsequently, Rosenbaum (1967, pp. 98-99) proposed a rather different tentative analysis of such verbs as verbs which take verb phrase complements in whose deep structure representation the surface subject and object are reversed. For example, the structure his analysis would assign to (3.3) would be (3.6):
The motivation for such an analysis, beyond general similarity to other apparent cases of verb phrase complementation, was the fact that the restrictions imposed on the prepositional objects of sentences like (3.1)-(3.5) are the same as those imposed on the subjects of corresponding sentences such as (3.7)-(3.9). Thus, sentences such as (3.10)-(3.12) are ungrammatical, as are sentences (3.13)-(3.15).

(3.7) I tasted the soup.
(3.8) I smelled ambergris.
(3.9) I felt Karnofsky's snout.
(3.10) *The soup tasted funny to the rock.
(3.11) *Ambergris smelled funny to Spiro's girdle.
(3.12) *Karnofsky's snout felt rough to the toothpaste.
(3.13) *The rock tasted the soup.
(3.14) *Spiro's girdle smelled ambergris.
(3.15) *The toothpaste felt Karnofsky's snout.
By assuming that sentences like (3.1)-(3.5) and (3.10)-(3.12) were derived from sentences in which the superficial prepositional objects originated as underlying subjects (and the superficial subjects as underlying objects), which were reversed by a Subject-Object Inversion transformation, he could avoid having to state the same verb-noun phrase restriction twice.

The derivation of (3.3) from (3.6) would be essentially as follows:

(3.6) [I tasted [the soup]_{NP} [[the soup]_{NP} [be funny]_{VP}]_{S}]_{S}
(3.16) [I tasted [the soup]_{NP} [[be funny]_{VP}]_{S} Equi-NP Deletion
(3.17) [[The soup]_{NP} tasted [[be funny]_{VP}]_{S} to me]_{S} Inversion
(3.18) [[The soup]_{NP} tasted [[funny]_{VP}]_{S} to me]_{S} to be Deletion

No particular arguments were given for the VP-complement structure, and, in light of the subsequent arguments for the elimination of Rosenbaum's VP-complement-NP-complement distinction, and the fact that arguments were offered only for the Subject-Object Inversion rule, it seems clear that the major surviving insight of Rosenbaum's analysis is the claim that in sentences such as (3.1)-(3.5), in underlying form, subject and object are reversed.
3.0.2 Postal's Analysis

Postal (1971a, pp. 36-41), on the basis of the same animacy restrictions noted by Rosenbaum, as well as the claim that the relation between the verb and the object NP of sentences such as (3.1)-(3.5) is essentially similar to the relation between the verb and the subject NP of sentences such as (3.7)-(3.9) and (3.19)-(3.20),

(3.19) I listened to Fotheringay.
(3.20) I looked at Reuben.

proposed an analysis similar to Rosenbaum's in that he too proposed that sentences such as (3.1)-(3.5) be derived from "more remote" structures, in which the superficial subjects were underlying objects and the superficial prepositional objects were underlying subjects, by the rule of Psych-Movement, which accomplished the same subject-object interchange and addition of a preposition to the superficial object, as did Rosenbaum's Subject-Object Inversion rule.

The "more remote" representation which Postal proposed for sentences such as (3.3), namely (3.21), differed considerably from Rosenbaum's in that he proposed that the superficial adjectives in such sentences were irregular adverbs, on the basis that they take how questions typical of such adverbs, such as (3.22).
(3.21) I tasted the meat funny.
(3.22) How does the meat taste (to you)?

Postal's claim appears to be a case of using the wrong fact to support what may very well be a correct intuition. It is true that for at least a subclass of the adjectives involved in these constructions (in fact, semantically the most troublesome one, cf. section 4.3.3) the adjective "feels" like it functions adverbially, but the fact that the question-word is how in questions is merely compatible with, and at best suggestive for, such a claim since how is also a question-word for adjectives, as in (3.23)-(3.25).²

(3.23) a. How are you?
    b. How is he as a teacher?
    c. How's the water?

Another fact to further murk the waters is that while Postal's examples involve very "adverbial"-feeling adjectives, strictly ordinary adjectives, such as those of example (3.24) also occur quite freely.

(3.24) a. Harry looks tall to me.
    b. Lyndon sounded old to me.
    c. The mushu tastes too salty to me.

Such cases will be discussed in sections 4.0 and 4.1.1.2. In addition to superficial adjectives and/or adverbs, like-phrases and like-clauses of at least two types occur,
like + S, as in (3.25)(a) (discussed in section 3.1 and
Chapter 4) and like + NP, as in (3.25)(b) (discussed in
section 4.3.5).

(3.25) a. Ray sounds to me like he has TB.
    b. Manfred looks like an elephant to me.

The existence of such sentences indicates at least that (as
usual) the problem of the relationship between Flip objects
and their modifiers is considerably more complex than it
appears at first glance.

Postal treated these verbs as a sub-case of a more
general set of Psych-Movement predicates (verbs and adjec-
tives) such as the (b) sentences of examples (3.26)-(3.31)
and examples like (3.32)-(3.34) (Postal's examples), so
that his set of Psych-Movement predicates included not only
Rosenbaum's Subject-Object Inversion cases and the Flip
predicates of G. Lakoff\(^5\) (1970a, pp. 126-127), but a large
number of additional predicates.

(3.26) a. I am amused at Harry.
    b. Harry is amusing to me.

(3.27) a. I am mystified at what John did.
    b. What John did mystified me.

(3.28) a. I was surprised at that.
    b. That was surprising to me.

(3.29) a. I loathe Schwartz.
    b. Schwartz is loathsome to me.
(3.30) a. I regard John as pompous.
   b. John strikes me as pompous.

(3.31) a. I liked the play.
   b. The play pleased me.

(3.32) It is obvious to me that hippopotomuses can't fly very far.

(3.33) This house belongs to me.

(3.34) My foot hurts.

What was of interest to Postal, of course, was the fact that Psych-Movement as well as a number of other rules exhibited NP coreferentiality restrictions which appeared to be uniformly explicable (roughly) in terms of coreferential NP crossing. For example, he claimed that sentences such as (3.35) were ungrammatical.

(3.35) *I sound brave to myself.

While many speakers disagree with Postal's grammaticality judgment in this case (and in many other cases), I think that it is undeniably true that (3.35) is considerably less acceptable than (3.36).

(3.36) I hate myself.

If this is the case, and if it is also the case, as I strongly believe it is, that similar facts obtain for Postal's other Cross-over cases (i.e., some speakers would rather call them ? than *), then it is clear that only a
terminological issue is involved. What is important is that there appears to be a strict correlation between presence of "crossed" coreferential NP and some other property, whether it is labelled *, ?, or linguistic schizophrenia, so that the distinction between sentences such as (3.35) and those like (3.36) must be made. To the extent that there is a viable uniform explanation of this phenomenon which requires something like Postal's formulation of Psych-Movement to account for the fact that superficial subjects and objects of Psych-Movement verbs cannot comfortably be coreferential, Postal's analysis is supported.

Postal's adduced additional support for his claim that the underlying and superficial order of NP were reversed on the basis of the distribution of the adverb personally which, for him (and many others) appears to accompany the underlying subject, but not the underlying object of sentences. Thus, we have (3.37)-(3.38) (Postal's examples):

(3.37) a. I personally am annoyed with Jack.
   b. *Jack is annoyed with me personally.
   c. Jack is annoying to me personally.
   d. *I personally am annoying to Jack.

(3.38) a. I personally smelled the gorilla.
   b. *The gorilla smelled me personally.
c. The gorilla smelled funny to me personally.
d. *I personally smelled funny to the gorilla.

It is true, however, that a number of speakers do not share Postal's grammaticality judgments in these cases, but in this case, it appears that speakers who find (3.37) (b), (d) and (3.38)(b),(d) acceptable do so only by placing them in a discourse context in which, for example, (3.37)(b) is the contrary to some prior discourse sentence such as (3.37)(b'):

(3.37) b'. Jack is annoyed with everyone.

where then (3.37)(b), preceded by No or some other introductory word, is appropriate. Notice that in such cases, contrastive stress is called for on me in (3.37)(b). But surely these are not the cases Postal meant, differing, as they do from noncontrastive usage. Besides, even if one objects to the standard linguist's cop-out of "normal" or "neutral" intonation, the fact remains that a distinction must be made between such cases and those cases where contrastive stress and/or special context is required. Postal's analysis allows us to make that differentiation and thus appears to be supported on those grounds. It seems that once again, what is involved is a mere terminological issue.
An additional argument for an analysis like Postal's is given in R. Lakoff (1968, p. 43). She points out that *seem* and *appear* undergo Negative-transportation. Whereas the vast majority of verbs which undergo this rule, such as *think, believe, suppose*, and a number of others take object complements. Without a Flip analysis, *seem* and *appear* would take subject complements, and the rule of Neg-transportation would have to be made more complicated. As we shall see in section 4.1.1.2 the Flip perception verbs also undergo Neg-transportation, so her argument would apply to them, too, though the force of the entire argument is somewhat diminished by the fact that there are more members of this class, since it is an argument from idiosyncracy.

It seems clear, however, that Postal was not satisfied with his proposal since, as he pointed out, it offered no account of the fact that the verbs in sentences like (3.1)-(3.5) are syntactically stative, whereas those of (3.7)-(3.9) and (3.19)-(3.20) are not and the fact that the adjective is obligatory for the former but prohibited [except prenominally] for the latter. In addition, his proposal offers no account for the other Psych-Movement properties he subsequently pointed out in Postal (1970a).
3.0.3 An Evaluation of the Psych-Movement Proposal for Flip Perception Verbs

The main force of Rosenbaum's and Postal's argument for the Psych-Movement (Subject-Object Inversion) analysis rests on selectional facts. They claimed that the class of possible Flip Experiencers was identical to the class of possible Active subjects [my description].\textsuperscript{11} In addition, Postal (1971a, p. 40) claimed that there was an essential similarity in the relation between Flip subjects and their verbs, on the one hand, and Active objects and their verbs on the other hand. See, for example, the pairs (3.39)(a), (b)-(3.43)(a), (b).

(3.39) a. The music sounded loud to me. \textit{Flip}
b. I listened to the music. \textit{Active}
c. I heard the music. \textit{Cognitive}
(3.40) a. Harry looked drunk to me. \textit{F}
b. I looked at/watched Harry. \textit{A}\textsuperscript{12}
c. I saw Harry. \textit{C}
(3.41) a. Jane's cake tasted burned to me. \textit{F}
b. I tasted Jane's cake. \textit{A}
c. I tasted Jane's cake. \textit{C}
(3.42) a. Oscar smells dirty to me. \textit{F}
b. I smell Oscar. \textit{A}
c. I smell Oscar. \textit{C}
(3.43) a. Hortense's forehead felt hot to me. \textit{F}
b. I felt Hortense's forehead. \textit{A}
c. I felt Hortense's forehead. \textit{C}
Of course, as we saw in Chapter 2, there are two other parallel sets of physical perception verbs, the Cognitive-Stative and the Cognitive-Inchoative. It appears to be the case that the class of possible Cognitive subjects is the same as the class of possible Active subjects, which appears to be the same as the class of possible Flip Experiencers. Furthermore, the relationship between Cognitive objects and Flip subjects seems just as close as does the relationship between Active objects and Flip subjects. In fact, what I claim is that the class of possible Cognitive subjects and the class of possible Active subjects and the set of possible Flip Experiencers is the same, namely those entities which perceive in the appropriate sensory mode—i.e., sighted entities for the verbs of vision, hearing entities for the verbs of audition, etc.\textsuperscript{13} Similarly, for the class of possible Cognitive objects, the class of possible Active objects, and the class of possible Flip subjects.\textsuperscript{14} It seems unlikely that this is an accidental fact, and we would take advantage of it in our description of the relationships among these verbs, but on the basis of selection alone, we cannot choose between relating the Cognitives or the Actives to the Flips in whatever analysis we end up with for sentences such as (3.39)(a)–(3.43)(a).
The **personally** facts Postal cited do not distinguish the Cognitives from the Actives either, since they both allow subject modification. One advantage, however, of relating the Cognitives rather than the Actives to the Flips is that this would appear to allow us to eliminate the stativity compatibility problem noted earlier, which Postal pointed out.

At this point it seems relatively clear that a satisfactory analysis of Flip physical perception verb sentences should relate the Flips to either the Cognitives or the Actives, but it is not clear which one. It is Postal and Rosebaugh's work which leads us to this conclusion, but we must choose between the alternatives we now appear to have. It is obvious that Postal's analysis is inadequate, but it appears to represent an improvement over previous analyses. In the following sections we will consider additional facts about these verbs in an attempt to arrive at a more satisfactory analysis.

3.0.4 *Presuppositions of Flip Perception Verbs*

A related point involves presuppositions. The Flip perception verbs are factive,\(^{15}\) in a peculiar sort of way. As I observed in Rogers (1971), both (3.40)(a) and (3.46),
presuppose\textsuperscript{16} the truth of (3.40)(c), just as both (3.47) (a) and (3.47)(b) presuppose (3.47)(c).

(3.40) a. Harry looked drunk to me.
(3.46) Harry didn't look drunk to me.
(3.40) c. I saw Harry.
(3.47) a. I realized that Mary was pregnant.
   b. I didn't realize that Mary was pregnant.
   c. Mary was pregnant.

This is true of all Flip perception verb sentences describing actual physical perception with superficial subjects other than empty \textit{it} and with overt Experiencers.\textsuperscript{17}

In Rogers (1971), I argued that the physical perception verbs involved in those presuppositions were the Cognitives,\textsuperscript{18} but at that time I assumed the Active congener of the Flip \textit{look} was \textit{look at}. On the basis of this assumption, I was able to eliminate \textit{look at} as the verb involved in the presupposition of sentences like (3.40)(a) and (3.46) on the basis that looking at something did not necessarily entail seeing it, but that the presupposition involved in sentences like (3.40)(a) and (3.46) did. Having now argued that \textit{watch}, which is a visual success verb, rather than \textit{look at} is the Active congener of Flip \textit{look}, that line of argumentation does not apply, since all of the Active physical perception verbs now entail successful perception in the appropriate sensory mode.

51
The existence of these presuppositions is of interest not only of itself, but also in relation to the problem discussed in section 3.0.3, namely whether the Flips should be related to the Cognitives or to the Actives. If we have to give some account of the presuppositional properties of the Flips, and that account involves either the Cognitives or the Actives, then it would appear to be more economical and elegant to use that same account to capture the selectional regularities discussed in 3.0.3.

I know of two reasons for preferring to claim that it is the Cognitive, rather than the Active, verbs which are involved in the presupposition-selection properties of the Flips, neither of which is exactly overwhelming. First, as previously mentioned, if we relate the Flips to the Cognitives, we avoid the stativity-compatibility problem which we encounter in attempting to relate the Flips to the Actives, since both the Cognitives and the Flips are stative, whereas the Actives are non-stative. Second, it simply does not appear to be true that, in order for a person to use (3.40)(a) or (3.46) appropriately, (3.40)(b) must be true,

(3.40) a. Harry looked drunk to me.
(3.46) Harry didn't look drunk to me.
(3.40) b. I watched Harry.
c. I saw Harry.

since one could perfectly well use (3.40)(a) or (3.46) on the basis of simply glancing at Harry, in which case (3.40)(b) would not be true, since watch appears to have an obligatory durative aspect which (3.40)(c) lacks.

If an account of the presupposition-selection properties of the Flips involves the Cognitives, should it involve the Stative-Cognitives or the Inchoative-Cognitives? This particular question I should like to postpone until I have examined additional properties of the Flip physical perception verbs.

3.1 Like-Complements

In addition to simple sentences like (3.1)-(3.5), the Flip perception verbs also take sentential complements introduced by the complementizers like, as if, and as though. Since such structures are, as far as I know, wholly uninvestigated in any transformational framework, except for brief mention in Postal (1971a, p. 163), I will discuss various sub-types individually, postponing until later an attempted synthesis. Since the like-complements
appear to be the more freely-occurring of the three types, I will restrict myself to them.

3.1.1 Simple Cases

3.1.1.1 Flip Properties

The simplest surface form of the Flip like-complement is the type illustrated by (3.50)-(3.54).

(3.50) It looked to me like Charley goosed Francine.
(3.51) It sounds to me like Martha is dying.
(3.52) It tastes to me like the soup has onions in it.
(3.53) It smells to me like Pavel has brushed his teeth.
(3.54) It feels to me like Harry is dead.

The verbs involved here are clearly the same Flip physical perception verbs discussed in section 3.0, since they share the same selectional restrictions, the same personally-distribution facts, and the property of stativity, as (3.55)-(3.58) begin to show. 20

(3.55) *It looked to the building like Charley goosed Francine.
(3.56) It looked to me personally like Charley goosed Francine.
(3.57) *It is sounding to me like Martha is dying.
(3.58) *What it did was smell to me like Pavel has brushed his teeth.
3.1.1.2 Neg-Raising Properties

While the question of the existence of the rule known as Negative-Raising or Negative Transportation remains, to many, an unsettled one,\textsuperscript{21} it appears worthwhile to establish the claim that the same facts which led to the postulation of the rule, as well as those which have led others to dispute its existence, are also facts for Flip perception verbs with like-complements. These facts should then be useful not only as an additional characteristic of Flip perception verbs, but also in the ongoing discussion of the validity of the Neg-raising analysis.

3.1.1.2.1 Paraphrase

Consider a and b sentences of (3.59)-(3.63).

\begin{align*}
(3.59) & \quad \text{a. It looked to me like Charley didn't goose Francine.} \\
& \quad \text{b. It didn't look to me like Charley goosed Francine.} \\
(3.60) & \quad \text{a. It sounds to me like Martha isn't dying.} \\
& \quad \text{b. It doesn't sound to me like Martha is dying.} \\
(3.61) & \quad \text{a. It tastes to me like the soup doesn't have onions in it.} \\
& \quad \text{b. It doesn't taste to me like the soup has onions in it.} \\
(3.62) & \quad \text{a. It smells to me like Pavel hasn't brushed his teeth.} \\
& \quad \text{b. It doesn't smell to me like Pavel has brushed his teeth.}
\end{align*}
(3.63) a. It feels to me like Harry isn't dead.  
    b. It doesn't feel to me like Harry is dead.

On the reading of the (b) sentences where the higher verb  
is not negated, it should be the case that the (b) sentences  
are at least close paraphrases of the corresponding (a)  
sentences,\textsuperscript{22} and to me, that appears to be the case.  

3.1.1.2.2 Until-Phrases

In addition, Kajita's until-phrase argument\textsuperscript{23} (as  
reported in R. Lakoff, 1969) holds (or fails to hold,  
depending on your view on the question of whether Neg-  
Raising is a syntactic rule) in exactly the same way for  
the Flip perception verbs as it does for other putative  
Neg-raisers like \textit{think}, \textit{believe}, etc.\textsuperscript{24} Thus, we have  
parallel sentences (3.64)-(3.65).

(3.64) a. I said John wouldn't leave until tomorrow.  
    b. *I didn't say John would leave until tomorrow.

(3.65) a. I thought John wouldn't leave until tomorrow.  
    b. I didn't think John would leave until tomorrow.

(3.66) a. It looks to me like John won't arrive until  
    tomorrow.  
    b. It doesn't look to me like John will arrive  
    until tomorrow.
3.1.1.2.3 **Negative Polarity**

An additional parallel argument (or nonargument) that what is going on in *like*-clauses is Neg-raising can be observed in the behavior of a sub-class of Negative-polarity\(^{25}\) items such as *in weeks* and *in a coon's age*. These expressions occur when commanded by a Negative in surface structure, but not without a Negative, as in (3.67) (a), (b).

(3.67) a. I haven't cooked brains and eggs in a coon's age.
   b. *I have cooked brains and eggs in a coon's age.

Normally, however, these idioms cannot occur if they do not also command the Negative in surface structure, as in (3.68)(b).\(^{26}\) If, however, the verb of the higher S allows Neg-raising, as in (3.68)(c), the sentence is good even if the idiom does not command the Negative, as in (3.68)(d).

(3.68) a. I said I hadn't cooked brains and eggs in a coon's age.
   b. *I didn't say I had cooked brains and eggs in a coon's age.
   c. I believe I haven't cooked brains and eggs in a coon's age.
   d. I don't believe I have cooked brains and eggs in a coon's age.
If we postulate a rule of Neg-raising and state the constraint on the occurrence of these Negative-polarity idioms at some level prior to the application of Neg-raising, we can account for why (3.68)(b) is bad and (3.68)(d) is good. Similar facts obtain for the Flip perception verbs, as in (3.69)(a), (b).

(3.69) a. It sounds to me like you haven't cooked brains and eggs in a coon's age.
   b. It doesn't sound to me like you have cooked brains and eggs in a coon's age.

3.1.1.2.4 Tag-Questions

3.1.1.2.4.1 Robin Lakoff's Analysis

Based on the following four facts, as well as semantic plausibility and the notion "performative verb," Robin Lakoff (1969) proposed an ingenious analysis of tag-questions which appears to provide support for the claim that there exists in English a syntactic rule of Neg-transportation.

A. The polarity of a non-sarcastic tag question is the opposite of the polarity of the sentence it is based on. E.g.

(3.70) The Yankees will win the pennant, won't they?
(3.71) *The Yankees will win the pennant, will they?
(3.72) The Yankees won't win the pennant, will they?
(3.73) *The Yankees won't win the pennant, won't they?

B. It is normally the case that tag-questions are

formed on the basis of the highest surface sentence,
as in (3.74)-(3.77).

(3.74) John claims that the Yankees won't win, doesn't
he?
(3.75) *John claims that the Yankees won't win, will
they?
(3.76) John doesn't claim that the Yankees will win,
does he?
(3.77) *John doesn't claim that the Yankees will win,
will they?

C. When the highest surface sentence has a first person

singular subject and a present indicative verb of

mental state, the tag is formed on the basis of the

complement of the highest surface sentence.

(3.78) I suppose the Yankees will win, won't they?
(3.79) *I suppose the Yankees will win, don't I?
(3.80) I suppose the Yankees won't win, will they?
(3.81) *I suppose the Yankees won't win, don't I?

as opposed to

(3.82) *Bill supposed the Yankees would win, wouldn't
they?
(3.83) Bill supposed the Yankees would win, didn't he?

D. In sentences similar to (3.78)-(3.81) but where

there is a sentence negative on the higher verb.
(e.g., (3.84) and (3.85) the polarity of the tag
is the opposite of what would be predicted by
conditions A and C.

(3.84) I don't suppose the Yankees will win, will they?
(3.85) *I don't suppose the Yankees will win, won't they?

[Lakoff's (18) and (19)]

By taking C to be the paradigm case, i.e., that tag-
formation always operates on the basis of the complement of
a first-person singular present indicative sentence whose verb is one of mental state (i.e., a performative of sup-
position) Lakoff is able to give a uniform account of these facts. In cases like B, she assumes the existence of a
(later deleted) abstract performative sentence of supposi-
tion, thus unifying the treatment of cases B and C. Posit-
ing the existence of a syntactic rule of Neg-transportation,
ordered after tag-formation (both rules being cylical), she
can unify the treatment of the facts of A and D. A is
claimed to be the correct generalization and the facts of D are accounted for by having the superficial sentence nega-
tion of think originate as a negative on the verb of the complement, applying tag-formation (to get the correct polarity based on A), and then Neg-transportation.
The cyclicity of the two rules is required in order to be able to generate both such sentences as (3.84) and (3.86). 27

(3.86) John doesn't think the Yankees will win, does he? [Her (22)]

Since, in order to generate (3.84) the order of application of the two rules must be

Tag-formation
Neg-transportation

whereas in the generation of (3.86), it must be

Neg-transportation (to get does he)
Tag-formation.

3.1.1.2.4.2 Tag Questions and Flip Perception Verbs 28

Interestingly enough, similar facts obtain for the Flip perception verbs, as shown by (3.87)-(3.92) (compare (3.78)-(3.85)).

(3.87) It looks to me like the Yankees will win the pennant, won't they?
(3.88) *It looks to me like the Yankees will win the pennant, doesn't it?
(3.89) It looks to me like the Yankees won't win the pennant, will they?
(3.90) *It looks to me like the Yankees won't win the pennant, won't they?
(3.91) It doesn't look to me like the Yankees will win the pennant, will they?
(3.92) *It doesn't look to me like the Yankees will win the pennant, won't they? In
we make the same assumptions as Lakoff does (for most of
which there is independent evidence, at least for her cases),
including the one that sentences such as (3.87) are per-
formative, we can account for the facts of (3.87)-(3.92).

However, in addition to claiming that tag-question
sentences are all instances of (overt or abstract) perform-
ative use, she also claims that the sentences which the tags
are formed on the basis of (e.g., (3.78), (3.80), (3.87),
(3.89), and (3.91) without tags) are also instances of
overt performative use. Thus, she says (p. 143) in refer-
ence to sentences (3.93) and (3.94), "Both would contain

(3.93) John left, didn't he?
(3.94) I suppose that John left. [her (15b) and (17)]

performative verbs meaning suppose. The difference is that
in (17) [my (3.94)] the performative is a real verb; in
(15b) [my (3.93)] it is an abstract verb, present in the
underlying structure but deleted transformationally."

She goes on to say (p. 144) with reference to sen-
tences such as (3.84), that "forming the tag on the lower

(3.84) I don't suppose the Yankees will win, will they?

[her (16)]
sentence is possible only in case the verb of the higher sentence is a performative verb--.""

On the basis of these claims, she must therefore also claim that instances of quasi-performative Flip perception verb sentences, with or without tags are performative.

Although Lakoff claims, in discussing sentences (3.95) and (3.96) (p. 143) that "suppose is being used as

(3.95) *Do I suppose the Yankees will win the pennant?
(3.96) *I suppose the Yankees will win the pennant,
don't I? [her (14c) and (14d)]

a performative verb, in Austin's sense, . . . ." her claim in these instances and others, such as (3.93) and (3.94), appears highly questionable on several grounds.

According to Lakoff's analysis, a verb is performative if, in a structure like (3.97) under quasi-performative

(3.97)

\[
\begin{array}{c}
S_0 \\
\downarrow \\
NP \\
\downarrow \\
I \\
\downarrow \\
V \\
\downarrow \\
NP \\
\downarrow \\
S_1
\end{array}
\]

conditions on \( S_0 \) (i.e., first person subject [or Experiencer] simple present verb, non-negative declarative, etc.), where

63
the verb in question is the verb of $S_0$, tag questions can be formed on the basis of $S_1$. Thus *suppose* is a performat- tive because one can get (3.98), and *look* is because one can get (3.87).

(3.98) I suppose John left, didn't he?
(3.87) It looks to me like the Yankees will win the pennant, won't they?

If we accept this claim, then it appears to be true that any verb of propositional attitude that can take object complements will also have to be labelled a performative verb, since they all meet the criteria of (3.97) as illustrated by (3.99)-(3.101).

(3.99) I believe that Harry is a fink

\[
\begin{align*}
(a) & \text{ *don't I?} \\
(b) & \text{ isn't he?} \\
(c) & .
\end{align*}
\]

(3.100) I doubt that Harry will come

\[
\begin{align*}
(a) & \text{ *don't I?} \\
(b) & \text{ will he?} \\
(c) & \text{ *won't he?} \\
(d) & .
\end{align*}
\]

(3.101) I understand that Harry is a fink

\[
\begin{align*}
(a) & \text{ *don't I?} \\
(b) & \text{ isn't he?} \\
(c) & .
\end{align*}
\]

What is unsettling about this claim is that, intuitively, propositional attitude verbs are rather dissimilar to at least the "hard-core" stock performatives, such as *promise*, *christen*, *sentence*, *request*, etc. This intuition can be buttressed by several observations.
First, as pointed out by Austin (1962a, p. 132),
performative sentences typically are not true or false, but
happy or unhappy. But surely (3.99)(c), (3.100)(d), and
(3.101)(c) are either true or false. Second, performatives,
by the very act of being uttered, constitute the act of per-
forming some speech act. Thus, (3.102), when felicitously

(3.102) I promise to buy your painting.

uttered, constitutes a promise, but the utterance of (3.99)
(c) surely doesn't constitute a belief, nor (3.100)(d) a
doubt, nor (3.101)(c) an understanding, but rather simply
the expression of a belief, a doubt, or an understanding.
Until I have uttered (3.102), I have not promised, but I
may well believe, doubt, or understand without saying any-
thing or even communicating at all. I may have believed,
doubted, or understood long before uttering (3.89)(c),
(3.100)(d), or (3.101)(c), respectively, and long after
doing so as well, but it is only in uttering (3.102) that
I promise. I am promising neither before nor after.

It was this latter, temporal fact, which Vendler
(1969) used as one of his criteria for distinguishing
these two classes in his criticism of Austin for mixing
the notions performative and propositional attitude.
In Vendler's terminology (1969 and 1967, Chapter IV), performatives are achievement verbs and propositional attitude verbs are state verbs.  

Ross (1970) claims hereby to be a diagnostic for performative sentences. Note (3.103)-(3.106).

(3.103) I (*hereby) suppose that Harry is a fink.
(3.104) I (*hereby) believe that Harry is a fink.
(3.105) I (*hereby) doubt that Harry will come.
(3.106) It(*hereby) looks to me like the Yankees will win.

In Scott (1972), it is suggested the little-understood modifier more-or-less is a negative diagnostic for performative sentences. Note (3.107)-(3.110).

(3.107) I more-or-less suppose that Harry is a fink.
(3.108) I more-or-less believe that Harry is a fink.
(3.109) I more-or-less doubt that Harry will come.
(3.110) It more-or-less looks to me like the Yankees will win.

Another possible difficulty with calling Flip verbs performatives has to do with Postal's subject-Experiencer constraint. According to Postal (1970a, pp. 114-117), sentences such as (3.112), as opposed to (3.111), are bad.

(3.111) It smells to me like Bill is drunk.
(3.112) *It smells to Harry like Bill is drunk.

because they violate the subject-Experiencer Constraint (hereafter SEC). Psych-Movement (a.k.a. Flip) verbals are
subject to the constraint that their Experiencer NP must be a coreferent of the next-higher verb of saying or thinking.\textsuperscript{34} In the case of (3.111), the coreferential subject is that of the deleted declarative performatifive à là Ross (1970). According to Lakoff, though, (3.111) must be performative. Ergo we must have embedded performatives, contra Ross (1970, p. 248). Whether the preceding constitutes an argument against Lakoff's analysis or for embedded performatives depends, of course, on whether there are other arguments for embedded performatives and, if so, how convincing they are.

A further difficulty for Lakoff's claim, pointed out in Boertien (1972), is that "hard-core" performatives don't allow tag questions in quasi-performative use at all, much less on their complements.

\begin{align*}
(3.113) & \text{ *I promise that } Harry \text{ will leave you alone } \{ \text{ don't I won't he } \} \text{?} \\
(3.114) & \text{ *I declare that you are insane } \{ \text{ don't I aren't you } \} \text{?} \\
(3.115) & \text{ *I deny that your allegation has any basis } \{ \text{ don't I hasn't it } \text{ doesn't it } \} \text{?}
\end{align*}

I realize, of course, that merely demonstrating that one can classify verbs into two classes is not
sufficient grounds for claiming that these two classes are not both subsets of the same class. Any pair of verbs can be distinguished on some basis, so the logical conclusion to such an absurd approach would be the claim that there are no verb classes. What I have sought to do is point out that the class of verbs which Lakoff's analysis forces us to call performatives fails a variety of what have been taken to be diagnostics for performativity, and that the very criterion she uses to pick out this new class of performatives is not a property of "hard core" performatives.

Lakoff's analysis, then, if it is not to be radically modified, must claim that there are two kinds of performatives, hard-core performatives and propositional attitude performatives. I agree with Vendler (1969), however, that performatives and propositional attitude verbs are subclasses of a larger class which, for reasons which are somewhat unclear to me (although see Vendler, 1969), includes them both. I believe that more than a terminological issue is at hand, here. Lakoff's extension of the notion performative, in the absence of further argumentation, appears to be unjustified.

I would like further to point out that at least certain facts which Lakoff invokes performativity to
account for are otherwise fairly readily accountable for on independent grounds (cf. Chapin, 1970a), namely the ungrammaticality of tag-questions on quasi-performative verbs of propositional attitude, such as (3.96), (3.99)(a), (3.100) (a), and (3.101)(a).

(3.96) *I suppose the Yankees will win the pennant, don't I?
(3.99) a. *I believe that Harry is a fink, don't I?
(3.100) a. *I doubt that Harry will come, don't I?
(3.101) a. *I understand that Harry is a fink, don't I?

Lakoff notes (p. 143), in discussing why sentences (3.116) and (3.117) are bad, that "for verbs of mental state, it is

(3.116) *Am I worried?
(3.117) *I'm worried, aren't I? [her (14a) and (14b)]

impossible for the subject to ask whether they are true of him." But if we consider propositional attitude verbs to be verbs of mental state, which they clearly seem to be, then insofar as Lakoff's claim accounts for (3.116) and (3.117), it also accounts for sentences like (3.96), (3.99) (a), (3.100)(a), and (3.101)(a).

Now, for overtly embedded tag-question sentences, such as (3.98) and (3.87), a performative analysis is not

(3.98) I suppose John left, didn't he?
(3.87) It looks to me like the Yankees will win the pennant, won't they?
required. We need only say that tags may only occur on complements of quasi-performative sentences with non-factive propositional attitude verbs.

It is only the superficially unembedded cases, such as (3.93), (3.86), and (3.106), which now appear to require

(3.93) John left, didn't he?
(3.86) John doesn't think the Yankees will win, does he? [Lakoff’s (22)]
(3.118) It's raining hot dogs, isn't it?

a performative analysis. But notice, however, that it is an independently necessary general convention of conversation (cf. Grice, 1968), that the speaker of a declarative sentence believe what he says, unless otherwise specified. As Gordon and Lakoff (1971) put it:

(3.119) $\text{SINCERE} (a, \text{SAY}(a, b, Q) \rightarrow \text{BELIEVE} (a, Q)^{35}$

[their (8b)]

By this conversational postulate, the required condition for the occurrence of tag-questions is met, via entailment, for unembedded questions, so a unified treatment of tag-questions is possible under the propositional attitude proposal, without having to resort to performativity, which, as we have seen, is questionable on a number of grounds.

For example, the derivation of (3.93) might proceed as follows.\textsuperscript{36} The underlying form of (3.93) might be
represented as (3.120), employing Gordon and Lakoff's

\[(3.120) \text{SAY (I, YOU, LEFT (JOHN))}\]

system. Assuming normal a conversational situation, i.e.,
that a speaks sincerely, (3.121) follows; from (3.121),
(3.122) follows, by (3.119) (3.122) fulfills (although I

\[(3.121) \text{SINCERE (I, SAY (I, YOU, LEFT (JOHN)))}\]
\[(3.122) \text{BELIEVE (I, LEFT (JOHN))}\]

have ignored details of quasi-performativity) the condition
for the occurrence of tag-questions. Such a proposal would
avoid the difficulties pointed out above for R. Lakoff's
performative analysis.

It is clear, of course, that this alternative
approach to tag-questions, which facts about Flip percep-
tion verbs have led us to, raises a number of questions,
but I believe that the questions it leads one to ask are
interesting ones, the answers to which may tell us a great
deal about tag-questions. For example, as pointed out by
Lindholm (1969) the sense of the propositional attitude
verb in a tag-question differs clearly but subtly from its
sense as a declarative, and this difference is crucial.
How to describe this difference is unclear to me at the
moment, although G. Lakoff has suggested (personal
communication) that by treating the relevant cases as instances of "hedges" (G. Lakoff, 1972b), that one might well arrive at a satisfactory account of these semantic facts. It is clear that R. Lakoff's claim of performativity is not to be taken literally, at least in the sense of "hard-core" performativity. Further investigation of the question of tag questions would, however, take us far beyond the topic of this dissertation, so I must postpone the investigation until a later paper. 37

3.1.2 More Complex Cases

3.1.2.1 Superficial Subject Copying Cases

Consider now sentences (3.123)-(3.127), in comparison with sentences (3.50)-(3.54) (repeated here for convenience).

(3.50) It looked to me like Charley goosed Francine.
(3.123) Charley looked to me like he goosed Francine.

(3.51) It sounds to me like Martha is dying.
(3.124) Martha sounds to me like she is dying.

(3.52) It tastes to me like the soup has onions in it.
(3.125) The soup tastes to me like it has onions in it.

(3.53) It smells to me like Pavel has brushed his teeth.
(3.126) Pavel smells to me like he has brushed his teeth.

(3.54) It feels to me like Harry is dead.
(3.127) Harry feels to me like he is dead.
These pairs of sentences are obviously at least candidates for an analysis which postulates a transformational relationship. They appear, in fact, to be identical, syntactically, except for the fact that the complement subject has been pronominalized in the second member of each pair and the fact that whereas the superficial subject of each of the first members is *it*, the subjects of the second members are the antecedents of the complement subject pronouns.

In order to consider the question of whether sentences like these pairs of sentences are transformationally related, let us propose alternative analyses of (3.123)-(3.127), which reflect these possibilities, and which make otherwise minimal assumptions, and see if either can be eliminated. The most obvious form which the former analysis could take is the following. There is a rule, much like the rules of Tough-movement\textsuperscript{38} and Raising to Subject,\textsuperscript{39} which, instead of simply moving the relevant NP out of its complement and making it the superficial subject of the next-highest verb, copies that NP and makes the copy the superficial subject of the next-highest verb.\textsuperscript{40} This rule we will call Richard (cf. Rogers, 1971). Richard will then
depend on obligatory Pronominalization to produce the required surface form.

The alternative analysis, which I will call the Simple Pronominalization Analysis (SPA), is as follows.\textsuperscript{41} We will claim that, except for the application of obligatory rules, the underlying representation of such sentences as (3.123)-(3.127) is essentially the same as its superficial representation. Such an analysis would claim that while the underlying representations of (3.123)-(3.127) might be quite similar to those of (3.50)-(3.54), respectively, they are distinct and therefore their surface forms are not transformationally related. The fact that the complement subject is a pronoun would be accounted for by Pronominalization, however pronominalization is to be handled.

Schematically, the form immediately underlying, for example (3.123), would be (3.123)(a) on the Richard analysis and (3.123)(b) on the SPA analysis.
(3.123)(a) and (3.123)(b) obviously are not necessarily intended to be most-underlying structures, but rather essentially a representation of what (3.123) might look like just prior to surface structure. They are presented merely to clarify the question at issue between the two analyses, namely whether the subject NP, is copied from the like-complement S or not.

There are, of course, difficulties with the Richard analysis of sentences such as (3.123)-(3.127). For one thing, it has synonymy problems similar to, but more blatant
than the Tough-movement synonymy problem first noted by Klima. Just as, for example, such sentences as (3.128) (a), (b), and (c) would, on a conventional Tough-movement

(3.128) a. It is easy to play sonatas on this violin.
   b. Sonatas are easy to play on this violin.
   c. This violin is easy to play sonatas on.

[Ross's (1967) 6.116-6.118]
on analysis be derived from the same underlying representation, in spite of the fact that they are not synonymous, so, the Richard analysis would claim that (3.50)-(3.54) and (3.123)-(3.127) respectively (pairwise), have the same underlying representation, in spite of the fact that the Richarded and non-Richarded sentences appear not to be synonymous.  

The difference in meaning between the pairs which the Richard analysis would relate appears to be characterizable in terms of the presuppositions discussed in section 3.0.4. Just as (3.39)(a)-(3.43)(a) presuppose (3.39)(c)-(3.43)(c), respectively,

(3.39) a. The music sounded loud to me.
   c. I heard the music.
(3.40) a. Harry looked drunk to me.
   c. I saw Harry.
(3.41) a. Jane's cake tasted burned to me.
   c. I tasted Jane's cake.
(3.42) a. Oscar smells dirty to me.
   c. I smell Oscar.

76
(3.43) a. Hortense's forehead felt hot to me.  
c. I felt Hortense's forehead.

so (3.123)-(3.127), but not (3.50)-(3.54), presuppose (3.129)-(3.133), respectively.

(3.123) Charley looked to me like he goosed Francine.
(3.129) I saw Charley.
(3.50) It looked to me like Charley goosed Francine.
(3.124) Martha sounds to me like she is dying.
(3.130) I hear Martha.
(3.51) It sounds to me like Martha is dying.
(3.125) The soup tastes to me like it has onions in it.
(3.131) I taste the soup.
(3.52) It tastes to me like the soup has onions in it.
(3.126) Pavel smells to me like he has brushed his teeth.
(3.132) I smell Pavel.
(3.53) It smells to me like Pavel has brushed his teeth.
(3.127) Harry feels to me like he is dead.
(3.133) I feel Harry.
(3.54) It feels to me like Harry is dead.

Thus, I could utter (3.50) on the basis of observing Francine, without having seen Charley, whereas I could only utter (3.123) on the basis of having seen Charley.  (3.50)-(3.54) do, however, appear to have cognitive presuppositions.  Just as (3.123) appears to differ from (3.134) by

(3.123) Charley looked to me like he goosed Francine.
(3.134) Charley sounded to me like he goosed Francine.

whether the cognitive presupposition involves seeing or hearing, so (3.50) appears to differ from (3.135) in whether
(3.50) It looked to me like Charley goosed Francine.
(3.135) It sounded to me like Charley goosed Francine.

seeing or hearing was involved. It is, however, unclear exactly how to characterize the presupposition in these latter cases.

How, then, do sentences such as (3.50)-(3.54) enter into the picture at all, logically, with (3.123)-(3.127) and (3.129)-(3.133)? It is very tempting to claim that the putative Richarded sentences entail the non-Richarded ones, as I suggested in Rogers (1972), but occasionally I can just imagine situations in which, for example, (3.123) might be true, but (3.50) was false. For example, if Charley habitually grinned oafishly after goosing Francine, but I had been watching them both very carefully, and I saw that they never got near each other, then if Charley grins oafishly, (3.123) might be true (and appropriate) while (3.50) might not be. It's very hard to decide whether this is a plausible counterexample to the claim or not. While it would, in this case clearly not be true that Charley goosed Francine, one might say that based on seeing Charley, (3.50) was true and appropriate, but that from knowing (or seeing) the entire situation, one would be reluctant to claim that

78
(3.50) was true and appropriate. If this sounds like an
equivocation, that is because it is, but one of intuition.

It is at least clear that the relevant examples
are non-synonymous. The SPA analysis is compatible with
these facts; it is not clear that Richard analysis can be.\footnote{44}

Another \textit{Tough}-movement Parallel is the fact that
if we claim that (3.123)-(3.127) are derived transforma-
tionally, then we must find some way of explaining the ex-
istence of sentences such as (3.136), since, as Perlmutter

\begin{enumerate}
\item[(3.136)] a. Harry tries to look to everyone like
he is stoned.
\item b. Mary tries to sound to whoever she is
begging from like she is sincere.
\item c. Thmug tries to smell to his dates like
he's been digging ditches.
\end{enumerate}

(1968, pp. 39-61) has argued, such verbs as \textit{try}, \textit{condescend},
etc. have deep-structure equi-subject constraints.\footnote{45} The
Richard analysis, however, must either claim that Perl-
mutter's constraint is wrong, a rather dubious step, based
on this evidence alone, or that, parallel to Perlmutter's
suggestion (p. 41 ff.) the complement of \textit{try} in (3.136) is,
in its underlying form, dominated by another \textit{S}, consisting
of a noun phrase coreferential to the subject of \textit{try} and a
causative verb of some kind, and that the superficial com-
plement of \textit{try} in (3.136) is a complement of that causative
verb. While such a way out has a certain semantic plausibility and is not unprecedented, it is not a tasty claim to have to swallow in order to preserve the Richard analysis.\textsuperscript{46}

However, the SPA analysis may well run into at least equal difficulties with sentences like (3.136). If we are not to discard Perlmutter's claim that the equi-subject constraint is a deep-structure one,\textsuperscript{47} a claim for which he presents strong syntactic evidence, then the deep-structure subject of the complements of \texttt{try} in (3.136) must be the same as the subject of \texttt{try}. But the \textit{like}-complement verbs in (3.136) are \textit{flip} verbs, so their underlying subjects must be their superficial Experiencers unless we reject \textit{flip}, for which there is independent motivation. Assuming we don't throw out the \textit{flip} analysis on these grounds, then the SPA analysis has exactly the same problem that Richard does, namely some way must be found to meet Perlmutter's equi-subject constraint in the absence of obvious syntactic motivation. If we did dump \textit{flip}, then SPA would fare well and Richard ill. Evaluation of this particular problem must wait until we consider an alternative analysis of \textit{flip} physical perception verbs in section 4.2.

Although, up to this point in the discussion, the weight of evidence seems to be on the side of the SPA
analysis, there is even stronger evidence to the contrary. The basic claim of the SPA analysis is that both superficial subjects (that of the Flip verb and that of the complement) are present in the underlying representation. This claim is untenable for three reasons. First, as has been argued by Perlmutter (1968, pp. 119-120), the form there in English cannot occur in deep structure, but must be derived transformationally by a rule of there-insertion. In addition to the syntactic arguments Perlmutter gives, if one takes seriously the claim that the deepest structure representation of a sentence is its semantic or logical representation, then it makes no sense to have there occur in the deepest structure, since its occurrence appears to be predictable, and its presence thus makes no contribution to the meaning of the sentence which contains it. The fact that there is not present in deep structure and the fact that the SPA analysis claims that both superficial subjects are present in underlying form (regardless of whether, for example, the complement subject is a deep or derived subject) results in a conflict, however, since sentences such as (3.137)(a), which is perfectly acceptable

(3.137) a. There looks like there is going to be a riot. b. *There looks like it is going to be a riot.

81
to many speakers, marginal for others, and unacceptable to a few, exist. The SPA analysis would appear to have to claim that *there* occurred in the underlying form of (3.137) (a), or at least that *there*-insertion applied twice. Such a proposal could not then account for the absence of (3.137)(b), in which *there* insertion would have applied only once. The Richard analysis correctly predicts the ungrammaticality of (3.137)(b).

The second argument against the SPA analysis is based on the distribution of certain idioms. There exist a fairly large number of idioms in English, such as (3.138) (a), (3.139)(a), and (3.140)(a) which contain subject noun phrases whose occurrence, in their idiomatic, rather than literal, meanings is restricted to subject position of those idioms. They appear, however, with the same interpretation, as superficial subjects of the Flip perception verbs in sentences like (3.138)(b), (3.139)(b), and (3.140) (b), which appear to be structurally identical with (3.123)-(3.127).

(3.138) a. The shit's gonna hit the fan.
   b. The shit looks (to me) like it's gonna hit the fan.
   c. *The fan looks (to me) like the shit's gonna hit it.

82
(3.139) a. The cat's out of the bag.
   b. The cat looks (to me) like it's out of the bag.
   c. *The bag looks (to me) like the cat's out of it.

(3.140) a. The cat got Spiro's tongue.
   b. *The cat looks (to me) like it got Spiro's tongue.
   c. *Spiro's tongue looks (to me) like the cat got it.

The SPA analysis would have to claim, exceptionally, that the idiomatic uses of these noun phrases could occur independently of the idioms with which they are otherwise always found and find some way of specifying that the superficial subject cat of (3.139)(b) is a different sense from the superficial subject cat of (3.140)(b). The Richard analysis makes no such claim. In fact, it predicts that unless there are other complications, sentences such as (3.138)(b)-(3.140)(b) should exist.

Another potential argument against the SPA analysis (but see Akmajian, 1972) is parallel to that offered by Postal and Ross (1971) against an NP deletion analysis of such predicates as easy, and in favor of an NP movement analysis for such sentences as (3.141)(c), whose source would be, under a deletion analysis (3.141)(a), and under a movement analysis, (3.141)(b). 51
(3.141) a. (*)Paoli is easy to do without Paoli.
b. It is easy to do without Paoli.
c. Paoli is easy to do without.

In that paper, Postal and Ross offer a sentence like (3.142) as "decisive evidence" (p. 545) that only the movement-analysis derivation is possible. Postal and Ross argue that while deriving a sentence like (3.142) under the movement analysis poses no new problems (from an underlying form roughly like (3.143)), the derivation of (3.142) under the deletion analysis (from an underlying form roughly like (3.144)) necessitates the postulation of a new rule of deletion in order to be able to delete the subject \(NP_4\) of *getting* in \(S_2\).
(3.143)

\[
S_1 \rightarrow \quad NP_1 \quad is \quad hard \quad for \quad NP_2 \\
\vdots \\
S_2 \rightarrow I \quad imagine \quad NP_3 \\
\vdots \\
S_3 \rightarrow NP_4 \quad is \quad willing \quad for \quad NP_5 \\
\vdots \\
S_4 \rightarrow NP_6 \quad try \quad NP_7 \\
\vdots \\
S_5 \rightarrow NP_8 \quad get \quad herself \quad into \quad a \quad good \quad sorority
\]
(3.144)

\[
\begin{array}{c}
S_1 \\
| \\
NP_1 \text{ is hard for } NP_2 \\
| \\
NP_3 \\
| \\
NP_4 \text{ get herself into a good sorority } \\
| \\
NP_5 \text{ I imagine } \\
| \\
NP_6 \text{ is willing for } NP_7 \\
| \\
NP_8 \text{ try } NP_9 \\
| \\
NP_{10} \text{ get herself into a good sorority } \\
| \\
Betsy
\end{array}
\]

[Extrapolated from Partee (1971a), (28)]

Not surprisingly, the parallel case exists for comparing the Richard analysis (a copying analysis) with the SPA analysis (simple pronominalization). Consider examples such as (3.145)-(3.147). On the Richard analysis, the
(3.145) Soaking herself in melted butter sounds to me like it would do wonders for Daphne.
(3.146) Doing linguistics looks to me like it will destroy Max.
(3.147) Perjuring himself sounds to me like it might interest Harry.

underlying representation, for example, of (3.146) would be roughly (3.148), whereas under the SPA analysis, it would be roughly (3.149).

(3.148)
The essential fact here, just as in Postal and Ross's analysis, is that the subject NP of do (NP_5 in (3.148) and NP_4 in (3.149) must be deleted. In the derivation of (3.146) from (3.148) that deletion will be accomplished by the well-established (if not well-understood) rule of Equi Noun Phrase Deletion$^{55}$ with no unusual complications or tricks. In the derivation of (3.146) from (3.149), however, the structural description of Equi will never be met, so some new rule or new variant of Equi, otherwise unmotivated, would have to be postulated in order for the derivation to work.$^{56}$

Other arguments in favor of the Richard analysis over the SPA analysis are presented in Rogers (1971,
pp. 217-219), namely: (1) Dummy *it*, (2) Body-deletion, and (3) coreference constraints, which will not be repeated here because they seem to me to be much weaker than the three arguments given here.  

As is obvious from the *there* argument (example (3.137)), I claim that Richard applies not to deep-structure subjects, but to superficial subjects. The reason for the subject/non-subject distinction will become clear in section 3.1.2.2, where the superficially quite similar case of non-subjects is considered. Cases which I will claim are Richarding of derived subjects rather than deep subjects (also rather than trying to state the constraint on Richarding to deep subjects, which *there* shows is impossible anyway) are, for example, *Flip* (3.150) and *Passive* (3.151), as well as *There*-insertion (3.137).

(3.150) Doing linguistics looks to me like it is boring to Sam.
(3.151) Nixon's recent claims about the economy sound to me like they had best be ignored.
(3.137) There looks like there is going to be a riot.

It is clear, however, that examples such as (3.137) and (3.138)(b)-(3.140)(b), employed as crucial evidence for the Richard analysis (over the SPA analysis) from *there*-insertion and idiom chunks, respectively, do not, in fact,
could not, carry presuppositions of the same type pointed out in sections 3.0.3.2 and 3.1.2.1. If they did, their presuppositions would be (3.137') and (3.138b')-(3.140b'), respectively.

(3.137') *I see there. [the there of there-insertion] 
(3.138b') *I see the shit. [in the idiomatic sense] 
(3.13 b') *I see the cat. [in the idiomatic sense] 
(3.140b') *I see the cat. [in an idiomatic sense] distinct from that of (3.139b')]

I am not quite sure what one should expect the status of a sentence whose presupposition is ungrammatical (in fact semantically or pragmatically ill-formed) to be. I rather suspect one would, all other things being equal, expect the sentence itself to be ill-formed. (3.137) and (3.138)(b)-(3.140)(b) are not, however, ungrammatical, and, in fact (as always) other things are not equal. It appears that there are at least two distinct senses of each of the Flip physical perception verbs, one of which refers to actual physical perception, and one of which is roughly synonymous with the Flip verb seem. The ambiguity also shows up rather clearly in the Flip verb appear, which allows either interpretation. Although my intuitions are a bit fuzzy in some cases, it appears that (3.137) and

90
(3.138)(b)-(3.140)(b) involve the seem sense rather than the physical perception sense.

It is obvious that the seem sense could at least not have exactly the same kind of presuppositions the actual physical perception sense has, since the seem sense is not restricted to physical perception at all, much less a specific sensory mode. What presuppositions, if any, the seem sense has is currently beyond my ken. I believe that there is a difference in meaning between sentences such as (3.152)(a) and (3.152)(b), but I do not know how to describe it.

(3.152) a. It looks like time is dense to me.
   b. Time looks like it is dense to me.

The difference feels, however, as one might expect, like the difference between raised and non-raised NP in sentences like (3.153)(a) and (3.153)(b).\textsuperscript{59} Whatever this difference is, if it exists, it is hard to see how it would help in understanding what is going on in (3.137) and (3.138)(b)-(3.140)(b). Since I see no immediate hope of unravelling the problem, I will pass over it, having pointed it out.

At this point we have an obvious problem. There-insertion and idioms argue compellingly that we must allow
the copying of like-complement sentence subjects into super-
ficial subject position, but synonymy and equi-subject con-
straints argue for the SPA analysis and against the Richard
analysis. The there-insertion and idiom arguments appear
to apply only to the seem sense of Flip perception verbs.
If it were also true that synonymy and equi-subject argu-
ments applied only to the physical sense of these verbs,
we might be tempted to claim that Richard was the appro-
priate analysis for the seem sense, and SPA for the physical
sense. Unfortunately, the synonymy and equi-subject argu-
ments also appear to apply to the seem sense, as (3.154)-
(3.156) show. At least for the seem sense, we have strong

(3.154) It looks to me like the war will never end.
(3.155) The war looks to me like it will never end.
(3.156) Nixon tries to look like he knows what he's
doing.

evidence for both the SPA analysis and the Richard analysis,
as well as evidence against the Richard analysis.

On the balance, however, it appears that at least
for the seem sense, the arguments for the SPA analysis and
against the Richard analysis are weaker than the pro-Richard
arguments. If we reject the pro-Richard arguments, we must
give up unitary lexical insertion of idioms and there-
insertion, both of which are generally agreed to be
fundamentally correct analyses. On the other hand, the synonymy argument and the equi-subject argument have been questioned on independent grounds.

For example, if one believes in the rule of tough-movement, then, as pointed out by Morgan (1968a) and Partee (1971a), one cannot also buy the synonymy argument. Of course the books are not yet closed on the question of whether tough-movement exists, as can be seen from Postal and Ross (1971) and Akmajian (1972). But there appear to be other instances as well of apparently optional transformations which do not "preserve meaning" in Partee's (1971a) sense. Quine (1960) and Postal (forthcoming) discuss the apparent semantic correlates of the rule of Raising which moves embedded subject NP into higher object position. Postal also discusses Raising to subject cases. In addition, it is difficult to imagine anyone's claiming that either Yiddish Movement (a.k.a. Topicalization, cf. Ross, 1967, sections 4.3.2.1 and 6.1.1.5) or Left Dislocation (Ross, 1967, section 6.2.1) are "meaning-preserving" in any strict sense. If it is not true that optional movement rules "preserve meaning," then the fact that Richard does not is no argument against it.60
In addition, there are several cases in which equi-subject constraints have been called into question, namely Newmeyer (1969b), Dougherty (1968), and Dowty (1972b, section 5.6). If the synonomy and equi-subject arguments must be discounted for the seem sense, it is pointless to consider them as arguments against a Richard analysis of the physical sense. What we are left with, then, is at least the claim that Richard applies to subjects of like-complements in the seem sense, and no direct arguments either for or against the Richard analysis of the physical sense.

3.1.2.2 Superficial Non-Subject Cases

Observe sentences such as (3.157)-(3.161), where it appears that in the (c) and (d) cases, that Richard had applied to non-subjects.

(3.157) a. It looks to me like Abbie gave the roach to Myrna.
b. Abbie looks to me like he gave the roach to Myrna.
c. The roach looks to me like Abbie gave it to Myrna.
d. Myrna looks to me like Abbie gave the roach to her.

(3.158) a. It sounds to me like Martha hit Bill over the head with the record.
b. Martha sounds to me like she hit Bill over the head with the record.
c. Bill sounds to me like Martha hit him over the head with the record.
d. The record sounds to me like Martha hit Bill over the head with it.

(3.159) a. It tastes to me like the vinegar in the salad clashes with the wine.
b. The vinegar in the salad tastes to me like it clashes with the wine.
c. The salad tastes to me like the vinegar in it clashes with the wine.
d. The wine tastes to me like the vinegar in the salad clashes with it.

(3.160) a. It smells to me like the dog buried the bone in the cheese.
b. The dog smells to me like he buried the bone in the cheese.
c. The bone smells to me like the dog buried it in the cheese.
d. The cheese smells to me like the dog buried the bone in it.

(3.161) a. It feels to me like Harry must have gotten the salad oil out of the crankcase.
b. Harry feels to me like he must have gotten the salad oil out of the crankcase.
c. The salad oil feels to me like Harry must have gotten it out of the crankcase.
d. The crankcase feels to me like Harry must have gotten the salad oil out of it.

Given the apparent existence of Richard, it would be tempting to propose such an analysis, but let us consider the evidence.

First, it is quite obvious that no two of the (a)-(d) examples in (3.157)-(3.161) are synonymous. This fact is at least not definitely an argument against a Richard analysis, however, since we may already be forced to accept
non-synonymy in the superficial subject cases, but it would appear to make G. Lakoff's suggestion (cf. fn. 44) to rescue Generative Semantics from such facts even more difficult, though, perhaps not impossible.

One of the arguments in favor of the Richard analysis was the existence of sentences such as (3.137), where

(3.137) There looks like there is going to be a riot.

the occurrence of there, both as superficial subject of lock and as superficial subject of be argued for a copying analysis. What happens if there occurs as a superficial non-subject, as in (3.162)(a)? Richarding of the there results in an ungrammatical sentence (3.162)(b). 61

(3.162) a. It looks to me like Bill considers there to be no chance that Nixon will resign.
    b. *There looks to me like Bill considers there to be no chance that Nixon will resign.

Such facts bode ill for Richard, but would follow from SPA since there cannot occur underlyingly.

The second major argument for the Richard analysis was the behavior of idioms. How do superficial non-subject idioms fare under a Richard analysis? They range from dubious to near word-salad, as illustrated by (3.163)-(3.165); so SPA appears to win this round.

96
(3.163) a. It looks to me like someone let the cat out of the bag.
     b. ?? The cat looks to me like someone let it out of the bag.

(3.164) a. It looks to me like the FBI has kept tabs on John's whereabouts.
     b. **Tabs look to me like the FBI has kept {it \{them\}} on John's whereabouts.

(3.165) a. It looks to me like the shit's gonna hit the fan. [cf. (3.120)]
     b. ***The fan looks to me like the shit's gonna hit it.

The third argument for Richard paralleled Postal and Ross's (1971) *tough*-movement argument. Sentences parallel to those employed in favor of the Richard analysis, (3.145)-(3.148), except that they involve superficial non-subjects again fare ill, as shown by (3.166)-(3.168).

(3.145) Soaking herself in melted butter sounds to me like it would do wonders for Daphne.
(3.166) *Soaking herself in melted butter sounds to me like Daphne would like it.62

(3.146) Doing linguistics looks to me like it will destroy Max.
(3.167) *Doing linguistics looks to me like Max enjoys it.

(3.147) Perjuring himself sounds to me like it might interest Harry.
(3.168) **Perjuring himself sounds to me like Harry might enjoy it.

On the basis of this evidence, it appears that Richard, if it exists at all, does not apply to superficial non-subjects of *like*-complement sentences.
3.1.2.3 More Than One Sentence Down

Observe now sentences (3.169) and (3.170), in which it appears that Richard operates over a variable. Again, of course, if we derived these sentences via Richard, we would run into massive synonymy problems, since we could presumably Richard any superficial subject. But the same facts appear to hold for these cases as held for the superficial non-subjects, namely there-insertion, idioms, and Equi facts support the SPA analysis and argue against Richard, as shown by (3.171)-(3.173).

(3.171) a. It looks to me like Bill thinks there is no chance that Nixon will resign.
   b. *There looks to me like Bill thinks there is no chance that Nixon will resign.

(3.172) a. It looks to me like Harry believes the shit's going to hit the fan.
   b. **The shit looks to me like Harry believes it's going to hit the fan.

(3.173) a. It looks to me like Daniel expects (that) perjuring herself would interest Mary.
   b. *Perjuring herself looks to me like Daniel expects (that) it would interest Mary.
Therefore, it appears that Richard may not apply more than one sentence down.

3.1.2.4 Stranger Cases

Consider now the following situation. Maude, in addition to being a gourmet cook, is also a lush. Whenever she cooks any food involving alcohol, she samples heavily, gets soused, and invariably scorches everything. When she hasn't been drinking, she is a flawless cook, and never burns anything. We, having been out all day painting bowling balls, come in for dinner at Maude's, not knowing what is for dinner, or that Maude is soused (she giggles a lot even when she's sober). With the first spoonful of soup, however, the tale is out. Since it tastes scorched, I utter (3.174).  63

(3.174) The soup tastes to me like Maude has been at the cooking sherry again.

Obviously, the superficial structure of (3.174) is the same as that of such sentences as (3.123)-(3.127).

(3.123) Charley looked to me like he goosed Francine.
(3.124) Martha sounds to me like she is dying.
(3.125) The soup tastes to me like it has onions in it.
(3.126) Pavel smells to me like he has brushed his teeth.
(3.127) Harry feels to me like he is dead.
Just as obviously, based on what we know so far, (3.174) cannot be the result of a copying rule such as Richard, since there is no NP in the like-complement to have been copied. Once you have noticed such sentences, they are creatable at will as, for example, (3.175)-(3.178) (to complete the paradigm).

(3.175) The orchestra sounds to me like Mehta is having a good night.
(3.176) Watergate looks to me like a fitting conclusion for someone's career.
(3.177) Liver smells to me like nasectomy could have its advantages.
(3.178) The peanut butter feels to me like David forgot to put the lid on the jar.

Sentences such as (3.174)-(3.178) are not as easy to construct as those like (3.123)-(3.127), and are, in many cases, difficult to comprehend in the absence of explanatory context, but they nevertheless appear to be grammatical. If, however, any of them are grammatical, things begin to look peculiar.

First, in order to generate sentences like (3.174)-(3.178) in any reasonably conventional manner, we must allow the kind of underlying structure which is required for the SPA analysis discussed in section 3.1.2.1, namely something like (3.179), or some similar representation, for sentences like (3.174).
Notice that such structures are not restricted to either the seem sense (cf. 3.176) or the physical sense. If structures such as (3.179), in which the superficial subject of the Flip verb is filled without the application of Richard, must be generated in order to derive sentences such as (3.174)-(3.178), it is not at all obvious how one could prevent the generation of similar structures (without the application of Richard) in all cases except instances of superficial subjects like there and the subject NP of idioms in like-complements.

The problem is that the idiom and there facts show that we must allow the Richard generation of at least the seem sense cases, while sentences such as (3.174)-(3.178) show equally compellingly that we must allow the non-Richard generation of the same (minus idioms and there) class of sentences plus the physical sense class. We appear, then, to be forced to allow the dual generation (for at
least the _seem_ sense) of sentences with non-garbage superficial subjects. This is a curious state of affairs, not just because we must allow the generation of apparently synonymous sentences from distinct underlying forms, since we expect to have to have some notion of semantic equivalence for distinct underlying forms, but these apparently synonymous sentences appear to have identical surface structures as well.

Returning briefly to the arguments of section 3.1.2.1, we note that the pro-Richard arguments were not anti-SPA arguments. They merely showed the necessity for allowing the Richard generation of certain _seem_ sense sentences. There may be such anti-SPA arguments, but I am not aware of them. Thus allowing the Richard generation of the _seem_ cases does not, on the basis of those arguments, preclude allowing their SPA generation as well.

Arlene Berman has suggested (personal communication) that we might be able to make at least some sense out of this mess by claiming that there is a copying rule, Richard, which is subject to a transderivational constraint rather similar to the one proposed in Hankamer (1973). Hankamer's proposed constraint, the Structural Recoverability Hypothesis, which applies to _deletion_ rules involving _variables_
(whereas Richard is apparently a copying rule not involving variables), is as follows:

(3.180) Deletion rules involving variables are universally subject to a transderivational condition which prevents them from applying in such a way as to introduce structural ambiguity.

[Hankamer's (93), p. 40]

What makes Berman's suggestion plausible is the fact that, on the basis of arguments presented so far, there is only positive evidence for the application of Richard in exactly those cases which could not have arisen from a SPA underlying structure, namely idiom-chunks and there. In all other cases so far, either a Richard or a SPA underlying representation is apparently possible. Since such sentences are apparently unambiguous, we could claim that Richard could only apply if its output did not produce a structural ambiguity, which would limit the application of Richard to cases like idiom-chunks and there. This could well be an interesting extension of Hankamer's condition to copying rules, but I offer it merely as a conjecture, since further arguments are obviously needed to clear up the status of Richard, and those arguments might well provide a more satisfactory account of the facts.
FOOTNOTES, CHAPTER 3

1 It isn't, of course, clear whether Rosenbaum intended the underlying verb to be the cognitive or active form, since the distinction had not, so far as I know, been made, and since the three forms he uses are phonologically ambiguous. It also isn't clear how he proposed to differentiate the inverting forms from the non-inverting ones.

2 Cf. e.g. UESP (1968).

3 Rosenbaum (1967, p. 99) credited Postal with pointing out the problem to him.

4 These sentences were pointed out to me by Barbara Partee.

5 Lakoff independently proposed the rule Flip in his dissertation on grounds similar to those of Postal.

6 Cf. Postal (1970a, 1970c) for a more current view of some sub-cases of this phenomenon.

7 It has been suggested to me by Barbara Partee (personal communication) that the marking of sentences such as (3.35) as ungrammatical, or even questionable, is merely a reflection of the linguist's lack of imagination. Given a suitable context, such sentences might well be impeccable, but the point is that, with the possible exception of some philosophers and logicians, sentences such as (3.35) require some stretching of the imagination, whereas those like (3.36) do not. Regardless of what we attribute the difference between these cases to, it appears to be necessary to make the distinction. If the distinction must be made, then the point at issue is whether an account of the difference requires or is facilitated by an analysis such as Postal's or whether some other account is to be given of the facts.
Or some such relationship. The exact nature of the logical or conversational relation between (3.37)(b) and (3.37)(b') is not clear at this point, but our interest lies more in its existence than in its exact nature.

Joe Emonds has pointed out to me that if one adopts a non-flip analysis of such sentences, as was done in Emonds (1972, pp. 55-57), in which seem, appear, etc. appear without deep structure subjects, R. Lakoff's argument does not apply.

In the sense of G. Lakoff (1966). There are, however, baffling sentences such as (i) which violate the letter, if not the spirit of Lakoff's progressive test.

(i) It's looking more and more like Nixon will invade Tristan da Cunha in order to shorten the war.

That this is not a general property of stative verbs can be seen by comparing (i) with (ii) and (iii), which also contain stative verbs.

(ii) *Children are knowing more and more about math these days.

(iii) *Everyone is believing more and more that Nixon will invade Tristan da Cunha in order to shorten the war.

(On the question of the underlying subject of invade in (i) and (iii) and similar sentences, cf. Lawler (1971b) and Borkin (1971b).

I use terms like "selectional facts" and "class of possible Active subjects" as though I knew just what they meant. In fact I don't. The kind(s) of deviance from well-formedness involved is essentially that discussed in Chomsky (1965) under the headings selectional rules (pp. 95 ff.), which Chomsky treated as syntactic, as well as, perhaps, what he there called semantic or pragmatic incongruities (pp. 76-77). Whether such facts are to be considered syntactic, semantic, or pragmatic appears to be an open question, although the framework which I have
adopted as a point of departure, namely Natural Logic, treats them as semantic. Where I feel reasonably confident as to the source of the problem, for particular instances of deviance, I will so indicate.

12 In Chapter 2, of course, we concluded that the Active congener of see was watch rather than look at. I gather from Postal's discussion (p. 40) that he would have chosen look at.

13 In fact the class of possible Flip perception verb Experiencers may turn out to be a subclass of the possible cognitive subjects, namely entities which can perceive in the appropriate mode (because of the presupposition) and communicate (because of Postal's Subject-Experiencer Constraint (see 3.1.1.2.4.2 and footnote 34), and perhaps as well think or hold beliefs (see section 4.1.2.2). For present purposes, however, I will limit myself to the claim in the text.

14 Except for the fact that in certain constructions to be discussed in section 3.1, the Flip verbs also allow an empty it subject.

15 Notice, however, that since Flip perception verbs Neg-raise (cf. section 3.1.1.3), the distinction between calling them Factive (Kiparsky and Kiparsky, 1970) and calling them Implicative or If-verbs (Karttunen, 1970c) is a rather subtle one. I am indebted to David Cohen for pointing out facts which led me to notice the subtlety of this judgment, and hence, the possibility that my calling them Factive is much more arguable than I had previously noticed.

16 Whether the presuppositional facts discussed here are to be treated as instances of semantic presupposition or of pragmatic presupposition, I am not entirely sure, and for the purposes of the present work, I shall not go into this unsettled area. These facts were first noticed back in the innocent days when linguists (at least I) didn't know they didn't know what they were talking about when they used the term presupposition. Cf. Karttunen (1973a, 1973b), Stalnaker (1973), Thomason (1973). I assumed in this work
that there were only semantic presuppositions, and since I have become aware of my ignorance, I have simply not had time to go back and re-examine the problem with the attention it deserves.

17 Examples without Experiencers, and their presuppositions, will be discussed briefly in Chapter 4.

18 At that time, I had not noticed the stative/inchoative division of the Cognitives.

19 The complementizers as if and as though often feel more or less vaguely subjunctive, as in (i) and (ii).

(i) It looks (to me) as if Ronald is in trouble.

(ii) It tastes (to me) as if Francine has put sulfuric acid in the soup.

Fortunately, such sentences appear not to be central to the concern of this chapter, although it is clear that they cannot be ignored indefinitely.

20 From here on, I will assume, without argument, that the cases I discuss are indeed Flip perception verbs. The skeptical reader may check these assumptions for himself.


22 As has been pointed out by Bolinger (as reported in R. Lakoff (1969), the paraphrase is defective in that in general, in the Neg-raised versions, there is a greater degree of uncertainty than in the non-Neg-raised ones. This anomaly has never been explained.

23 This argument is based on an observation of Klima's in Klima (1964).
24 The validity of this argument for the existence of Neg-raising is examined in UESP (1968), R. Lakoff (1969), Lindholm (1969), Smith (1970), and Jackendoff (1971). My intuition is that the until argument is valid, notwithstanding the fairly substantial criticisms made of it. For example, R. Lakoff's (1969) criticism (p. 142) of it seems to me to be in error, since the sentences she claims should be grammatical if the argument were valid, such as (i) are, on the Neg-transported reading, underlain by untransported sentences which are themselves ungrammatical, such as (ii) or something like it.

(i) *I didn't ever think that John would leave until tomorrow.
(ii) *I thought that John would not ever leave until tomorrow.

Other criticisms such as Jackendoff's, are, however, more problematical, and the systematic analysis of them is beyond the scope of the present work.


26 (3.68)(b) is grammatical, of course, if the complement is taken as a quotation, but that fact is irrelevant to the point under discussion. Cf. Langacker (1969) on the notion "command."

27 Although an additional argument is given in Horn (1971), Scott (1972), points out that on Lakoff's analysis, the same results could be obtained if Tag-formation were last-cyclic. See also Grinder (1972).

28 I would like to thank the following people for stimulating and highly useful discussion of the problems discussed in this section: Larry Banchoo, Kitti Barker, Harmon Boertien, Ann Borkin, Dave Dowty, Helen Dry, Canice Johnson, George Lakoff, Robin Lakoff, John Lawler, Larry Martin, Susan Prather, Rob Scott, and Bob Sledd. Needless to say, the insightful proposal embodied in Lakoff (1969) was essential to that presented here. The above are to be considered innocent of responsibility for my errors.
Except, of course, for semantically factive verbs, such as know, realize, etc. which, for obvious (though not actually explained) reasons, cannot take tags at all.

Notice that the tag on the embedded complement of doubt is positive, rather than, as one would expect under normal circumstances, negative, given a positive complement of the verb. This fact I take to be evidence for a lexical decomposition of doubt into think plus not, where the not was raised from the complement.

This, of course, is only his initial claim, which he later doubts, but the example under discussion appears to be a clear case.

There are some difficulties with his claim, which he patches up in Vendler (1969, pp. 6 ff.).

While I disagree with Postal's * marking, I do find sentences such as (3.112) less than perfectly acceptable for pragmatic reasons discussed in Rogers (1972), where I, unfortunately, misrepresented Postal's view on some details. Cf. 4.2.2.2 for further discussion.

I believe, by the way, that the SEC should be amended to the effect that Flip verbal Experiencers must be a coreferent of the next-highest verb of saying, rather than saying or thinking, because of the existence of sentences such as (i)-(iv), which are, to me, highly peculiar.

(i) Pete ꞌ i thinks that you seem to him ꞌ i to be unfriendly.
(ii) Fritz ꞌ i supposes that it looks to him ꞌ i like Greta hates Ermintrude.
(iii) Goliath ꞌ i perceives that it sounds to him ꞌ i like David is unfriendly.
(iv) Goliath ꞌ i perceives that he ꞌ i thinks that David is unfriendly.

Apparently it is the case that a sentence whose main verb is a verb of thinking cannot be embedded immediately below
another sentence whose main verb is a verb of thinking, if
their subjects are coreferential.

The further existence (I think) of sentences such as (v) leads me to speculate that the SEC does not require
coreferentiality between Flip experiencers and the next
highest verb of saying or of communication, but rather any
higher verb of saying.

\[(v) \text{Lucy}_{i} \text{ says that } \text{she}_{i} \begin{cases} *\text{Bill} \\ \text{me} \\ \text{her}_{i} \end{cases} \text{ to be an egomaniac.} \]

The facts, like the rest of those associated with the SEC, strike me as pragmatic, rather than grammatical facts.

Postal's condition, as far as I can tell, is a deep-
structure equi-subject constraint similar to that postu-
lated by Perlmutter (1972, Chapter 2) for verbs like \textit{try},
\textit{condescend}, \textit{begin}, etc. Interestingly enough, however, if
stated as a deep-structure constraint, Postal's Subject-
Experiencer Constraint would appear to be an upward-
directed constraint, in that a complement verb imposes a
condition on the structure which dominates it, whereas
Perlmutter's constraint is downward-directed, in that the
constraint applies to the structure of its complements (I
am indebted to John Lawler for this observation). As far
as I know, upward-directed constraint are otherwise unpre-
cededented in generative grammar with the exception of two
cases pointed out by Ross (1971a, 1972). Perlmutter's
facts too strike me as facts about the world, not just the
language.

\[35\] Notice that their condition must be amended to
specify that Q is declarative, since it surely does not
follow from the fact that a is sincere in asking what time
it is, that he believes either (i) or (ii)

(i) What time is it?
(ii) You tell me what time it is.

\[36\] I say \textit{might}, since I consider a number of ques-
tions, in particular the question of whether there actually
is a transformation (or derivational constraint) which forms
tag-questions to be an open question. My claim is, at
the moment, one about the \textit{distribution} rather than the \textit{derivation} of tag-questions.

37 Further facts, not available to me when this section was written, are discussed in Armagost (1972).

38 Alias a subset of \textit{it}-Replacement (Rosenbaum, 1967), alias Irving (Morgan, 1968a, b, c), alias Raise Object to Subject (UESP, 1968). Cf. also Ross (1967, sec. 6.1.3.3), Partee (1968), Postal (1971a, whence the name), Postal and Ross (1971), Jacobson (1971), Chomsky (1971 and 1972), Cantrall (1971), and Perlmutter (1971).


40 In that it is a leftward and upward-directed Copying rule, Richard is similar in behavior to the rule of Left Dislocation discussed in Ross (1967, section 6.2.1). The Richard analysis is essentially the suggestion made by Postal (1971a, p. 163).

41 The SPA analysis is intended to parallel the \textbf{Tough-Deletion} proposal discussed by Ross (1967, section 6.1.3.3), Morgan (1968a), Partee (1968), and Postal and Ross (1971).

42 Discussed in Ross (1967), section 6.1.3.3. Cf. also, Partee (1971a) and the references of fn. 38, especially Morgan.

43 The synonymy problem for \textbf{Tough}-movement, as well as other apparent Raising cases, such as \textit{appear}, \textit{certain}, and \textit{load the truck with hay} is discussed in Partee (1971a). She makes the interesting and suggestive observation there that while sentences such as (i) are not synonymous with their \textbf{Tough}-moved counterparts (ii), when heavy stress is placed on the \textbf{Tough}-movement candidate (e.g., iii) then the \textbf{Tough}-movement version (ii) and the heavy-stress version
(iii) do appear to be synonymous. She goes on to suggest that "it would seem that adding stress and raising to subject are two ways of accomplishing the same result, namely the bringing into focus (speaking vaguely) of one of the NP's." (p. 16).

(i) It is easy to please John.
(ii) John is easy to please.
(iii) It is easy to please John.

Unfortunately, for it would be a very interesting hypothesis, I believe that her facts are wrong. The only reading I can get for (iii) is a constrastive one, in which John is singled out, as opposed to some other unspecified people who, by implication (in the nontechnical sense), it is not easy to please. That is not, however, the reading I get for (ii), unless John has the same constrastive stress it had in (iii), (call it (ii')) in which case, the difference in meaning between (ii') and (iii) is exactly the same as that between (ii) and (i).

44 George Lakoff (personal communication and in class lectures at the 1971 California Summer Program in Linguistics) has sketched out a proposal, on partly independent grounds, for treating definite descriptions in a manner parallel to the treatment of quantifiers as higher verbs (cf. Lakoff, 1970a, Carden, 1967, 1968; for another view, Jackendoff, 1968, 1971, as well as Partee, 1970, and G. Lakoff, 1970f, for an evaluation of an early form of the proposal and a reply) in that definite descriptions have scopes, are lowered, etc. (this proposal is a subsequent development of the proposals made in Bach, 1968, McCawley, 1968a, and appears to owe much to Russell's theory of descriptions). Under such a proposal, he would account for the difference in meaning between sentences such as (i) and (ii) of fn. 43 in terms of different scopes of definite descriptions. Somewhat analogous proposals are discussed in Partee (1971a), Jackendoff (1971), and Lakoff (1970e).

While a great deal of work is yet to be done on Lakoff's proposal, it appears possible, though at this point unlikely (because of problems to be discussed in section 3.1.2.3) that Lakoff's proposal could be extended to handle all cases of Richard-like (cf. section 3.1.3) non-synonymy, but at this point, such a suggestion represents an educated guess.
Although Newmeyer (1969a, b) and Dougherty (1968) have argued against Perlmutter's formulation.

Notice that this is not a problem peculiar to superficial like-complements, since there are also sentences like (i)-(iii) which present the same problem.

(i) Mary threatened to look interested if that bore, Smedley, came around.
(ii) Basil condescended to look happy for the photographer.
(iii) Emma tried to sound discouraged in spite of the good news.

The way out offered, somewhat apologetically in the text parallels Perlmutter's (1972, section 2.1.1) for Passives. The desperation, in syntactic terms, of Perlmutter's passive solution, is somewhat mitigated in R. Lakoff (1971).

And if we abandon that claim, then it is not clear that the Richard analysis will have any more difficulty than the SPA analysis in the generation of sentences like (3.136). The outcome of that question would depend on what we replaced Perlmutter's constraint with.

Cf., e.g., Lakoff and Ross (1967), McCawley (1968a, b), and G. Lakoff (1972 and references cited therein) as well as Partee (1970, 1971), Chomsky (1971, 1972), and Jackendoff (1969a, 1971) for other views.

Although the immediate inspiration for this argument is to be found in Postal (1970b, where he attributes the "subject idiom chunk" argument for Raising to Perlmutter), the basic structure of arguments based on idioms can be traced at least back to Chomsky (via Ross at the 1967 UCLA Syntax Conference) where it was mentioned as a criticism of Hasegawa's (1968) analysis of Passives. Essentially the same criticism of Hasegawa's proposal appears in R. Lakoff (1971). The ultimate source of this argument-type is presently unclear to me.
Sentences such as (3.138)(b)–(3.140)(b) are not acceptable to everyone's grammatical palate. And they are better without overt Experiencers. It is not clear why this divergence of opinion exists. The (b) cases are, however, starkly better than the (c) (non-subject) cases.

This is, of course, our old and cherished friend, Tough-Movement. See fn. 38 for references. (3.141)(a) is, of course, ungrammatical, but it is intended solely as an approximate superficial representation of the underlying form of (3.141)(c) on the deletion analysis. Examples are from a pre-publication version of the paper which differ from those that appear in print, but not crucially so.

I am grateful to John Lawler for damaging his mind in search for these examples.

Assuming, for purposes of argumentation at this point, something like the Postal analysis for Flip verbs.

(3.149) is but one of several possible underlying forms for (3.146), given the minimal assumptions we have made concerning the SPA analysis. All have the same problem.

Cf. Postal (1970d), McCawley (1970b), and UESP (1968) and references cited therein. For an Interpretive approach see Jackendoff (1969a).

If, however, Akmajaian's arguments (Akmajian, 1972) are correct, this argument is not conclusive.

The weaknesses are (at least) as follows: (1) depends on being able to distinguish the dummy it from the it of Extraposition, a distinction which, for most speakers is transient at best (Rogers, 1971 exs. (28)–(30)); (2) is no longer quite as clear as it once appeared to be since Borkin (1971b) and Lawler (1971b) have pointed out cases where Body-deletion phenomena operate in Equi, Pronominalization, and Richard where two NP are considered equivalent for those rules in spite of the fact that the two relevant NP refer to different referents. The crushing blow is
sentences such as (i), which, as Ann Borkin pointed out to me, have an interpretation in which that can refers to the physical exterior of the can, whereas it refers to the contents of the can.

(i) That can looks like it's spoiled.

Given the can of worms (no pun intended) Borkin has opened, it is not yet clear whether examples like (i) will invalidate the argument. It depends on whether (as seems unlikely at present) the constraints on Body-deletion are the same for Pronominalization as for Richard; Argument (3) is subject to a great deal of dialect and idiolect variation and, in any case, there seem to be cases (although I am not sure since I do not share Postal's dialect) which are counterexamples to Postal's claims, such as (ii)-(v) pointed out to me by Barbara Partee.

(ii) Jill betrayed herself and Timothy with that remark.
(iii) John respects himself and his mother, and no one else.
(iv) I'm glad you found us a pair of seats in front.
(v) I wouldn't have thought us boring.

56 For some reason, which is at the moment at best only intuitively clear to me, both Left Dislocation (cf. Ross, 1967, section 5.2.1; Sanders and Tai, 1970; and Neubauer, 1970) and Y-Movement (a.k.a. Topicalization. Cf. the above references plus Ross (1967, section 4.3.2.1) block Richard, even in subject position, as shown by (i).

(i) *Harry looks to me like [him, (he) hates me. [he]

The Y-Movement case is probably out for the same reason that subject Y-Movement is normally out (if the rule had applied, how could you tell it had?), but Left Dislocation of subjects, even when embedded, normally seems reasonably O.K., as in (ii).

(ii) John thinks that Harry, he's a real fink.
The problem, of course, is that the dislocated NP has to be pronominalized, yielding a consecutive coreferential pronoun pair which it seems plausible should be bad, but it isn't clear why it should be, i.e., we have no set of rules and/or analyses from which that fact would follow. What seems to be going on is that (a) pronominalization is a de-emphasizing rule, whereas Left-dislocation is a topicalization rule, and the two functions are incompatible when applied to the same NP.

59 The problem is discussed, though by no means solved in Quine (1960) (in different terms) and in Postal (forthcoming).

60 On the other hand, if it isn't in general true that optional movement transformations "preserve meaning," then Generative Semantics is wrong in one of its basic assumptions, and either the theory falls or is modified. Some tentative steps in the latter direction appear to have been taken in Postal (forthcoming, Part XI), where he suggests that at least Raising is truth-preserving, if not "meaning-preserving."

61 These examples, as well as the suggestion that the subject-non-subject distinction is significant were pointed out to me by George Lakoff.

62 Compare to (i), which differs, according to Postal (1971a, p. 46) from (3.166) primarily in superficial subject-object order.

(i) Soaking herself in melted butter sounds to me like it would please Daphne.

63 This example was obtained in conspiracy with John Lawler.
CHAPTER 4

THE FLIP PHYSICAL PERCEPTION VERBS, PART II

4.0 Do Tlikeses Come from Likeses?

Given the fact that sentences such as (3.39)(a)-(3.43)(a) (which I shall, with malice aforethought call telescoped like-complement sentences (tlikeses for short) to differentiate them from overt like-complement sentences) appear to be paraphrases\(^1\) of like-complement sentences (likeses) such as (4.1)-(4.5), the question arises as to what relationship, if any, such sentences bear to each other.

(3.39) a. The music sounded loud to me.
(4.1) The music sounded to me like it was loud.

(3.40) a. Harry looked drunk to me.
(4.2) Harry looked to me like he was drunk.

(3.41) a. Jane's cake tasted burned to me.
(4.3) Jane's cake tasted to me like it was burned.

(3.42) a. Oscar smells dirty to me.
(4.4) Oscar smells to me like he is dirty.

(3.43) a. Hortense's forehead felt hot to me.
(4.5) Hortense's forehead felt to me like it was hot.
The most obvious hypothesis is that such pairs of sentences share a common logical form. Such a hypothesis would account for their paraphrase properties, as well as the facts that they share stativity, phonological form, subject and Experiencer selectional restrictions, presuppositional properties, personally-distribution facts, NP-crossing constraints, and inherent subjectivity (cf. Postal, 1970a).

Their tag-question properties differ, but in a way one might expect. Tlikeses refuse first person quasi-performative tags and yes-no questions, as do likeses.

(4.6) *The music sounds loud to me, doesn't it?
(4.7) *Does the music sound loud to me?
(4.8) *The music sounds to me like it is loud, doesn't it?
(4.9) *Does the music sound to me like it is loud?

On the other hand likeses, but not tlikeses allow tags on their complements in quasi-performative use.

(4.10) The music sounds to me like it is loud, isn't it?
(4.11) **The music sounds loud to me, isn't it?

This, however, is what one would expect if tlikeses had no complements at the time of tag-formation, which appears, on other grounds, to be a late rule. On the assumption, which has both linguistic and real-life support, that it is easier
to destroy than to build, one would assume that the likeses were closer to most underlying structure than the tlikeses, and therefore, the claim that tlikeses don't allow tags on their complements because they don't have complements by the time Tag-question formation comes along seems quite plausible.

Tlikeses also appear to allow Neg-transportation, as examples such as (4.12) and (4.13), suggested to me by Barbara Partee, illustrate.

(4.12) That looks impossible to me.
(4.13) That doesn't look possible to me.

There are many likeses for which there are no corresponding tlikeses, such as (4.14)-(4.15) and the otherwise problematical examples like (3.174)(cf. section 3.1.2.4).

(4.14) Harry sounds to me like he could whistle Wagner's "Prelude and Love Death."
(4.15) Osbert looks to me like he has been stealing pickles again.
(3.174) The soup tastes to me like Maude has been at the cooking sherry again.

Such cases could, of course, be accommodated by restrictions on the derivation of tlikeses, provided such restrictions appear well-motivated. In fact, the complement sentences of all of the examples we have considered so far, for which the positing of a common underlying form for likeses and tlikeses appears plausible, have been of the form (4.16),

119
(4.16) \( \text{NP}_i \) be Adjective

where \( \text{NP}_i \) is coreferential with the superficial subject of the Flip perception verb. The coreferentiality restriction is plausible in light of the fact that, if likeses are more nearly underlying than tlikeses, the complement-subject would have to be deleted, copied, or raised in the derivation of tlikeses, and deletions, copying and raising impose identity conditions.\(^3\)

The \textit{be} of such sentences could plausibly be deleted by the rule of \textit{be} deletion.

4.1 Toward an Underlying Representation

4.1.1 Properties Required of the Representation

4.1.1.1 Previously-Discussed Properties

We have so far established the following properties which the underlying representation of Flip verb sentences such as (3.39)(a)-(3.43)(a) and, on the hypothesis of section 4.0, sentences such as (4.1)-(4.5) should have:

A. Selectional properties:

1. The class of possible Flip perception verb Experiencers is identical to the class of possible
Cognitive perception verb subjects for each sensory modality (section 3.0.3.1).

2. The class of possible Flip perception verb "non-garbage" superficial subjects is identical to the class of possible objects of Cognitive perception verbs for each sensory modality (section 3.0.3.1).

3. Flip Experiencers and Cognitive Subjects (as well as underlying subjects in general) are modifiable by the adverb **personally**.

B. Flip perception verbs exhibit Crossover properties (section 3.0.2 and Postal, 1970a, pp. 42-49; 1971a, Chapter 6).

C. Flip perception verbs exhibit Negative-Transportation properties (section 3.1.1.2 and 4.0):

1. Neg-raised and non-Neg-raised sentences are reasonable (though not perfect) paraphrases.

2. They allow **until** phrases in the next sentence down if the higher verb is negated.

3. They allow strong Negative-polarity items, normally occurring only under mutual command conditions, in a lower sentence if the higher verb is negated.

4. They disallow highest surface sentence tag-questions
in quasi-performative use and instead allow tags on
the next sentence down.

D. Flip perception verb sentences with "non-garbage" super-
ficial subjects presuppose corresponding Cognitive per-
ception verb sentences with Flip Experiencer as subject
and Flip subject as object (sections 3.0.3.2 and 4.2.2.2).

E. They are syntactically stative (section 3.0.3.2).

F. They obey Postal's Subject-Experiencer Constraint
   (section 3.1.1.2.4.2).

4.1.1.2 Additional Properties

   Before making a tentative proposal for the under-
lying representation of Flip perception verb sentences,
there are several additional properties to be discussed.

D'. Temporal Relation Between Presuppositions and Presupposer

   As we pointed out in sections 3.0.3.2 and 3.1.2.4,
Flip perception verbs are factive. For example, both

   (3.40)(a) and (3.36) presuppose (3.40)(c).

   (3.40) a. Harry looked drunk to me.
   (3.46) Harry didn't look drunk to me.
   (3.40) c. I saw Harry.
One might inquire, although to my knowledge no one has, as to the temporal or tense relationships between such pairs as (3.40)(a) and (3.40)(c). The nature of the problem becomes clearer if we consider present-tense examples, such as (4.17) and (4.18).

(4.17) Harry looks drunk to me.
(4.18) I see Harry.

Assuming a non-generic interpretation of (4.17), does (4.17) presuppose (4.18) or (3.40)(c). It seems more enlightening to consider the problem in terms of time and utterances. Assuming I utter (4.17) and time $t_i$, what is the temporal relationship of the presupposition to $t_i$? Clearly, it would not do for the presupposition to be false at $t_i$ and true, say, an hour later. It seems perfectly acceptable to think of its being true at $t_i$. That is, I may certainly get away with saying (4.17) while actually looking at Harry. But suppose I have just seen Harry, and turn away from him so I can whisper (4.17) to you without Harry's being aware of it? No problem. Suppose further that you arrive at the party late, whereas Harry and I have been there a while, and you, not having yet seen or heard Harry, ask me how he's doing. Suppose further that I haven't seen Harry for ten minutes, but the last time I saw him, he was still going
strong. Could I then say (4.17)? The answer is now more questionable, but, I think, not clearly no.

It seems to depend in part on what sort of state Harry is supposed to be in and in part on the supposed duration of that state. Consider instead (4.19) and (4.20).

(4.19) Harry looks dead to me.
(4.20) Harry looks drunk to me today.

(4.19), describing a more usually permanent state than (4.17) seems to have more temporal "stretch" than (4.17). (4.20) presumably does not require that I see Harry all day. This elasticity of time relation will not stretch indefinitely, however. If I saw Harry three days ago, it would not do for me to say (4.17); I must, instead use the past tense form, (3.40)(a). Although I cannot give a precise formulation to the temporal restrictions involved, two aspects of it are very clear, and a third is at least smudgy.

D'.1 It seems clear that whatever the relationship is, it is based on time, not tense. The relationship seems to be one between the time of utterance of the Flp verb sentence and the time at which the presupposition is met.

D'.2 Taking time to be a directional (past to present to future) linear ordering, \( t_1 \) where \( t_1 \) is the time of utterance
of a Flip perception verb sentence, such as (4.17), and $t_j$ is the time at which the presupposition is met, then $t_j \leq t_i$.

D'.3 $t_j$ may not precede $t_i$ by too much, where what constitutes "too much" is very unclear to me at present.

A' More Selectional Facts

The following sentences are also bizarre, but in a way different from those used to establish the subject and Experiencer co-occurrence restrictions in 3.0.3.1.

(4.21) ?Harry smells fuzzy to me.
(4.22) ?Jane tastes tall to me.
(4.23) ?The wintergreen feels to me like it was put on the toilet seat by Glynis.

What is odd about these sentences is that it is difficult to imagine how one could reach the conclusions which they express by employing the sensory modalities involved. For example, in (4.23), it is difficult to conceive of how one could conclude that Glynis put wintergreen on the toilet seat by feeling the wintergreen. Any underlying representation which we propose for Flip perception verb sentences must allow us to account for whatever this relationship is between sensory modality and the proposition expressed by the complement sentence.
G. Flip Perception Verbs and Beliefs

Given our hypothesis of section 4.0, that sentences such as (3.40)(a) and (4.2) share an underlying representation, the question of the relationship between such sentences and the propositions expressed by the like-complements of sentences such as (4.2), in this case, (4.24), arises.

(3.40) a. Harry looked drunk to me.
(4.2) Harry looked to me like he was drunk.
(4.24) Harry was drunk.

In such cases, it appears that normally the Experiencer is assumed to believe the content of the like-complement proposition (regardless of whether there is an overt like-complement, as in (4.2) or not, as in (3.40)(a)). In other words, (3.40)(a) and (4.2) normally appear to imply sentences such as (4.25).

(4.25) I believed that Harry was drunk.

When sentences like (3.40)(a) and (4.2) are negated (ignoring the Neg-transportation reading as irrelevant), it does not appear that we can conclude anything about whether (4.25) or its negation is true. That is, given (3.40)(a') or (4.2'), it does not appear that one is committed to either (4.25) or (4.26). A person could, for example,
utter (4.2') and follow it by either (4.25) or (4.26) without contradicting himself.

(3.40) a'. Harry didn't look drunk to me.
(4.2') Harry wasn't look to me like he was drunk.
(4.26) I didn't believe that Harry was drunk.
(4.25) I believed that Harry was drunk.

I conclude, somewhat tentatively,\textsuperscript{10} that in sentences such as (3.40)(a) and (4.2), the Flip perception verbs are \textit{if}-verbs in Karttunen's (1970c) sense with respect to corresponding \textit{belief} sentences.

### 4.2 Tentative Analysis

We have catalogued a set of 15 properties which the underlying representation of Flip perception verb sentences must have. We will use this set of properties to try to arrive at a tentative proposal for the underlying structure, postponing a discussion of numerous problems until section 4.3.

Karttunen's (1970c) discussion of \textit{if} verbs provides us with a good place to start, since it appears that Flip perception verbs have the properties Karttunen ascribed to that class, although in a somewhat peculiar way.
4.2.1 Properties of If-Verbs

In "The Logic of English Predicate Complement Constructions" (1970c), Karttunen presented a very intriguing and insightful summary of what appeared to be known about the logical relationship between sentences containing sentential complements and those complements. By examining these relationships carefully, Karttunen was able to arrive at a surprisingly full (though not clearly complete) classification of verbs based on those properties. This paper was one of a series Karttunen wrote in the process of investigating these properties (cf. Karttunen, 1970a, b, c; 1971a, b) and represents a continuation and considerable expansion of the investigation of such logical properties investigated in Kiparsky and Kiparsky (1970). 11

Karttunen pointed out two basic properties of what he called if verbs, such as cause, make, have, force, make sure, bring about, and see to it (p. 14). First, they are implicative, in the following sense. In all of the sentences of (4.27), if they are asserted, the speaker is committed to the belief expressed by the corresponding sentence (4.28). 12 On the other hand, the assertion of the negation
(4.27) $\begin{cases} \text{forced} \\ \text{made} \end{cases}$ Mary to stay home. $\quad$ [Karttunen's (33a)]

(4.28) Mary stayed home.

of the sentences of (4.27) implies nothing about whether the speaker is committed to the belief expressed by (4.28).

Karttunen expressed this fact in the form of the meaning postulate (4.29), where $V$ stands for any if-verb and $S$ for its complement.

(4.29) $V(S) \supseteq S$ "$V(S)$ is a sufficient condition for $S$" $\quad$ [his (24a)]

Karttunen also noted (pp. 16-17) that the sentential subjects of such verbs as imply and mean, whose status as if-verbs he was doubtful about, are factive, citing examples (4.30) and (4.31).

(4.30) That the grass is wet implies that it has been raining.
(4.31) For Bill, it [that the grass is wet AR] means that somebody has watered the lawn. $\quad$ [his (37)(a),(b)]

In fact, it appears that if-verbs in general, including cause, are factive with regard to sentential subject complements, since, if (4.32)(a) and (b) $(4.34)(a)$ and (b) are true, so must (4.32)(c) $(4.34)(c)$ be.
(4.32) a. John's belief that Mary was a werewolf forced her to change her plans.
   b. John's belief that Mary was a werewolf didn't force her to change her plans.
   c. John believed that Mary was a werewolf.

(4.33) a. Mary's hitting John made him mad.
   b. Mary's hitting John didn't make him mad.
   c. Mary hit John.

(4.34) a. John's being anemic caused Mary to look elsewhere for sustenance.
   b. John's being anemic didn't cause Mary to look elsewhere for sustenance.
   c. John was anemic.

In view of Karttunen's subsequent discovery (1971a) of the distinction between strong and weak factives, it is of interest to establish whether if-verb sentential subject factivity is strong or weak. According to Karttunen's analysis, weak factive (semi-factive) verbs can be described by meaning postulates like (4.35), while strong factives fit those like (4.36) where $\triangleright$ is logical entailment, and M is the modal operator "possible."$^{13}$

(4.35) a. $(\forall x)(\forall s)$ (discover $x, s \triangleright s$)
   b. $(\forall x)(\forall s)$ ($\neg$discover $x, s \triangleright s$)

(4.36) a. $(\forall x)(\forall s)$ (M (regret $x, s$) $\triangleright s$)
   b. $(\forall x)(\forall s)$ (M ($\neg$regret $x, s$) $\triangleright s$)

[his (11) and (11'), p. 65]

Accordingly, we will embed if-verb-sentences in the context "it is possible that."

130
(4.32) d. It is possible that John's belief that Mary was a werewolf forced her to change her plans.
(4.34) d. It is possible that John's being anemic caused Mary to look elsewhere for sustenance.

Due to the complexity of the example, it is difficult to be entirely sure, but I believe that (4.32)(d) and its negation entail (4.32)(c) and that (4.34)(d) and its negation entail (4.34)(c). If this is true, then if-verbs are strongly factive with respect to their subject complements.\[^{14}\]

4.2.2 Flips as If-Verbs

We have, of course, already established that Flip perception verb sentences have cognitive sentential presuppositions and that they are if-verbs with respect to belief sentences. The hypothesis is obvious. If we can motivate an analysis of Flip-verb sentences as if-verb sentences, we will be able to account for the parallel behavior of these two classes.\[^{15}\] The Flip structure then reduces to a previously unsolved, but intuitively more basic problem, since, as Karttunen noted (p. 16), "all clear if-verbs seem to be, in some intuitive sense, causative verbs." If all of the other properties we have so far pointed out also follow from this structure, then the proposal is strongly supported.
Given the above facts, one might propose, as a minimally complex underlying structure, one of the form (4.37) for sentences such as (3.40)(a) and (4.24). ¹⁶

(4.37)

```
      S
     /|
    /  |
   NP  V  NP
  /   |
 S  CAUSED  S
  |
 I SAW HARRY
```

(3.40) a. Harry looked drunk to me.
(4.24) Harry looked to me like he was drunk.

4.2.2.1 The Status of CAUSE

Causative constructions have been the subject of a great deal of discussion in recent transformational literature, ¹⁷ and it is not our purpose here to review the voluminous literature on the subject, but rather to explicate the status of CAUSE in the structure (4.37) in light of very recent analyses, specifically Dowty's (1972a, b) analysis and the related work of J. Geis (1970), N. McCawley (1972; Akatsuka 1972), and J. McCawley (1971, In Press). I

132
take CAUSE to be an atomic predicate of a natural logic in
the sense of G. Lakoff (1972), J. McCawley (1972), and
Dowty (1972a, 1972b). That is, it is one of a number of
semantically simplex predicates which are a part of a
natural logic, the well-formed formulas of which, on the
one hand, are semantically interpreted in terms of a model
set, in order to provide an explicit account of truth-
conditions and meaning, and, on the other hand, serve as
the input to syntactic rules (including lexical insertion),
such as transformations, and presumably, derivational and
transderivational constraints (cf. G. Lakoff, 1970b, h,
1972a; J. McCawley, 1968b, 1971, In Press), the result of
whose operation on these well-formed formulas is a (syn-
tactic) surface structure, which subsequently (in descrip-
tive terms) receives a phonological interpretation.

In particular, we will adopt the Stalnaker-von
Wright-Dowty statement of truth conditions for CAUSE formu-
lated in Dowty (1972a), based in part on Stalnaker (1968),
and von Wright (1971), stated in Dowty (1972a, p. 70) as
(4.38), where \( \approx \) is the actual world at a particular point

\[
(4.38) \text{CAUSE (A,B) is true in } \approx \text{ if (A&B) is true in } \approx \\
\text{and (¬B) is true in } f(¬A,\approx).
\]
CAUSE \((A,B)\) is false in \(\alpha\) if either \((A\&B)\) is false in \(\alpha\) or \((-B)\) is false in \(f(\neg A, \alpha)\).

[his (37)]

and \(f\) is Stalnaker's selection function, which, as stated in Stalnaker (1968, p. 103)

... takes a proposition and a possible world as arguments and a possible world as its value. The selection-function selects, for each antecedent \(A\), [in our case, rather than antecedent, presumably we would wish to use the term proposition] a particular world in which \(A\) is true.

(4.38) as a formulation of the truth conditions for CAUSE may well turn out not to be precisely correct (cf. Dowty, 1972a, b), but it will do as a first approximation.

Interestingly enough, there is a moderately considerable body of entirely independently-motivated research leading in the direction at least of a sentential-subject analysis of causative constructions. First, J. Geis (1970) presented several arguments for a sentential-subject CAUSE analysis of the class of predicates Lakoff (1966) first analyzed as causatives, e.g., such (on his analysis) causative/inchoative/stative triplets as harden/harden/hard, liquify/liquify/liquid. She also suggested a causative analysis like the one she proposed for Lakoff's cases for Flip verbs such as anger, horrify, and upset. Her arguments
do not carry over, however, directly to the present cases, because the crucial rule in her analysis, that of Agent creation, which transforms the form underlying (4.39)(a) to that underlying (4.39)(b), is blocked either by

(4.39) a. John's kissing Alice made Marsha angry.  
    b. John made Marsha angry by kissing Alice.  
    [her (19)]

stativity of the subject-complement verb or non-agentivity, she does not determine which (pp. 15-16). In our analysis of Flip-perception verbs, the subject-complement verb is stative and the subject-complement subject is non-agentive.

Akatsuka (1972) argued for a causative analysis along the lines proposed by J. Geis (1970) for Flip emotive predicates. She also motivated a sentential subject complement causative analysis, and, some of her arguments carry over to the present analysis. N. McCawley (1972) (who but, not which, is also Akatsuka, 1972) covers essentially the same ground, as far as we are concerned, except for the fact that N McCawley (pp. 160-165) suggested that for Flip emotives in fact the verb of the complement subject sentence of CAUSE was PERCEIVE or EXPERIENCE, in order to account for otherwise recalcitrant data in both Japanese and English.
We, of course, make a similar claim for Flip perception verbs.

Third, Dowty (1972a, b) argued that the structure of causative constructions was even more complex, in general, than J. Geis and N. Akatsuka McCawley had in their particular instances. In particular, Dowty argued that the notions of Agentivity and Causation must be separated, proposing to assign the property of Agentivity to the subject of an atomic predicate DO, somewhat similar to the do of Ross's (1972b) "Act." He agreed with Geis and N. Akatsuka McCawley in arguing for a sentential subject complement for CAUSE, and argued that various combinations of DO, CAUSE and other sentences provided an elegant analysis of such things as the distinction between intentional and non-intentional causation, activities, states and achievements, and instrumental causation. In particular, it appears that (4.37) is an instance of what Dowty (1972a, fn. 6) called "Instrumental causation." 19

4.2.2.2 How Well Does the Proposal Fit the Facts of 4.1.1?

In order to evaluate, at least in a preliminary way, the motivation for such an analysis of Flip perception verbs, let us see if the other properties of Flip verbs, in addition
to subject-complement factivity and object-complement belief implicativity hold.

The Flip-subject/Cognitive-object selectional properties (A.2) appear to fall out without a hitch. The Experiencer-Cognitive object facts (A.1) also fall out, but in a more complex way. Assuming that the identity conditions between cognitive subject and subject of believe are handled as a consequence of the fact that a structure like (4.37) could not meet the description for lexical insertion unless one of them (presumably the cognitive one) is deleted under identity, there is still a problem. Both see and believe impose selectional restrictions on their subjects. If these two selectional classes are not identical, deletion will block in some cases. The analysis then predicts that the Experiencer selection class (ESSC) is not identical to the cognitive subject selection class (CSSC), but rather to the intersection of the CSSC and the believe subject selection class (BSSC).

Does this claim hold up for Experiencers in general? What we need is something that can see, but not believe.\(^{20}\) To me, (4.40) is clear evidence that my claim that the ESSC is the intersection of the CSSC and the BSSC is correct.
(4.40) John looks drunk to the crab.

With regard to property A.3, personally distribution, if the facts are as Postal (1971a, p. 42) described them, i.e., that personally can only accompany underlying subjects, the facts follow automatically, since in (4.37) the Experiencer NP is a subject underlyingly.

Property A', an additional selectional property receives what seems to me a very nearly explanatory account from a structure such as (4.37). The puzzle of A' was to account for the (to me, pragmatic) oddity of sentences such as (4.21)-(4.23).

(4.21) Harry smells fuzzy to me.
(4.22) Jane tastes tall to me.
(4.23) The wintergreen feels to me like it was put on the toilet seat by Glynis.

Of course, what is odd about (4.21)-(4.23) and their ilk is that they use the wrong sensory modality to obtain the information required to reach the conclusions they express. Now if (4.37), or something like it is correct, then the sentential subject complement verb in all Flip-verb sentences will be a cognitive perception verb. The choice of lexicalization, between sound, look, smell, and taste, would then be made on the basis of the choice of
the cognitive subject compliment verb, e.g., if it's see, you get look, if it's hear, you get sound. Such an analysis would claim, in the instance of (4.21), that I have been caused to believe that Harry is fuzzy by smelling him. This is, of course, pragmatically very strange, since fuzziness does not normally appear to have olfactory consequences or correlates, although one could imagine cases where it would. Our grammar, then, should generate such sentences as (4.21)-(4.23) freely, since the oddity of such sentences appears to lie not in the language, but in the world, yet our analysis is such that, knowing the underlying representation of (4.21), and knowing what the world is like, we can account for its oddity. I presume that, formally, this would be done by comparing the model-set interpretation(s) of the underlying representation of (4.21) with the model-set(s) for the "real" world.

Property B, concerning Crossover phenomena, is somewhat problematical due to the current state of research into Crossover. Since the exact formulation of Crossover constraints is currently (Postal, 1970a, 1971a) unsettled, we can only guess as to whether it will be consistent with the eventual formulation. Given a representation such as (4.37), the question also obviously depends on details of
derivation which are currently largely unsettled, although Postal (personal communication) claims to have worked out at least one derivation path from something like (4.37) to a sentence like (3.40)(a). Unfortunately, I have no details.

Property D, the cognitive presupposition property is predicted by treating Flips as if-verbs with cognitive sentential subjects, since if verbs are factive with regard to their sentential subjects. The analysis also predicts that, in the actual physical perception sense "garbage" NP will not appear as superficial subjects, since superficial subjects must be possible objects of particular cognitive physical perception. Figuring out exactly what is going on with garbage NP and Raising, as well as Flip verbs will probably alter the analysis of Flip verbs offered here in some details, although it presently does not appear to be likely to force major changes.

Property D' receives, I think, the most nearly explanatory account on the basis of (4.37), in fact, it was the existence of this temporal relation which first started me thinking of a causative analysis. Recall that in D', we concluded that the restriction between Flip perception verb sentences and their cognitive presuppositions involved time, rather than tense, and that the restriction included at
least the fact that the "event" described by the presupposition not follow the "state" described by the assertion. This is, of course, what is taken to be the normal restriction between causes and effects (cf. von Wright, 1971, esp. pp. 42-48). In addition to the non-precedence condition, the notion of temporal distance allowable between cause and effect seems to be rubbery in the way we discussed in section 4.1.1.2.

On Dowty's (1972a, b) analysis, CAUSE is a stative predicate, and since cognitive predicates and belief predicates are also stative, the entire structure is stative, so property P falls out.

Fact F, that Flip perception verbs obey Postal's subject-Experiencer constraint (SEC), I think also receives good treatment at the hands of a representation such as (4.37). The constraint itself is a rather interesting one. Why should it exist? First, let me say that I disagree with Postal in two fairly significant ways as to what the facts are. First, I believe that the SEC applies to all verbs of mental state, to varying degrees, rather than just to Psych-movement (Flip) verbs. Postal (1970a, p. 114) marks no difference in the acceptability of (4.41) and (4.42), although he does in (4.43) and (4.44).
(4.41) Pete thinks you are crazy.
(4.42) I think you are crazy.
(4.43) *It strikes Pete that you are unfriendly.
(4.44) It strikes me that you are unfriendly.

[Postal's (268a, b); his judgments]

I find (4.41) slightly less acceptable than (4.42), and in
the same way that (4.43) is less acceptable than (4.44),
although (4.43) is clearly worse than (4.41).

Now for the SEC. Second, I don't think that the
SEC belongs in the grammar at all. It is a pragmatic con-
straint. What is (in this case only slightly) odd about
(4.41) is that only the subject of a verb of mental state
can know what his mental state is. If the "thinker" has not
communicated his state of mind to the speaker of a sentence
such as (4.41), it is not possible for the speaker to utter
a sentence such as (4.41) in good faith, since he cannot know
that what it asserts is true, and speaker assertions are
normally assumed to be believed to be true by their speakers.
Of course, as Postal pointed out, if mind-reading machines
existed, then (4.43) (and, in my opinion, (4.41) also) would
be perfectly acceptable. The oddity of (4.41) and (4.43),
to the extent that they are odd, is a fact about our world,
namely that in our world, people have privileged access to
their thoughts.
Why, then, if this is true, is (4.41) so much less odd than (4.43)?

Since the thinker has privileged access, if the speaker and the thinker are not the same person, in order for the hearer or reader to make sentences such as (4.41) or (4.43) pragmatically consistent with the fact that those sentences are descriptions of privileged-access information, he must infer that the speaker has grounds for making the assertions of (4.41) or (4.43). He must, in other words, infer that the thinker has communicated his state of mind to the speaker. This can be done in a number of ways, but the most straightforward way and the one which does not require that the hearer infer that the speaker inverred what the thinker believed (which in fact one sometimes does if he has reason to believe that the thinker has not directly communicated with the speaker), is for the hearer to simply infer that the thinker has told the speaker what he (the thinker) thinks. While such an account has a vague and sloppy air of hocus-pocus about it, I think that it is at least a rough description of why the SEC requires a higher verb of saying. Ignoring the question of exactly what the underlying representations of (4.41) and (4.43) are, it is at least clear that Flip verbals have a more complex
propositional content than the straightforward verb of thinking cases. On our analysis, in fact, the latter includes the former. The first-order inference required to pragmatically rectify (4.41) is, then, considerably simpler than that required for (4.43). Similarly for second-order inferences.

As it stands, I have no explanation for why Flip perception verbs Neg-raise on an analysis such as (4.37) since CAUSE appears not to Neg-raise. Believe, etc., do, however, so (4.37) may well at least be a step of sorts toward an account, if not an explanation of this fact. This problem will be discussed further in section 4.3.1.

4.3 Fatal Flaws and Other Problems

4.3.1 Neg-Transportation

Given an analysis such as (4.37) for sentences like (4.2), it is not at all obvious how to account for the fact that (4.45 and (4.46) appear to stand in a Neg-transportation relationship. 24
(4.24) Harry looked to me like he was drunk.
(4.45) Harry looked to me like he wasn't drunk.
(4.46) Harry didn't look to me like he was drunk.

The problem is that while BELIEVE may be assumed to allow Neg-transportation, since the lexical realization 
believe does,\textsuperscript{25} it is not at all clear that CAUSE allows 
Neg-transportation. For instance, assuming simple lexical 
insertion into the structure(s) underlying (4.45) and (4.46) 
rather than the more complex derivation involved in generating (4.45) and (4.46),\textsuperscript{26} if Neg-transportation occurs 
across CAUSE, (4.47) and (4.48) should stand in a Neg- 
transportation relationship, i.e., there should exist a 
reading of (4.48) which is virtually synonymous with the 
meaning of (4.47).\textsuperscript{27}

(4.47) My seeing Harry caused me to believe that he 
wasn't drunk.
(4.48) My seeing Harry didn't cause me to believe that he was drunk.

I cannot get the required reading for (4.48), however. (4.48) appears to claim simply that I did not reach the conclusion that Harry was drunk, whereas (4.47) claims that I did reach the conclusion that Harry was not drunk. If (4.47) is true, then (4.48) must be true also, unless I hold contradictory beliefs, or, unless, trivially, (4.47) and (4.48) are descriptions of non-simultaneous states of affairs. (4.48), however, may be true regardless of the truth of (4.47). If (4.48) is true, either (4.47) is or my seeing Harry didn't cause me to reach any conclusion about Harry's drunkenness. It is interesting that the two possible states of affairs describable by (4.48) correspond to the ambiguity which has been claimed to exist for the surface negation of Neg-transportation verbs, but in order to justify the claim that Neg-transportation has occurred, we must be able to claim that (4.48) is ambiguous between the two readings when, in fact, it appears merely to be vague.

Unfortunate evidence supporting my claim that (4.48) does not have a Neg-transportation reading can be found by applying the Neg-transportation tests of section 2.1.2,
namely, in addition to paraphrase, until phrases (4.49) and negative polarity (4.50). 28

(4.49) a. Harry doesn't look to me like he'll last until morning.
    b. *My seeing Harry doesn't cause me to believe that he will last until morning.

(4.50) a. Harry doesn't look to me like he had had a bath in weeks.
    b. *My seeing Harry doesn't cause me to believe that he has had a bath in weeks.

The previous discussion, however, assumes, among other things, that Neg-transportation applies before the lexical insertion of look and would require a double application of Neg-transportation to the structure underlying (4.48). I know of no reason to assume, however, that Neg-transportation does precede lexical insertion of look. If Neg-transportation follows lexical insertion of look, it is not clear whether, given that a structure such as (4.37) underlying, one would expect look to allow Neg-transportation or not. Superficially, I think, one would not, since CAUSE appears not to allow it. The basic question is what the relationship is between the rule-government properties of sublexical constituents and the rule-government properties of the lexical items which replace sublexical trees.

In general, of course, in a Generative Semantics framework,
one assumes congruence of syntactic properties, but, given the analysis proposed in (4.37) the problem is that two of the sublexical predicates involved appear to conflict with each other in terms of the apparent syntactic property governing Neg-transportation. It is not entirely clear what to do in such a situation. One could, of course, take this fact as evidence against the analysis proposed, but there seems to be a fair amount of evidence in favor of it.

The one vague ray of hope in this situation is the fact that while (4.48) may show that CAUSE does not allow Neg-transportation, (4.48) is not contradictory to the claim of (4.47), it is merely less specific than (4.47). It may be possible to allow Neg-transportation to apply to look on the condition that the resultant structure not be derived from one which is contradictory to the form underlying (4.48). Whether this is bull or interesting, I am not sure, since evaluating it will depend of finding similar cases and evaluating them. Needless to say, I would be much happier with an analysis of Flip perception verbs which did not have this problem, all other things being equal.
4.3.2 Problems with Believe

When I first proposed this analysis at the Eighth Regional Meeting of the Chicago Linguistic Society, George Lakoff cited examples like (4.51) as counter-evidence to the claim that BELIEVE was the predicate of the sentential object of CAUSE in structures like (4.37).

(4.51) Harry looked drunk to me, but I didn't believe he was.

(4.37)

\[ S \]

\[ NF \quad V \quad NP \]

\[ S \quad CAUSED \quad S \]

\[ I \ SAW \ FARRY \quad NP \quad V \quad NP \]

\[ I \quad BELIEVED \quad S \]

\[ HARRY \ WAS \ DRUNK \]

That is, there should be a contradiction in claiming that my seeing Harry caused me to believe he was drunk and in also claiming that I did not believe he was.

It appears, however, that two senses of believe are involved here. If one follows Lindholm (1969) in claiming that the sense of believe which sentence pronominalizes as believe so is the one, in contrast to the believe it sense,
which undergoes Neg-transportation, it is at least clear, since look allows Neg-transportation, that the BELIEVE in (4.37) and its ilk may correspond to the lexical believe of believe so. Whether it may also correspond in other cases to the believe it sense, I am unsure, but this question need not be answered to handle Lakoff's example. I claim that the lexical believe in sentences like (4.51) is the believe it sense, and not the believe so sense, which is, I claim, the sense of BELIEVE appearing in the sublexical structure of look is sentence (4.51). Some evidence in favor of this claim is shown by considering sentences like (4.52) and (4.53), in which the two pronominalizations have been applied.

(4.52) Harry looked drunk to me, but I didn't believe it.
(4.53) *Harry looked drunk to me, but I didn't believe so.

My claims about the underlying structure of such sentences predict that (4.53) should be bad, since it is contradictory, whereas (4.52) is not, since believe so is a weaker sense of believe than believe it is.29
4.3.3 Adjectives

Any proposal, including the present one, which proposes that such sentence pairs as (3.39)(a) and (4.1) share a common underlying form, runs into difficulties in cases such as (4.54) and (4.55).

(3.39) a. The music sounded loud to me.
(4.1) The music sounded to me like it was loud.
(4.54) The meat tastes funny to me. [Postal's, 1971a, 6.32a]
(4.55) The meat tastes to me like it is funny.

(4.54) seems to claim that the meat is funny with regard to taste, whereas (4.55) seems to make the more general claim that the soup is funny period, not just with regard to taste, although it may be possible to interpret (4.54) as having a reading synonymous with (4.55), namely the "funny with regard to taste" reading.

Similar facts appear to obtain for the adjectives listed in (4.56) and a number of others.

(4.56) good, nice, wild, strange, splendid, terrible, awful, fine, great, magnificent, decent.

In general for such adjectives, it appears that the tlikes form of such sentences, such as (4.57), is ambiguous between an interpretation synonymous with the likes form, such as (4.58) and a more specific reading which the property

151
(4.57) Mary looks nice to me.
(4.58) Mary looks to me like she is nice.

described by the adjective is claimed to be attributed to
the object described only with regard to the sensory modality expressed by the perception verb. The contrast also
shows up in adjective-Flip perception verb compound adjectives, such as nice-looking, where they have different
stress pattern exhibited by such compounds such as White
House (nice-looking, the likes reading, X is nice) and
modifying adjective plus noun construction white house
(nice-looking, X has a nice appearance). 31

The problem, of course, is two-fold. First,
given that (4.57) is ambiguous, what is the source of the
reading of (4.57) not paraphrased by (4.58) and, secondarily,
what prevents (4.58) from being ambiguous.

Postal (1971a, p. 40 fn. 1) suggested that the
adjective in the problematical cases were actually irregular-ly adverbials, on the basis of the fact that they
typically take how-questions like (3.22),

(3.22) How does the meat taste (to you)? [Postal's (i)]

but did not further justify the analysis or present a sub-
stantive proposal. As was pointed out in section 3.0.2, it
appears that Postal's was an intuitively plausible proposal, but the how-question facts are not conclusive. It appears likely, however, that some such adverb-adjective analysis will be necessary to account for these and other facts, but I have no proposal to offer here.

Color adjectives appear to suffer from a slightly different malady on my analysis. (4.59)(a) and (b) are clearly not necessarily paraphrases. Furthermore, since color is essentially visual, the problem cannot be one of sense-specificity, as was suggested for the adjectives in (4.56). Although it appears that (4.59)(a) shares a reading with (4.59)(b), the far more likely reading of (4.59) (a) where redness, rather than red-likeness is being claimed, simply does not fall out of this analysis at all.

(4.59) a. Paul's car looks red to me.
   b. Paul's car looks to me like it is red.

It may be that these latter cases can be assimilated to the adverbial cases, but such a suggestion is mere speculation at this point.

4.3.4 Absent Experiences

One question which I have not dealt with so far is the differences between sentences with and without overt
Experiencer NP, such as (4.60) and (4.61).

(4.60) It smells to me like the roses have bloomed.
(4.61) It smells like the roses have bloomed.

This question is of interest in the present context for at least three reasons. First, it seems quite clear that the Flip physical perception verbs can all occur with or without overt Experiencers, so that any analysis of such verbs must deal with the problem of absent Experiences in a satisfactory way. Second, in a fairly large number of cases, examples of less than perfect grammaticality, such as (3.138)(b) become somewhat better in the absence of overt Experiences, as in (3.138)(b'), and since these are crucial, examples in the arguments (section 3.1.2.1) concerning Richard, we would like to know what is going on. 32

(3.138) b. The shit looks to me like its going to hit the fan.
(3.138) b'. The shit looks like its going to hit the fan.

Third, since the difference between (4.60) and (4.61) is at least superficially similar to the difference between pairs like (4.62) and (4.63) (Agentless Passive), (4.64) and (4.65) (Dativeless Tough-predicates), (4.66) and (4.67), (4.68) and (4.69), (4.70) and (4.71), as well as, no doubt, other cases.

154
which have been claimed to involve the notion "constant deletion."  

(4.62) Agnes was run over by a poultry-truck.  
(4.63) Agnes was run over.  
(4.64) Hermione was easy for Ethelbert to seduce.  
(4.65) Hermione was easy to seduce.  
(4.66) Going to the orgy was wise of Linda.  
(4.67) Going to the orgy was wise.  
(4.68) Going to the orgy was boring to Linda.  
(4.69) Going to the orgy was boring.  
(4.70) That Dolph is incompetent is obvious to me.  
(4.71) That Dolph is incompetent is obvious.

There are a number of superficially plausible forms which a constant-deletion analysis of examples such as
(4.61) might take, such as Grinder’s (1971a) optional lexicalization proposal, Postal’s (1970d and forthcoming) one-deletion proposal, Postal’s (1970d) unspecified NP deletion proposal (which he argues is required in addition to one-deletion). I have not, however, found any convincing arguments for choosing one of these alternatives over the others, and I believe that the approach to this problem which is most likely to prove fruitful is a unitary approach to the problem of constant-deletion or optional arguments along the lines of Postal (1970d) and Grinder (1971a, b), but broader and in greater depth. It is clear that a solution to this problem is of real significance to the analysis of Flip
physical perception verbs but, in the absence of compelling arguments for an analysis of absent Experiences per se, I reluctantly conclude that the most promising approach, namely that of examining the entire question of constant deletion or optional arguments, is beyond the rather narrow scope of the present work.

4.3.5 Problems with Like

The next-to-last unresolved problem which I should like to discuss is the word like which rears its ugly head throughout Chapters 3 and 4. It is clear that in order to be able to justify the hypotheses that likeses and tlikeses share a common underlying form and that likeses are closer to the underlying form than tlikeses (section 4.0), we must carefully examine the syntactic and semantic properties of the word or words like, since it shows up in all likeses and, as it turns out, some tlikeses. And regardless of that hypothesis, something must be done about the occurrence of like in its apparent complementizer form in likeses such as (4.72).

(4.72) It looks like Juan is in trouble.
We have not so far considered apparent tlikeses such as (4.73), but it appears that doing so may shed some light, albeit not enough, as it turns out, on the question of the source and derivation of the complementizer like.

(4.73) Ronald looks like a turtle to me.

Such sentences are fairly clearly at least ambiguous. We shall discuss this ambiguity in the following two subsections.

4.3.5.1 Complementizer Like

Let us assume that we have a pet, whom we have christened Ronald, and that we aren't sure whether he is a turtle or a tortoise. If we ask someone what Ronald is, she or he might reply, using (4.73). The most natural interpretation of (4.73) is, in light of our situation, that the speaker of (4.73) intends by it the reading expressed by (4.74).

(4.74) Ronald looks to me like he is a turtle.

The existence of this like-complement paraphrase of this reading of (4.73) is, on the whole, a nice fact for the tlikes-likes proposal of section 4.0 since the derivation of sentences like (4.73) will be at least very similar
to the adjectival tlikes, such as (3.39)(a), previously discussed. The unpleasant fact which requires me to say that the derivations will be similar rather than identical is that in the adjectival tlikes cases (e.g. (3.39)(a)), no like appears (although it does in the adjectival likes, e.g. (4.1)), but in the nominal cases brought up in this section, the like shows up in both likes and tlikeses (e.g. (4.73) and (4.74)). I have no ready explanation for this fact, but I suspect that it has something to do with the fact that like, among other things is a superficial adjectival marker. That is, constructions of the form like + NP appear to be adjectival, regardless of whether the NP dominates a sentence or not, and it appears that the superficial argument of a Flip perception verb which normally occurs between the verb and the Experiencer (which I hereby christen the Driddle for expository ease) must be, for dark and mysterious reasons, adjectival. If this is true, then it is clear why the like disappears in adjectival tlikeses and not in nominal ones. I do not have much more to say,
however, about why *like* shows up at all in such constructions, except to discuss some other interesting facts about *like* in the following section.

4.3.5.2 Similarity-Predicate Like

(4.73) could also, however, constitute not a claim that Ronald looked like he *was* a turtle, but that he looked *similar* to a turtle. (4.75)-(4.77), but not (4.74) would be reasonably good paraphrases of this reading of (4.73).³⁵

(4.73) Ronald looks like a turtle to me.
(4.74) Ronaldₐ looks to me like heₐ is a turtle.
(4.75) Ronald looks to me like a turtle looks (to me).
(4.76) Ronald looks similar to a turtle to me.
       (a) is similar to
(4.77) Ronaldₐ looks to me like heₐ (b) is like
       a turtle. (c)? resembles

This reading of (4.73) appears to involve what Postal (1970a, esp. pp. 42 and 71-83) has termed a similarity predicate. According to Postal, similarity predicates have the following properties:³⁶

A. Their arguments may not be coreferential.
B. They are logically reflexive.³⁷
C. They are logically symmetrical.
D. They are logically non-transitive.

159
E. If the object of a similarity predicate is a plural generic NP, then the subject must be also, E.g.

(4.78) Chevrolets resemble Volkswagens. [Postal's (138a)]
(4.79) *That Chevrolet resembles Volkswagens. 38

F. They occur with in that S constructions (c.f. McCawley, 1970c). E.g.

(4.80) Harry is similar to Jack in that he has a long nose. [Postal's (154a)]

G. They occur with in the way S constructions. E.g.

(4.81) Max is similar to Pete in the way that he talks. [Postal's (154a)]

Sentences like as (4.73) appear to have properties A-G, as (4.82)-(4.88) begin to illustrate.

(4.82) *Ronald looks like himself to me. 39
(4.83) If Ronald looks like a turtle to me then a turtle looks like Ronald to me. 40
(4.84) If Ronald looks like a turtle to me, and a turtle looks like a rock to me, it is not necessarily true that Ronald looks like a rock to me, since they may resemble each other in different ways. 41
(4.85) Chevrolets look like Volkswagens to me.
(4.86) *That Chevrolet looks like Volkswagens to me.
(4.87) Ronald looks like a turtle to me in that he has a blunt nose and a square jaw.
(4.88) Ronald looks like a turtle to me in the way that he walks.

The (4.74) (complementizer) reading of (4.73), however, does not appear to have all the properties A-G, nor, for obvious reasons, do the adjectival likeses and tlikeses.

(4.73) Ronald looks like a turtle to me.
(4.74) Ronald_i looks to me like he_i is a turtle.
(3.39) a. The music sounded loud to me.
(4.1) The music_i sounded to me like it_i was loud.

From the above facts, I conclude that one reading of sentences of the form (4.89) (where NP_j does not dominate an S in surface structure, since this would include (4.74) involves the similarity-predicate use of like.

(4.89) NP_j V_F like NP_j to NP_k

where V_F is a Flip physical perception verb.

One should be able to explain the ambiguity of sentences like (4.73). At the moment, however, I cannot, but I can at least show why one obvious hypothesis cannot be correct.

One might propose that the similarity-predicate reading of (4.73) came from whatever underlies (4.90), on the obvious analogy of the likes/tlikes proposal of section 4.0, with a similarity predicate in the lowest complement S.
(4.73) Ronald looks like a turtle to me.

(4.90) ?Ronald looks to me like he \[\begin{array}{l}
(a) \text{ is similar to} \\
(b) \text{ resembles} \\
(c) \text{?? is like}
\end{array}\]
a turtle.

Such an approach would be appealing if the likes/\-like\ proposal were accepted, since nearly all of the rules required to derive (4.73) from whatever underlies (4.90) would be required independently for the derivation of the like-complement reading of (4.73). The only additional problem would be how to keep from getting two likes in the surface form of the similarity-predicate reading of (4.73).

Unfortunately, such an analysis appears to be wrong, since (4.90) is a very strange sentence. What appears to be wrong with it, unfortunately, is exactly the property required to make the derivation parallel to the like-complement derivation of (4.73) work, namely the appearance of the similarity predicate in the embedded sentence. (4.90) is redundant with both a like-complementizer and a similarity predicate. I see at least two possible lines of attack for the problem, neither of which strikes me as particularly promising, hence I leave the problem for future research. One is to explore more carefully the question of like in general, hoping to find some basis for eliminating

162
the like-complementizer from the structure underlying the similarity-predicate reading of (4.73). Alternatively, one might pursue a course attempting to relate the two readings of (4.73) to Lindholm's (1969) claim that there are two senses of believe, a believe so sense and a believe it sense and attempt to come up with an analysis which pairs the similarity-predicate reading with believe so and the identity-predicate reading (the like-complementizer reading) with believe it, or something along those lines. It seems obvious that the two senses, one involving identity or attribution and the other, involving similarity, are related to one another fairly simply. Tentative work in both these directions has, however, yielded nothing very encouraging.

4.3.6 Problems of Derivation

Given the highly tentative and problematical nature of (4.37) as a putative logical form for sentences such as (3.40)(a) and (4.2), there is probably nothing I can say about the derivation of (3.40)(a) and (4.2) which I would care to defend two days hence, but I can, nonetheless sketch out somewhat plausible derivations on the dubious assumption that (4.37) is reasonably correct and point out their problems. In addition to the problems with (4.37) discussed in
sections 4.3.1-4.3.5, (i) there is the fact that the analysis of (4.37) assumes that the presuppositions involved in
Flip perception verb sentences are semantic, and that they
should be incorporated into the logical form of such sen-
tences as subject complements. (ii) Given the fact that
no one currently knows how to tell a semantic presupposi-
tion from a pragmatic one "in the field," so to speak, i.e.,
given an apparent linguistic instance of presupposition,
there are no reliable tests for determining which it is (but
cf. Thomason, 1973), and given additionally the more gen-
eral question of which, if either (if not both) of the two
generally accepted, but not satisfactorily defined, notions
is involved in linguistic presupposition phenomena. And
(iii), given, lastly the fact that the question of the
logical representation of presuppositions in underlying
logical representations has hardly been raised, much less
solved, the reader can appreciate tentativeness of the
following remarks.

For expository ease, I will employ the representa-
tion (4.37'), which is (4.37) with nodes indexed for
reference.44
(3.40) a. Harry looked drunk to me.
(4.2) Harry looked to me like he was drunk.

For purposes of discussion, I will assume the following:

I. That Equi-NP deletion and Predicate-Raising are cyclic, and that Equi-NP deletion precedes Predicate-Raising. 45

II. That Super Equi NP deletion, and Raising are cyclic, and that Super-Equi, Raising, and Equi apply in that order. 46

III. That transformational rules are fully ordered.

Several of these assumptions, especially III, are controversial; but I cannot settle those questions here.
The derivation of (4.2) from 4.37') should consist of roughly the following steps, all, apparently, taking place on the $S_o$ cycle:

(4.91) (i) Raise $NP_4 (I)$ to $S_o$

(ii) Delete $NP_1$ (with $NP_4$ as controller) by Equi

(iii) Predicate-Raise $V_1$ to $V_o$

(iv) Prune $NP_o$ and $S_1$

(v) Predicate-Raise $V_2$ to $V_o$

(vi) Prune $NP_3$ and $S_2$

This should give us the structure (4.92), which is very roughly the type of structure we need, but the derivation and resulting structure are unsatisfactory in several ways.

\[
\begin{array}{c}
S_o \\
\downarrow \\
NP_2 \\
\downarrow \\
HARRY \\
\downarrow \\
V_1 \\
\downarrow \\
CAUSED \\
\downarrow \\
SAW \\
\downarrow \\
V_2 \\
\downarrow \\
BELIEVE \\
\downarrow \\
NP_6 \\
\downarrow \\
HARRY \\
\downarrow \\
WAS \\
\downarrow \\
DRUNK
\end{array}
\]
The two most obvious flaws in (4.92) are the absence of the *to* and *like* which show up in (4.2). As I indicated in section 4.3.5, the syntax of *like* is very little-understood. At this time, I do not know where it comes from, though perhaps the facts discussed in 4.3.5 will be useful in solving the problem. I conjecture that (4.37') is missing an essential clause which will turn out to be the source of *like*, and which may also ameliorate the problem discussed in section 4.3.2 concerning sentences such as (4.51). I have no account of the occurrence of *to*.

(4.51) Harry looked drunk to me, but I didn't believe he was.

A third problem arises with regard to step (iii) in the derivation, namely the Predicate-Raising of $V_1$ to $V_0$. In every other instance of Predicate-Raising I know of, the raised predicate starts below and to the right of the predicate it is to be adjoined to, and is adjoined to the right of that predicate. In this instance, the raised predicate starts out to the lower left and is adjoined to the left. The only other case that I know of where such a move appears plausible occurs in N. McCawley (1972, Chapter V, section C) where she proposes the analysis (4.93) of the sentence (4.94), pointed out by Lee (1971, p. 93).47
(4.94) The lamp persuaded Mary that she was in Borneo.

Interestingly enough, McCawley notes (p. 158) that Lee (1971, p. 93) had observed that in (4.94), Mary is presupposed to have perceived the lamp. Exactly where this fact will lead us, I am unsure, particularly given the little attention paid in the present work to the nature of presupposition, but it is intriguing that both instances of left-handed predicate raising appear to involve cognitive presuppositions.

The derivation of (3.40)(a) basically requires the additional application of be deletion, to get rid of $V_3$ in $S_3$, and the deletion of $NP_6$ Harry from $S_3$. We might hope to use Super-Equi to do the job, with $NP_2$ as controller,
but under the ordering assumptions we have made, Super-Equi precedes Raising and Equi, and Predicate-Raising, all of which would have to have applied in order for the structural description of Super-Equi to be met. It may well be, however, that these ordering assumptions are incorrect. If they are, then the derivation may go through.

As is obvious, the problem of the derivation of (3.40)(a) and (4.2) and their ilk from structures like (4.37) is far from resolved, as is the question of how good an approximation (4.37) is to the logical form of such sentences, but it is at least clear to me that (4.37) represents a significant step toward an adequate analysis.
1 Some of the problems associated with this claim will be discussed in section 4.3.

2 Cf. R. Lakoff (1969), Scott (1972), and section 3.1.1.2.4.1.

3 Cf. Borkin (1973) for a thorough discussion of this rule and many of its problems.

4 Cf., however, footnote 14 of Chapter 3 and section 4.2.2.2.

5 Properties A-3 and B are subject to a great deal of idiolect variation. See discussion in 3.0.2.

6 I am not claiming that tense and time are the same, or even simply related.

7 For a number of good reasons for avoiding the generic interpretation, see Lawler (1972) and forthcoming.

8 Clearly alternative formulations are possible, depending on how one conceptualizes time (cf. Prior, 1967; Dowty, in preparation). This one is chosen primarily for expository clarity.

9 I have assumed, for sake of simplicity that $t_j$ is a point in time, although the presupposition could clearly be true over an interval. A more careful formulation would be to the effect that there must exist some point in time $t_j$ such that $t_j$ is included in an interval over which the presupposition is met, that $t_j \leq t_i$, and that $t_i$ must also be contained in that interval.
Problems with this claim will be discussed in section 4.3.

Karttunen was not, of course, the only linguist investigating the problem, but he seems to have gone about it most systematically and in a more integrated way. For other references, see the bibliographies of Karttunen's papers listed in the text, Green and Castillo (1972), and the bibliography of the present work.

We are playing rather loosely, which, unfortunately, is the linguist's recent practice, with terms such as implies, presupposes, etc. In part we are doing so because we are describing what linguists have done in this area, in part because of the fact that a number of theoretical issues, such as the most revealing and useful definition of these terms, the relations between what might be called "logical," "grammatical," and/or "pragmatic logical relationships" is simply unclear and in part because these issues are not the ones we are currently directly concerned with. See Karttunen (1971b, 1973) for a discussion of some of the proposals offered and of the issues involved. I trust that at least no undue amount of confusion will result.

But cf. Karttunen (1972) and Kimball (1972) on the relation between M and lexical item possible.

This is a reversal of my claim in Rogers (1972), where I claimed that cause and look were weakly factive with respect to their sentential complements. This is a rather fuzzy area to me at the moment. Part of the difficulty is translating to Karttunen's (1971a) examples from his meaning postulates. His postulates do not mention will or futurity, although they do mention (logical) possibility, but his examples include will (cf. (i)).

\[
\text{(i) It is possible that I will} \begin{array}{c}
\text{regret} \\
\text{realize} \\
\text{discover}
\end{array} \text{later that I have not told the truth. [his (26b)]}
\]
With *will* examples such as (4.32)(d) and 4.34)(d) simply get even fuzzier for me. This is a serious problem, however, since an unexplained difference in strength of factivity would cast the analysis to be presented in doubt. I believe that if one tests, e.g. (3.39)(a) with and without *will*, as in (ii) and (iii), respectively,

(ii) It is possible that the music [sounds]
loud to me.

(iii) It is possible that the music will sound
loud to me.

one concludes from (ii) that *look* is strongly factive, whereas (iii) leads one to believe it is weakly factive. I cheerfully leave this problem to future research and sharper intuitions.

15 We adopt the "lexical decomposition" rather than the "meaning postulates" solution, although it is not now clear that the latter would not do as well. It is not even clear whether the question of which approach to adopt is an empirical one. Cf. G. Lakoff (1970h) and Karttunen ( ). The success of the proposed lexical decomposition analysis is predicting a large number of the other Flip perception verb sentences leads me to have more confidence in that alternative, although I have not considered the meaning postulate alternative in detail.

16 Numerous details are, of course, omitted from this skeletal tree, primarily because we are, for the moment, concerned only with the aspects of the underlying representation of Flip perception verb sentences which this over-simplified tree represents. In addition, we have ignored many now widely-accepted structural, innovations, such as VSO underlying order (McCawley, 1970b) and adjectives as underlying verbs (Lakoff, 1966), because such innovations may be taken as controversial by some, and they do not presently appear to affect the issues at hand. Those vehemently objecting may perform translation into their own notation.

As Dowty mentioned, similar proposals were also suggested in Fillmore (1971, p. 45 ff) and by J. McCawley (1971).

Whether to call (4.37) an instance of what Dowty (1972b) calls stative causation, which he represents as (i), and exemplifies by Fillmore's (1971, p. 49) sentence (ii) or as an instance of non-agentive causation, which he represents as (iii), exemplified, I think, by (iv), both of which strike me as "instrumental," is unclear to me at the moment. The choice would in part be determined by the answer to the question of whether the presuppositions of Flip perception verbs are simple stative cognitives or inchoative cognitives (cf. section 2.1.1) I have not had time to pursue this question.

(i)

```
  S  
 / \ 
V   NP  NP
   CAUSE
      S
      Verb x
```

(ii) Susan's living here causes me to prefer this neighborhood.

(iii)

```
  S  
 / \ 
V   NP  NP
   CAUSE
      S
      COME AROUND
      S
      Verb x
```

(iv) The game broke up because it rained.
I will ignore Postal’s (1970a) subject-Experiencer constraint, since failure to do so would force us to find something which can see and speak, but not believe. I know of no such creatures, although I am suspicious of a few people.

The analysis is, I think, readily extendable at least to such verbs as seem and appear, which would, along with the seem-like sense of look, occur with more general cognitive perception verbs such as, perhaps sense or perceive.

Whether the lexical cognitive verbs are actually inserted and replaced by the lexical Flip verbs is a question I have not considered, but my guess is that they are not.

The terms are not to be taken too seriously.

See section 3.1.1.2.

This is true, according to Lindholm (1969) only of the believe so sense of believe.

The assumption, of course, that (4.47) and (4.48) will mean the same as (4.45) and (4.46), respectively, is, of course, fraught with difficulty, since it appears that the application of the rules required to derive the surface forms (4.45) and (4.46) may well involve slight differences in meaning, as has been noted, for example, in the application of Richard earlier, as well as Raising and tough-movement. It isn’t obvious to me, however, how else to investigate the question of whether Neg-transportation applies to CAUSE.

See footnote 26 and section 3.1.1.2 for discussion of the significance here of virtually here.

Another fact which baffles me is the following. In attempting to apply the tag-question test for Neg-transportation to examples like (4.49) and (4.50), I discovered that one cannot, apparently, apply both Richard and tag-question formation to sentences which have overt
Experiencers, as in (i). If Richard is not applied, one gets reasonably (though not particularly), good sentences such as (ii). If there is no Experiencer, the sentences get much better; as in (iii).

(i) ?*Harry \[ \begin{cases} \text{looks} \\ \text{doesn't look} \end{cases} \] \text{to me like he is} \\
\begin{cases} \text{drunk,} \\ \text{is} \end{cases} \\
\begin{cases} \text{isn't} \\ \text{he?} \end{cases} \\
(ii) ?It \begin{cases} \text{looks} \\ \text{doesn't look} \end{cases} \text{to me like Harry is} \\
\begin{cases} \text{drunk,} \\ \text{is} \end{cases} \\
\begin{cases} \text{isn't} \\ \text{he?} \end{cases} \\
(iii) Harry \begin{cases} \text{looks} \\ \text{doesn't look} \end{cases} \text{like he is} \\
\begin{cases} \text{drunk} \\ \text{isn't} \end{cases} \\
\begin{cases} \text{? isn't} \\ \text{he?} \end{cases} \\
\begin{cases} \text{does,} \\ \text{? is} \end{cases} \\

In section 4.3.3, I talk about some other things I don't understand about Experiencers.

29 We must, however, reject Lindholm's chain that there is only a think so sense of think, since (ia) seems perfectly O.K., whereas (ib) is not.

(i) Harry looked drunk to me, but I didn't think \begin{cases} \text{(a) he was} \\ \text{(b) *so} \end{cases} .

Clearly there is more to be done. It is interesting to note the fact that primary (perhaps even contrastive) stress is required on was. It also seems likely that there are more than just two senses of believe and think.

30 See section 4.0 for the terms tlikes and likes.

31 Interestingly, there are several adjectives, such as familiar, beautiful, ugly, etc. which appear only to allow the specific-sensory modality reading. Of these, at least beautiful and ugly appear to block the more general
reading because they are, in their primary sense, already sense-specific. The familiar example was noticed by David Collins and passed on to me by Larry Martin via Susan Prather.

I note, in addition, the fact (also noticed by Barbara Partee) that tag-question properties, such as those discussed in section 3.1.1.2.4, change in the absence of overt Experiencers. Namely, with overt Experiencers, the tag is formed on the like-complement S, whereas without overt Experiencers, they are formed on the main clause, e.g.

(i) It looks to me like the Yankees will win,
    \[
    \begin{cases}
    (a) \text{won't they} \\
    (b) \text{*doesn't it}
    \end{cases}
    
    ?
\]

(ii) It looks like the Yankees will win,
    \[
    \begin{cases}
    (a) \text{*won't they} \\
    (b) \text{doesn't it}
    \end{cases}
    
    ?
\]

This suggests, however, as Partee has pointed out to me, that sentences such as (ii) do not have underlying (later deleted) first-person Experiencers.

The term constant deletion is, I believe due to Grinder (1971a, b). Postal (1970d) proposes a constant-deletion source for (4.65), (4.67), (4.69), (4.71) and others. The constant-deletion approach to Agentless passives is due to Lees (1960). Alternatives such as empty underlying nodes might well also be proposed to handle these facts, but the existence of such alternatives, at least at the level of specificity currently reached, would appear not to affect the current discussion. Another alternative would be to claim that Flip sentences without Experiencers are in some sense "absolute claims" and it is only in sentences with Experiencers that these claims are relativized to individuals.

Actually, given that Flip physical perception verbs, as verbs of belief in general, exhibit referential opacity phenomena (cf. Partee, 1971b and references therein), sentence (4.73) probably has at least four possible readings. The complementizer/similarity predicate distinction to be
discussed in sections 4.3.5.1 and 4.3.5.2, and the opacity distinction should yield four readings when the distinctions interact.

35 For those not convinced of the complementizer/similarity predicate ambiguity of (4.73), I offer the following evidence, based on G. Lakoff's (1970g) do so ambiguity test.

(i) Ronald looks like a turtle to me and so does Duke.

For me, and for several people who I actively tried to get to disagree with me, (i) cannot mean that Ronald looks like he is a turtle and Duke merely resembles one, or vice-versa. The only possible readings are that either they both look like they are turtles or they both resemble turtles.

36 Some of Postal's criteria are omitted here because I find some of them relatively unconvincing and others too complex to justify including them for present purposes.

37 If one conceives of grammar in terms of a "Natural Logic," as in Lakoff (1972), it is not clear to me how to reconcile conditions A and B in a non-ad hoc way, since if similarity predicates are logically reflexive, then their arguments must be allowed to be coreferential. One could, I suppose, claim that A was merely a reflection of B, however, in that if similarity predicates are known to be logically reflexive, there would never be any point in uttering sentences that expressed that fact. I find such a suggestion less than satisfactory, however, even though it does appear that for the most part only mathematicians and logicians violate A.

38 I assume that Postal's definition of Generics, whatever it is, excludes expressions such as the object of (i).

(i) That Chevrolet resembles Volkswagens I have known.

177
There is, of course, an idiomatic sense of (4.82), namely to look the way one usually does, but I take this not to be a case of coreferentiality in the intended sense. It is rather like the meaning of (i):

\begin{equation}
(i) \text{John looks like his } \begin{cases} \text{old} \\ \text{usual} \end{cases} \text{self (today) to me.}
\end{equation}

Such examples are constructible for all of Postal's cases.

There is something funny going on in the second clause of (4.83). Presumably because of the cognitive presupposition of look, although possibly because of the fact that English doesn't normally allow indefinite NP surface subjects, the a turtle of the second clause appears to have to be a specific turtle, so the symmetry property is interfered with.

I hereby present the problem of they and each other in the last clause of (4.84) to whoever is foolhardy enough to take it.

I remind the reader here that I have no explanation for the presence of the like-complementizer anyway, other than the speculation presented in section 4.3.5.1.


I don't really believe that $V_3$ of (4.37') is present in logical form (cf. G. Lakoff, 1966, 1970a), but its presence or absence in logical form appears not to be crucial.

Cf. McCawley (In Press).

Cf. Neubauer (1972), p. 289, who doesn't argue that this assumption is correct, but who gives justification for it on the assumption that transformations are fully
ordered (he doesn't, however, appear to believe that they are fully ordered).

47 She does not, however, propose a Predicate-Raising analysis.
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BIBLIOGRAPHY


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194