Linguistic Society of America

FORTY-SIXTH ANNUAL MEETING
DECEMBER 28-30, 1971
ST. LOUIS, MISSOURI

Meeting Handbook
INTRODUCTORY NOTE

This Handbook has been prepared to serve as a guide to those attending the Forty-Sixth Annual Meeting of the Linguistic Society of America. It is also intended as a permanent record of the papers presented at the meeting.

The Handbook consists of the official program of the meeting and the abstracts, as submitted, of the papers scheduled for delivery. Some of the abstracts are accompanied by handouts.

The abstracts are arranged in the order of the program. An alphabetical index of authors and their addresses appears on page 165.

The idea for the LSA Meeting Handbook was suggested by the Center for Applied Linguistics in 1964, and the first Handbook was prepared for the winter 1965 LSA Meeting in Chicago. The Center subsequently prepared and published the Handbooks for the 1966, 1967 and 1968 meetings. In 1969 the Handbook became an official publication of the Linguistic Society of America, although the Center still assists in its preparation.

Allene Guss Grognet, editor
Washington, D.C.
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<td>Section One</td>
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<td><strong>THIRD SESSION: Symposium organized by the Committee on Linguistics and the Public Interest</strong></td>
<td>(no abstracts)</td>
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<td>Section One</td>
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<td>Section Two</td>
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1971 ANNUAL MEETING OF THE LINGUISTIC SOCIETY OF AMERICA

Chase-Park Plaza Hotel, St. Louis, Missouri
December 28-30, 1971


REGISTRATION, Chase Lounge
Registration is $5.00 and includes the Meeting Handbook. The Registration Desk will be open from 7:00 p.m. to 9:00 p.m. on Monday, from 8:00 a.m. to 4:00 p.m. on Tuesday and Wednesday, and from 8:00 a.m. to Noon on Thursday.

LUNCHEONS, Starlight Roof
Tickets for the luncheons must be purchased in advance from the Luncheon Tickets Counter in the Registration Area.

Tickets for the Special Interest Groups Luncheon, to be held Tuesday, are $5.00 and may be purchased until 4:00 p.m. Monday. If you have not already done so, you may sign up for a group at the Luncheon Tickets Counter.

Tickets for the Presidential Buffet Luncheon, to be held Wednesday, are $4.00 and may be purchased until 4:00 p.m. Tuesday.

LSA BOOK EXHIBIT, Chase Lounge
The Book Exhibits will be open from 8:00 a.m. to 6:00 p.m. on Tuesday and Wednesday, and from 8:00 a.m. to 2:00 p.m. on Thursday. See the last page of this Handbook for a list of exhibitors.

LSA MEETING PLACEMENT CENTER, Lido Room
The Placement Center will be open from 11:30 a.m. to 2:30 p.m. and from 5:00 p.m. to 8:00 p.m. on Tuesday and Wednesday; from 11:30 a.m. to 2:30 p.m. on Thursday. If it appears necessary, these hours will be extended.

LSA DAY CARE CENTER, Lucas Room
The Day Care Center will be open from 8:45 a.m. to 10:30 p.m. on Tuesday and Wednesday, and from 8:45 a.m. to 6:15 p.m. on Thursday. The charge is 50¢ per child per hour.
# Program of the 1971 Annual Meeting of the Linguistic Society of America

**Chase-Park Plaza Hotel, St. Louis, Missouri**  
**December 28-30, 1971**

**TUESDAY, DECEMBER 28**

## FIRST SESSION

### Section One, Khorassan Room A  
Chairman: Charles J. Fillmore

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker and Title</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:00</td>
<td>GABERELL and ANGELIKI MALIKOUTI-DRACHMAN (Ohio State): Language acquisition in Greece: Some preliminary findings.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>9:30</td>
<td>M. E. SOLBERG (Cornell): The development of sound in Quechua.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>10:00</td>
<td>CAROLYN KESSLER (St. Mary-of-the-Woods): Contrasts in the acquisition of syntax in bilingual children.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>10:30</td>
<td>PAULA A. TREICHLER (Urbana, Illinois): Form and function in the tense usage of retarded children.</td>
<td>Khorassan Room A</td>
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<tr>
<td>11:00</td>
<td>MARIA-LUISA RIVERO (Ottawa): Scholastic views on scope.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>11:30</td>
<td>CHARLES EHLM (California, Berkeley): More forgotten phoneticians.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>12:00</td>
<td>IRENE R. FAIRLEY (Long Island): e.e. cummings' poetic dislocations of adjectival and adverbial.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>2:00</td>
<td>CHARLES EHLM (California, Berkeley): More forgotten phoneticians.</td>
<td>Khorassan Room A</td>
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<tr>
<td>2:30</td>
<td>IRENE R. FAIRLEY (Long Island): e.e. cummings' poetic dislocations of adjectival and adverbial.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>3:00</td>
<td>JAMES C. STALKER (Michigan State): Poetic analysis and the form of grammatical theory.</td>
<td>Khorassan Room A</td>
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<tr>
<td>3:30</td>
<td>G. THOMAS FAIRCLOUGH (Midwestern) and ROY E. VIVIAN (Kansas State): The intersection of classical rhetoric and tagmemic discourse analysis.</td>
<td>Khorassan Room A</td>
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## SECOND SESSION

### Section One, Khorassan Room A  
Chairman: W. F. Lehmann

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker and Title</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:30</td>
<td>HARVEY ROSENBAUM (Texas, Austin): Valley Zapotec: Identical rule for both WH question movement and relativized constituent movement.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>10:00</td>
<td>W. P. LEHMANN (Texas, Austin): Why are OV languages agglutinative?</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>11:00</td>
<td>BENJAMIN K. T'SOU (California, San Diego): Reduplication and reduction in Loloish question derivation.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>11:30</td>
<td>ROBERT UNDERHILL (Harvard): Remarks on possessives.</td>
<td>Khorassan Room A</td>
</tr>
<tr>
<td>12:00</td>
<td>JOHN ROBERT ROSS (Language Research Foundation and MIT): Primacy.</td>
<td>Khorassan Room A</td>
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</tbody>
</table>

### Section Two, Chase Club

<table>
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<tr>
<th>Time</th>
<th>Speaker and Title</th>
<th>Location</th>
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<tbody>
<tr>
<td>12:00</td>
<td>ROBERT UNDERHILL (Harvard): Remarks on possessives.</td>
<td>Chase Club</td>
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<td>1:15</td>
<td>JAMES H-Y. TAI (Southern Illinois, Carbondale): A global constraint on adverbial placement in Mandarin Chinese.</td>
<td>Chase Club</td>
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## NOTE

The Tutorial Section on Logic and Language, originally announced for this time period, has unfortunately been cancelled; it may be rescheduled for a future meeting.

Other activities scheduled for this period, if any, are posted at the Message Center in the Registration Area.

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5:15 **WOMEN'S CAUCUS**, Regency Room

8:00 **THIRD SESSION**, Symposium organized by the Committee on Linguistics and the Public Interest, Khorassan Room C  
Chairman: Bruce Fraser

- RICHARD TUCKER (McGill): Bilingual education - Attitudes towards language.
- TERRY KLOKEID (MIT): Training American Indians to be linguists.
- Third speaker and topic to be announced.

10:00 **BEER PARTY**, Zodiac Roof
**FOURTH SESSION**

<table>
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<tr>
<th>Time</th>
<th>Session One, Khorassan Room A</th>
<th>Session Two, Chase Club</th>
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</thead>
<tbody>
<tr>
<td>9:00</td>
<td>CHARLOTTE WEBB (Texas, Austin): Metathesis as a synchronic rule.</td>
<td>CHARLES R. STRATTON (Idaho): The pathological case.</td>
</tr>
<tr>
<td>10:00</td>
<td>JOHN J. GHAIA (California, Berkeley): How to represent natural sound patterns.</td>
<td>JOHN G. FOUGHT (Pennsylvania): An interactional analysis of Sayula Popoluca personal prefixes.</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
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</tbody>
</table>

**12:45 SPECIAL INTEREST GROUPS LUNCHEON, Starlight Roof**

**FIFTH SESSION**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session One, Khorassan Room A</th>
<th>Session Two, Chase Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:30</td>
<td>ALAN BELL (Colorado): Against the distributional syllable.</td>
<td>EUGENE GREEN (Boston): Structure and process in proverb interpretation.</td>
</tr>
<tr>
<td>4:00</td>
<td>FRANK HENY (Massachusetts, Amherst): Pitch-accent in Shona and other Bantu languages.</td>
<td>EUGENE GREEN (Boston): Structure and process in proverb interpretation.</td>
</tr>
<tr>
<td>5:00</td>
<td>MASAYOSHI SHIBATANI (California, Berkeley): The phonological representations of English inflectional endings.</td>
<td>E.C.T. WALKER (MIT): Performance constraints on sentence production.</td>
</tr>
<tr>
<td>5:30</td>
<td>VALDIS J. ZEPS (Wisconsin, Madison) and MORRIS HALLE (MIT): A sketch of the accentual system of Lithuanian.</td>
<td>EARL M. HERRICK (Western Michigan): An algorithm for transduction of utterances.</td>
</tr>
</tbody>
</table>

**8:00 SIXTH SESSION, Business Meeting, Chase Club**

**9:30 PAY-BAR COCKTAIL PARTY, Zodiac Roof**
**SEVENTH SESSION**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>9:00</td>
<td>ROCKY V. MIANDA (Minnesota): How do rules get added in the middle of grammars?</td>
</tr>
<tr>
<td>9:30</td>
<td>ANTHONY J. NARO (Chicago): Syntactic change as a surface phenomenon.</td>
</tr>
<tr>
<td>10:00</td>
<td>LYN KYPRIOTAKI (Temple): &quot;You know what?&quot; A discussion of deletions in questions.</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
</tr>
<tr>
<td>11:00</td>
<td>EDWIN D. FLOYD (Pittsburgh): Analogic retention of intervocalic -s- in the Greek future.</td>
</tr>
<tr>
<td>12:00</td>
<td>JOHN A. REA (Kentucky): Tra la perduta gente: French /u/ revisited.</td>
</tr>
</tbody>
</table>

**BREAK**

**12:45** PRESIDENTIAL BUFFET LUNCHEON, Starlight Roof

After the luncheon, Eric P. Hamp, University of Chicago, will present the Presidential Address:

"Reconstruction, Inheritance, Diffusion and Change"

**EIGHTH SESSION**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:30</td>
<td>GERALD A. SANDERS (Minnesota): Some evidence for the hypothesis of simplex-feature representation.</td>
</tr>
<tr>
<td>3:00</td>
<td>DAVID W. MICALPIN (Wisconsin, Madison): Trinary features in generative phonology.</td>
</tr>
<tr>
<td>3:30</td>
<td>BREAK</td>
</tr>
<tr>
<td>4:00</td>
<td>LYLE CAMPBELL (Missouri): Phonological features: Problems and proposals.</td>
</tr>
<tr>
<td>4:30</td>
<td>DANIEL A. DIVNSEN (Texas, Austin): Constraints on derivational history in phonology.</td>
</tr>
<tr>
<td>5:00</td>
<td>JAMES E. HOARD (British Columbia) and CLARENCE SLOAT (Oregon): The integration of markedness into phonology.</td>
</tr>
</tbody>
</table>
The data upon which many important recent hypotheses concerning first-language acquisition are based have been drawn predominantly from the utterances of English-speaking children. This paper constitutes a preliminary report on a project which is part of the contemporary trend to broaden as well as refine our understanding of language acquisition by adding data and insights deriving from the study of other languages, in the present case, from Greek.

Observations were made by the authors on a variety of child-language phenomena in Greece during the summer of 1971. The subjects were children aged 22 months to 10 years from monolingual Greek-speaking families living in Attica, mainly Athens.

We shall first offer some tentative remarks on the impact of certain global features of Greek phonology on possible developmental strategies to be attested in the data. By contrast, we report in some detail on the phonology and syntax of individual subjects, comparing our results with those of researchers working on other languages such as English and Russian.

In phonology, we comment especially on contrasts between spontaneous and imitated utterances, as well as the problem of the non-homologous production of auditorily identical segments. In syntax, likewise, we comment especially on the expression of gender, case and concord, and the problem of Greek word-order.
Myrl E. Solberg, Cornell University

THE DEVELOPMENT OF SOUND IN QUECHUA

This report has two purposes: to describe (1) a simple method for assessing relative development of sound units, and (2) the results obtained when the method is applied to longitudinal Quechua data. We test Roman Jakobson's hypotheses that marked phonemes are later acquisitions than their unmarked counterparts, and that differentiation occurs through contrast between units differing on a minimum number of features.

Subjects. The larger study included nine monolingual Quechua speaking children, whose spontaneous speech in the home was tape recorded over periods ranging from one to twenty-two months. The development of the oldest child is described in greatest detail here, but additional subjects are included in portions of the analysis:

<table>
<thead>
<tr>
<th>child</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>months/pts.</td>
<td>22/pts.</td>
<td>8/3pts.</td>
<td>13/3pts.</td>
<td>6/3pts.</td>
</tr>
<tr>
<td>approx. # utterances</td>
<td>4500</td>
<td>3000</td>
<td>1500</td>
<td>2800</td>
</tr>
</tbody>
</table>

The general findings described are consistent with data from the remaining children as well.

Method. For all transcripts, each non-vowel* was scored as follows:

1. no entry -- indicates unit neither used nor substituted for,
2. minus (-) --- variants of the unit are found,
3. plus minus (+ -) --- unit correctly used and in variant form,
4. plus only (+) --- unit never in variant form, may substitute for other units.

Roman Jakobson has suggested that marked phonemes will be later acquisitions than unmarked. The results which appear in Table B indicate that this is the case in Quechua. Confirmation of the hypothesis is an especially strong one, since fully one-half of the Quechua units are marked. Moreover it is possible to order two sets of marked units. Those marked [+ checked] are uniformly [+ status] later than the corresponding stop marked [+ tense]. The ordering is characteristic of all transcriptions examined to date.

A second feature of the development of stops in sample A may be idiosyncratic. There is a suggestion that the order of development of the simple stops which Jakobson outlined in 1943 may be recapitulated for the aspirated and glottalized series: /p'/, {t'/, k'/, q'/, /}, and /p/ / {t/}, {k/}, {q/}. It is interesting to note that the doubly marked units (/q/), (/q'), (/k'), and (/k') are less advanced in the developmental sequence (no entry, -, +, +) at any time than are the singly marked units.

To evaluate the minimum feature difference rule for contrast, we used a conventional distinctive feature matrix and analyzed the variants produced by all four children. (Table C)

<table>
<thead>
<tr>
<th>Number of feature differences</th>
<th>1</th>
<th>2</th>
<th>3*</th>
<th>Tot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent variants</td>
<td>18</td>
<td>3</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>All variants</td>
<td>23</td>
<td>9</td>
<td>5</td>
<td>37</td>
</tr>
</tbody>
</table>

*The three Quechua vowels were never substituted for. The small number of units entered in the upper right half of the matrix tells us that nonmutuality of substitution is the rule. This plus the fact that aspirated units develop earlier than glottalized (while the latter would appear to be perceptually more salient), and the occurrence of the /B/ variant (Kalpa 2:1, 4:2) --- not a Quechua unit, suggest that development cannot be explained exclusively in terms of detection of features in the acoustic array.
### TABLE A

A DISTINCTIVE FEATURE MATRIX OF QUECHUA

<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>p'</th>
<th>b*</th>
<th>t</th>
<th>t'</th>
<th>d*</th>
<th>q</th>
<th>k</th>
<th>k'</th>
<th>g*</th>
<th>g'</th>
<th>q'</th>
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<th>m</th>
<th>n</th>
<th>(\breve{\theta} )</th>
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<tbody>
<tr>
<td>vocalic</td>
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\(p''\) \(t''\) \(k''\) \(q''\) correspond to \(p^h\) etc.
\(p'\) \(t'\) \(k'\) \(q'\) correspond to \(p^f\) etc.
Starred items (all voiced stops) appear only in Spanish loans

**SOURCE:** Abromoski (1970)
FEATURE CONTRASTS OF VARIANTS

Quechua Variants:

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Numbers indicate number of feature differences between X and variant.  
Heavy circle=most frequent variant  
Light circle=less frequent variant

Carolyn Kessler, St. Mary-of-the-Woods College

CONTRASTS IN THE ACQUISITION OF SYNTAX IN BILINGUAL CHILDREN

Based on the theory that similarities between languages are traceable to deep structure identities and that differences derive from language-specific realization rules, an investigation is made of the acquisition of certain syntactic structures in bilingual children. The purpose of this paper is to present evidence that structures common to two languages are acquired at approximately the same rate and in the same sequence by bilingual children. For structures manifesting differences between the two languages, the linguistically more complex structure is the later acquisition.

Twelve bilingual children, age 6 to 8, living in the Italo-American community of South Philadelphia who were selected for this study. The investigator examined linguistic competence in both Italian and English through a battery of comprehension tests investigating a wide range of surface structures. A statistical analysis provides the basis for interpreting general patterns of acquisitions; a case grammar model of transformational theory (Fillmore 1968, 1971) is the framework for analyzing the specific sequencing of structural acquisitions.

An example of the type of surface structures investigated is the direct/indirect object relationship illustrated in the pair: the girl shows the cat to the dog/the girl shows the dog to the cat. Underlying case relations are indicated in diagram 1.

(1)

Realization rules operative for both languages order the cases and provide for preposition-insertion. The final surface structure realized by Italian and English is given in 2.

(2)
An English-specific variant of this structure is found in the pair: the girl shows the dog the cat/the girl shows the cat the dog, a result of a rank shift in the hierarchy of cases: V-O-G ~ V-G-O. Experimental evidence indicates that realization rules common to two languages are incorporated into the child's grammar before language-specific rules.

Very few empirical studies have investigated the simultaneous acquisition of two languages in children. The investigator knows of none that have analyzed late acquisitions in terms of contemporary linguistic theory. Results of this investigation have implications for a theory of language and language universals and give insights into the nature of bilingualism.

My paper is based on an experimental study of tense usage in retarded children which was primarily designed to establish comprehension and production of past, present progressive, and future tense forms. Though my strategies to modify deviant verbal behavior were successful, the paper is more concerned with the particular characteristics of tense usage in these children and the general study of language deviance. My own views are that formal deviance does not define deviant language, that form must be related to function in the social context where verbal interactions occur, and that when we commit ourselves seriously to this approach, any meaningful criterion for "deviance" dissolves. What emerges most clearly from detailed study is not that "deviant language" is exotically different from normal language but that it is so much the same.

The findings which suggest this position are based on data from classroom observations and from individual teaching sessions; the children ranged in age from 6-16, in IQ from 41 to 69, and were officially described as having moderate to severe language disorders.

Findings are discussed in relation to my own conclusions, to studies of normal language acquisition and to reports of deviant language in retarded children (which are few). The following description briefly illustrates the nature of my observations and conclusions: (1) A child's formal output had little relation to his effectiveness in social communication (thus the fairly sophisticated response "The ceilings are painted" was inappropriate in the context of his teacher's question "Who else did you see?" while another child's response "Haircut" to "What did you do last weekend?" was an abbreviated but readily acceptable instance of functional tense usage. (2) Verbal performance of these children—in the same class and with roughly similar IQs—varied enormously in form, function, production, and comprehension; performance often varied in relation to features of the immediate setting, including verbal context. One child, for example, responded as follows to three similar (but not identical) questions from her teacher:
What did you do this weekend?
Stayed home

What did you do at home?
See Mommy

What else did you do?
Yellow dress

(3) The example also illustrates that the occurrence of a formally appropriate tense marker (-ed) does not guarantee its existence as an independently functional unit; similarly, functional tense marking may occur in the absence of standard forms (one child consistently produced "just now," "already," and "then" with the base verb instead of the respective standard markers -ing, -ed, and going to). (4) Continuous records of verbal interactions during teaching provided detailed information about the verbal environment in which given responses were acquired; though learning a functionally appropriate past tense marker in a 10-minute session is not comparable to a natural setting, it permits tracing the entering response ("eat bread") through various permutations ("did ate" — "did (pause) ate" — "ate-ing" — "ate bread"). (5) Attempts to modify previous responses typically caused fragmentation and recombination; most children entered teaching with the unmarked verb ("eat bread") as a well-established functional form; in the process of acquiring eating, going to eat, and ate as differentiated units, their responses included "going eating," "ate-ing," "did ate," "going bread," "to going eat," and so on. Though such responses were formally deviant, they were closer behaviorally to appropriate tense usage than the earlier invariant form.
1. Tell me what he's doing going to eat carrots
2. Tell me what he's going to do eating carrots
3. Tell me what he's going to do eating carrots
4. PROMPT: going --
5. PROMPT: turkey...
... PIC: EATING WATERMELON/GOING TO EAT WATERMELON
6. Tell me what he's doing going to eat eating turkey
7. Tell me what he's doing eating turkey
8. Tell me what he's doing eating turkey
... PIC: GOING TO EAT SALAD/EATING SOUP
9. Tell me what he's going to do going to eat eating lettuce
10. Tell me what he's doing going to eat eating chicken
11. Tell me what he's eating eating chicken
12. Tell me what he's going to eat eating chicken
C. Della, Session 11
1. Tell me what he is doing eating carrots
2. Tell me what he is doing eating carrots
3. Tell me what he is doing eating carrots
4. Tell me what he is eating eating carrots
5. Tell me what he is doing eating carrots
6. Tell me what he is doing eating carrots
... PIC: eating cake
7. Tell me what he is doing eating chicken
8. Tell me what he is doing eating chicken
9. Tell me what he is doing eating chicken
... PIC: eating cake
10. Tell me what he is doing eating chicken
11. Tell me what he is eating eating chicken
12. Tell me what he is going to eat eating chicken
D. Della, ate responses Sessions 12 and 14
1. Tell me what he ate [SILENT]
2. Tell me what he ate [SILENT]
3. Tell me what he ate [SILENT]
4. Tell me what he ate [SILENT]
5. Tell me what he ate [SILENT]
6. Tell me what he ate [SILENT]
7. Tell me what he did [ATE BREAD]
8. PROMPT: ate...
9. Tell me what he did [ATE BREAD]
10. PROMPT: silent [SILENT]
11. Tell me what he did [ATE BREAD]
12. Tell me what he did [ATE BREAD]
13. Tell me what he did [ATE BREAD]
14. Tell me what he did [ATE BREAD]
15. Tell me what he did [ATE BREAD]
16. Tell me what he did [ATE BREAD]
17. Tell me what he did [ATE BREAD]
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25. Tell me what he did [ATE BREAD]
26. Tell me what he did [ATE BREAD]
27. Tell me what he did [ATE BREAD]
...
It is generally thought that there are three principle processes by which natural languages derive simple Yes-or-No questions (YNQ's) from their corresponding declarative sentences:

1. By a change of sentence intonation
2. By the inversion of subject and verb (or the first element of VP)
3. By the addition of a fixed morpheme.

(1) is generally thought to be universal to all natural languages and there are languages that employ (1) exclusively for YNQ's. (2) is the usual mode of interrogation in the Indo-European languages, while (3) is common to languages in Asia. However, there are members of the Loloish branch of the Tibeto-Burman language family which employ a unique process. Data from Sani and Nasu, which are SOV languages, have shown that in the more traditional framework Loloish languages derive YNQ's from the corresponding declarative sentence by the reduplication of the last (verbal) element in the sentence.

In the current literature question formation in general begins with the coordination of two disjuncts: a positive sentence and its negated counterpart. Then by reduction processes, redundant elements of the second disjunct are deleted so as to arrive at the simpler surface forms of YNQ's. It is generally assumed that such reduction processes follow Conjunction Reduction, which includes Gapping phenomenon. However, an examination of Loloish questions and simple YNQ's in other languages shows that Conjunction Reduction as usually formulated cannot account for Loloish questions or questions in other languages. This paper examines these reduction processes used in simple YNQ derivations and proposes a different process, Redundancy Reduction, which will account for not only YNQ derivation in general but will also account for the unique Loloish case. Other syntactic evidence will be brought forward to justify the coexistence of both Redundancy Reduction and Conjunction Reduction in natural language.
Harvey Rosenbaum, University of Texas at Austin

VALLEY ZAPOTEC: IDENTICAL RULE FOR BOTH WH QUESTION MOVEMENT AND RELATIVIZED CONSTITUENT MOVEMENT

Valley Zapotec contains two future aspects. The future aspect that refers to events that will definitely happen (the determined future) cannot occur with certain negative, question and relative clause structures. Of particular interest for linguistic theory is the parallelism found between questions and relative clauses. Both WH questions and relative clauses are unacceptable if the S that immediately dominates the question word or the relative clause marker also immediately dominates a verb in the determined future. This condition holds regardless of where the WH marker or relative clause marker was originally introduced in deep structure. But note that yes/no questions marked by either an initial particle or by intonation are acceptable with this aspect. Present transformational theory allows for at least two types of explanations for this phenomenon. A specific restriction in the S.D. of the movement rules involved or a general constraint on the movement of constituents in sentences containing the determined future aspect. However the absence of this movement restriction on other types of structures containing this aspect strongly argues for the former explanation. Moreover, the fact that there are identical restrictions on the movement of main constituents in both WH questions and relative clauses suggests that the two markers involved share similar features in their deep structure form, though (with one possible exception) there is no overlap in morphological shape. Taken together, these facts are evidence that the same rule is responsible for both WH question movement and the movement of the relativized constituent. In view of the current division of opinion about the status of such a rule for English, these conclusions from Zapotec have implications for general linguistic theory.

W.P. Lehmann, University of Texas at Austin

WHY ARE OV LANGUAGES AGGLUTINATIVE?

When we examine the morphological structure of languages which consistently have objects after verbs in simple declarative sentences, we find that many such languages are agglutinative. Examples are Japanese, Turkish and Quechua. The paper proposes to explain the interrelationships between OV languages and agglutinative morphology on the basis of a fundamental movement rule. By this rule syntactic elements which are modifiers are placed on the converse side of the elements O and V. For example, in consistent VO languages, relative constructions, descriptive, adjectives and possessives follow O; in OV languages they precede O. If Modalities are viewed as verbal modifiers of the Proposition, in accordance with the rule cited above they should be placed after V and before # in OV languages. This placement leads to agglutinative morphology.

As an example we may cite Japanese verbal constructions like okirarenaikara 'Is he not able to get up?' The order of the Modality markers is: (V) Potential Neg Q. Placement of the markers is made to the right of the verb, as in VO languages it is made to the left. Examples may be given for other OV languages.

Assumption of the rule has various implications. It supports close relationship between syntax and morphology. It provides further means for distinguishing between Modality markers and markers for congruence—which are not governed by the rule. It supports recent suggestions that Tense must also be classified separately, possibly from adverbial elements. It leads to an understanding of the morphological structure of VO languages, particularly the VSO subtype; for if the rule is strictly applied, Modality markers would be preposed to verbs only in VSO languages, as indeed they are. It provides further insights into the developments of individual languages, such as the shift from an OV structure in early PIE to a VO in many of the dialects.

Finally, the paper provides further evidence on the usefulness of recent typological and syntactic theory for providing insights into the structure of languages and their changes.
Why are OV Languages Agglutinative?

1. Placement rules:

1.1 Nominal modifiers, e.g. relative constructions:

\[ \text{OV' languages} \quad \text{VO languages} \]

1.2 Sentence modifiers, e.g. T-markers or Mod-markers:

\[ \text{e.g. Japanese yomu (he) reads} \]
\[ \text{yomu ka does (he) read?} \]
\[ \text{\#Q...V...} \]

\[ \text{Japanese yoma-nai ka does (he) not read?} \]

\[ \text{\#Q Neg...V...} \]

\[ \text{Japanese yoma-re-nai can (he) not read} \]

\[ \text{\#Q Pot Neg (Q)} \]

\[ \text{Japanese yomme-dij-niz mi did you not enter?} \]

\[ 5 \quad 4 \quad 3 \quad 2 \quad 1 \]

\[ 1 = \text{Q} \quad 2 = \text{you} \quad 3 = \text{Past} \quad 4 = \text{Neg} \quad 5 = \text{enter} \]


Munda: OV

\[ \text{Rel N, AN, GN} \]

Agglutinative

Eastern: VO

\[ \text{NA, NG} \]

Isolating

It is remarkable that in many languages there is a formal similarity between ordinary possessive constructions ("John's hat") and gerundive nominal constructions ("John's coming"). We attempt to account for this similarity by arguing that the transformation which creates nominalizations creates a derived structure identical with that of ordinary possessives. Then a "possessive-marking" transformation introduces the formal markers for possessive constructions into all such structures.

The argument proceeds as follows: (1) In an ordinary possessive construction, the possessor is an NP, since it can be expanded to include another possessor ("John's father's hat"), but the possessed is not an NP since it may not contain another possessor ("John's Bill's hat").

(2) Borrowing the formalism suggested by Chomsky, we may represent the structure of a possessive construction as \( \hat{N} [\hat{N}] \), where \( \hat{N} \) is the traditional NP. (3) A nominalization has the structure \( \hat{N} [\hat{N} V] \); the nominalization transformation changes \( V \) to \( \hat{N} \), resulting in the deletion of \( S \). (4) Possessive-marking then operates on structures of the form \( \hat{N} [\hat{N}] \) to insert the appropriate markers.

The analysis is primarily worked out with respect to Turkish, but because several aspects of the analysis are presented as suggestions for a universal theory of possessives, there is attention to English, Thai, and other languages.
PRIMACY

A number of phenomena, both across languages and within the grammar of a single language, suggest that the NP's in a sentence must be ordered so that

(1) across clauses, higher NP's have primacy over lower NP's, and
(2) within a clause, one NP has primacy over another if the first precedes the second in the temporal order.

Some of the facts which suggest the correctness of (2) are the following:

(3) The existence in the grammar of any language of Equi NP Deletion with object controller presupposes the existence of Equi NP Deletion with subject controller, but not conversely.
(4) Similarly, Subject Raising into (derived) object position presupposes the possibility of Subject Raising into (derived) subject position, but not conversely.
(5) Similarly, if some language agrees verbs with objects, then also with subjects, but not conversely.
(6) Similarly, if reflexives in a language can refer to non-subject NP's, then they can refer to subject NP's, but not conversely.
(7) If a language allows non-subjects to be relativized, it will also allow subjects to be, but not conversely.
(8) Also, there are some rules which are unrestricted in subject position but which must have conditions imposed upon them in object position. The reverse appears not to be the case.

One fact which suggests the correctness of (1) is the fact that if a language allows any elements of lower clauses to be moved by a transformation, then it will also allow elements of higher clauses to be. Again, the converse does not obtain.

The implication of the existence of such a hierarchy among the NP's of a sentence for the theory of syntactic change will be discussed.

GLOBAL CONSTRAINT ON ADVERBIAL PLACEMENT IN MANDARIN CHINESE

The purpose of this paper is to propose within the framework of transformational grammar a general principle which will account for some essential aspects of adverbial placement in Mandarin Chinese.

The proposed principle is a global constraint to the effect that if predicate A commands complement predicate B in underlying structure, A must precede B in surface structure.

This principle explains the fact that in Chinese, one class of adverbs can occur between the subject and the main verb and can be preposed to sentence initial position, while the other class of adverbs can only occur after the main verb and are not subject to the preposing. They can be illustrated by (1) and (2) respectively.

(1) a. ta zuotian laile He came yesterday.
   b. zuotian ta laile
   c. *ta laile zuotian

(2) a. ta laide heshi He came timely.
   b. *ta heshi laile
   c. *heshi ta laile

A preverbal adverb is always understood as having the main verb in its scope, while a post-verbal adverb is never understood in this way. It will be shown that this follows from the proposed constraint and the independently motivated assumption that the semantic scope relation is universally characterized by the asymmetrical command relation in underlying structure.

The present treatment can also explain the fact that in Chinese, if adverb X is semantically in the scope of adverb Y, then X is always ordered after Y (as in (3)), and whenever both X-Y and Y-X are possible for a pair of adverbs, it is the case either that there is a contrast of meaning related to differences in scope (as in (4)) or else that there is no sentence in which either of these two adverbs can be understood to be in the scope of the other (as in (5)).
I sometimes saw him last year.

I hit him yesterday intentionally.

I intentionally chose yesterday as the time to hit him.

He is cutting the fish in the kitchen with a knife.

Furthermore, the proposed treatment can explain why the Chinese correspondents of English sentences like "this thing is possible" (zhē jìnsì shì kěnèng de) are grammatical, the Chinese correspondents of sentences like "that John is sick is possible" (John bīng lì shì kěnèng de) are always ungrammatical, the only possible positions for higher predicates like "kěnèng" (possible) being before their lower predicates as in sentences "kěnèng John bīng lì" and "John kěnèng bīng lì". This contrast and a number of other systematic differences between Chinese and English will thus be explained in a very general way by the assumption that Chinese observes the proposed constraint, while English does not.

It will also be shown that the same precedence constraint can be used to account for the placement of auxiliaries, negatives and quantifiers which can also be appropriately derived from underlying predicates in Chinese.

Problems of scope have usually been considered as belonging to the realm of logic and of more interest to philosophers than to linguists. This is probably why some Scholastic views on scope of purely grammatical or linguistic interest have been dismissed as 'syntactic' by logicians (e.g. Bochdński), and they have, at the same time, been ignored in accounts of the development of linguistics.

This study explores the views on the scope of modalities (sense de re and sense de dicto) of such writers as Paul of Venice (Logica Magna), among others. These views are surprisingly similar to those held by generative grammarians today. For instance, Paul of Venice considers that the scope of a modality such as possible depends on its relative position in the chain: when it precedes the proposition, it ranges over the whole sentence (sense de dicto); when it follows the verb, it can only range over terms (sense de re); and when it follows the proposition, its sense can be both de dicto and de re.

It is easy to translate views of this type into current terms: some Schoolmen felt that modalities (together with such syncategorematic words as begin) are assigned scope through rules (e.g. derivational constraints, surface structure interpretation rules) which are sensitive to the late or derived configuration of a string. The scope of modalities depends on their position in shallow or surface structure.
MORE FORGOTTEN PHONETICIANS

The English school of phoneticians, understood by Firth and Abercrombie to consist of three centuries of native work, also finds American members. Known mainly for their other work, Peter Duponceau and John Pickering produced phonetic monographs that reflect an awareness of British predecessors.

Duponceau's concern in "English Phonology; or, An Essay towards an Analysis and Description of the component sounds of the English Language" was to reject discussions of the "powers" of "letters" for what he thought would be a direct analysis of the sounds themselves. Though his essay had little subsequent effect, Duponceau did influence Pickering to write "On the adoption of a uniform Orthography for the Indian Languages of North America," a work which again shows an awareness of previous proposals for the phonetic application of roman alphabets. Furthermore, Pickering was successful in securing European attention.

What emerges from the attempt to link Duponceau and Pickering to "the English school of phonetics" is the discovery of still further examples of, now forgotten, early Anglo-American mutual influence.

E.E. CUMMINGS' POETIC DISLOCATIONS OF ADJECTIVALS AND ADVERBIALS

Cummings tends to blur distinctions between adjectivals and adverbials. For purposes of dislocation and deviance, generally, he treats them as one larger group of modifiers that undergo analogous impermissible adjustments. For both adjectivals and adverbials Cummings disregards serial ordering restrictions; his impermissible preposing of adverbials parallels his violations of ADJ-SHIFT application.

It is significant that many of the dislocations involve manner adverbials, which as a sub-class most closely relate to adjectivals in form and derivation (it has been argued that many manner adverbials are derived from corresponding adjectival complements), and locative adverbials, which derive from a 'be-predication' similar to relative clause formation of adjectivals. Cummings uses adverbials (frequently 'manner') in unmistakably adjectival positions, and we find instances in his poetry of adverbials that have deviantly undergone ADJ-SHIFT after WH+be deletion.

As with his deviation of S-V-O ordering and English word formation Cummings' deviations of adjectival and adverbial modification indicate that he closely follows options already existing in English syntax. For both adjectivals and adverbials Cummings ignores sub-class restrictions—selecting from a class of relatively limited movement and permitting positions optional for other "freer" sub-classes. In the case of ADJ-SHIFT, Cummings' wide range of deviations are suggested by inherent syntactic restrictions—he ignores restrictions and shifts certain modified adjectivals (and may fail to adjust adjectival/adverbial order after the shift) and verbs that dominate a complement; shifts gerundives and past participles that are restricted, thus making regular verbs exceptional; shifts adverbial modifiers after WH+be deletion, but fails to shift unmodified descriptive adjectivals. In all instances, Cummings' syntactic deviations can be 'explained' by reference to analogous processes in standard English, Old English, or Indo-European. His violations nicely illustrate the manner in which a poet creatively adapts the limits of his syntax.
E.E. Cummings' Poetic Dislocations of Adjectivals and Adverbials

Adjectival Violations

1. a) ...this like/ a littlest/ poem a/ ..."mouse" (p. 206)*
   b) a like a/ grey/ rock wandelin// g through/ pasture/ wom// an creature...
     (p. 458)
   c) ...came a huger than fear a// white with madness wind...
     (p. 310)

2. a) n(o)w// the// how/ disappeared cleverly world// is Slapped:with:lightning
     (p.250)
   b) a tear within his stern blue eye,
     upon his firm white lips a smile,
     (p.195)
   c) thin(nonginger/ of lariats lean exproer of horned suddenly crashing things)man spits
     (p.181)

3. a) ...a// white with madness wind...
     (p.310)
   b) a few deleted of texture
     or meaning monuments and dolls
     (p. 186)
   c) am i content should any
     by me carven thing provoke
     your gesture possibly...
     (p. 209)
   d) ...and strewed the black air with writhing alive skies...
     (p. 310)
   e) ...these emerging now/ hills invent the air
     (p. 267)
   f) ...i note how/ fatally toward// twilight
     the a little/ tilted streets spill lazily/ multitudes...
     (p. 248)

4. a) morsel miraculous and meaningless
     (p. 326)
   b) me, whose heart-wholeness overmuch
     Expects of your hair pale,
     (p. 10)

5. a) ...lean exproer of/ horned suddenly crashing things...
     (p. 181)
   b) ...the gay/ great happening illimitably earth
     (p. 464)
   c) a blue woman with sticking out breasts...
     (p. 125)
   d) just by the dirty collar of his/ jacket were two glued uncarefully ears
     (p. 256)
   e) ...any--lifted from the no
     of all nothing--
     human merely being
     (p. 464)
   f) (as that named Fred
     -someBody:hippopotamus,...
     (p. 180)

6. a) and a blue true dream of sky...
     (p. 464)
   b) ...Two pale slippery small eyes/ balanced upon...
     (p. 293)
   c) if i have made,my lady,intricate
     imperfect various things chiefly...
     (p. 219)
   d) i thank You God for most this amazing/ day....
     (p. 464)
   e) lovetree!least the/ rose alive must...
     (#90, 95 Poems, 1950)
   f) obsolete almost that phenomenon
     (p. 434)
Adverbia~l violations

7. a) ...Both very young noisily
who kiss throw silently things
(p. 225)

b) tilted streets spill lazily
multitudes out of final
(p. 248)

c) whose stilling lips murder suddenly me,
(p. 117)

d) ...placing
carefully there a strange
thing and a known thing here)...  
(p. 100)

e) [you]  
touch (now) with a suddenly unsaid//
gesture lightly my eyes?  
(p. 217)

8. a) ...When we grimly go to bed
(p. 114)

b) alone who slightly
always are beyond the reach of death
(p. 257)

c) see/ yes)/ It/ here/ comes
(p. 201)

d) f-e-t-noWheregoingAlways
(p. 268)

e) the snow carefully everywhere descending;
(p. 263)

9. a) whose bodies strong with love
through meadows hugely move.
(p. 10)

b) My strong fingers beneath the snow/
Into strenuous birds shall go
(p. 13)

10. a) and on Death's blade lie many a flower curled,
(p. 154)

b) in your most frail gesture are things which enclose me,
(p. 263)

c) across the harvest whitely peer
empty of surprise/ death's faultless eyes
(p. 10)

d) by the high minded pure young girl/
much kissed, by loving relatives
well fed, and fully photographed
the son of man goes forth to war
(p. 196)

e) somewhere i have never travelled, gladly beyond
any experience, your eyes have their silence:
(p. 263)

f) into the strenuous briefness/ life/
handorgans and April/ darkness, friends/
I charge laughing.  
(p. 54)

11. a) Spring is like a perhaps hand
(p. 100)

b) what bird has perfect fear/ (of suddenly me) like these
(p. 264)

c) if we love each(ahly)/ other...
(p. 262)

d) and possibly i like the thrill/ of under me you so quite new
(p. 129)

e) how myself has been coarse and dull
compared with you, silently who are
and cling/ to my mind always
(p. 216)
This paper will show that the study of syntax in poetry leads to insights into the role of syntax in the grammar of English as well as explanations of the structure of poetry. An analysis of Dylan Thomas' "In the White Giant's Thigh" using current transformational theory suggests that Thomas has constructed a poem in which excessive application of idio-deletion and permutation rules renders deep structure recovery impossible, or at best subject to educated guessing. However, such a view seems simplistic. An alternate explanation is equally possible. If we assume simultaneously operating syntactic and semantic components, we can conclude that Thomas has at points within the poem bypassed or altered portions of the syntactic component and that we have a poem that is the product of the manipulation of both systems.

The clearest example of syntactic irrecoverability in "In the White Giant's Thigh" occurs in lines 29-40.

(p. 180)

(as that named Fred
-someBody:hippopotamus, scratch­ing,one,knee with,its,
friend observes I

pass Mr Tom Larsen twirls among
pale lips the extinct
cigar)at

which

this(once flinger
of lariats lean exroper of
horned suddenly crashing things)man spits
quickly into the very bright spittoon

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* refer to E.E. Cummings, Poems 1923-1954.

James C. Stalker, Michigan State University
POETIC ANALYSIS AND THE FORM OF GRAMMATICAL THEORY

Who once were a bloom of wayside brides in the hawed house
And heard the lewd, wooed field flow to the coming frost,
The scurrying, furred small friars squeal, in the downes
Of day, in the thistle aisles, till the white owl crossed
Their breast, the vaulting does roister, the horned bucks climb
Quick in the wood at love, where a torch of foxes foams,
All birds and beasts of night uproar and chime
And the mole snout blunt under his pilgrimage of domes,

Although portions of the passage are easily analyzed into deep structure representations, an analysis that unites the whole passage into a reasonable deep structure seems unlikely. Just as "Jabberwocky" fills our heads with ideas through clear syntax and obscure semantics, "In the White Giant's Thigh" fills our heads with ideas through recognizable semantics and obscure syntax. Some of the irrecoverable portions are:

what is the head NP of the first relative marker 'who'; what syntactic relationship does "the vaulting does roister" bear to the preceding and
following lines; what is "and the mole snout..." conjoined with?

It is possible, of course, to dismiss this portion of the poem as simply a clear example of violation of strict subcategorization rules. However, an analysis of the syntactic patterning within the complete poem reveals that Thomas is balancing syntactic manipulation with semantic manipulation so that the divergence or convergence of the two systems communicates the intent of the poem, providing further evidence that we might profitably consider the possibility of simultaneous operation of syntactic and semantic components of the grammar.

G. Thomas Fairclough, Midwestern University
Roy E. Vivian, Kansas State College
THE INTERSECTION OF CLASSICAL RHETORIC AND TAGMEMIC DISCOURSE ANALYSIS

Recent formulations of tagmemic discourse and paragraph analysis (Longacre, *Philippine languages*, 1970) are useful in describing the organization of prose argument, especially when applied in conjunction with the descriptive machinery of classical rhetoric (CR). Such a dual analysis is performed on two sermons which enjoy high critical ranking for well-formedness as hortatory discourses: Bourdaloue, *Sur l'aumône*, and Robertson, *The doubt of Thomas*. The results show that tagmemic analysis complements CR importantly by providing more adequate formal characterizations of analogy and the rhetorical question, and by resolving a CR controversy about the status of partition as a discourse-level tagmeme and its recursiveness at lower levels. Similar parallel purposive-formal analyses of other discourse types are proposed, to determine the extent to which tagmemics can augment the power of CR—or vice versa—in the description of narrative or expository discourse.
The status of synchronic metathesis is discussed by Chomsky and Halle in *The Sound Pattern of English*. They claim that "metathesis is a perfectly common phonological process." This is the justification given for their extension of the notational system to permit rules such as the metathesis rule, for their claim that the cost of such a rule is not too great, and for their statement that such mechanisms are readily available to the child as he attempts to construct the grammar of his speech community.

Diachronically metathesis is a fairly common phonological process. As a synchronic process, however, metathesis is uncommon. I shall argue that it should be considered a very costly mechanism which is probably not readily available to the child. Generally, putative synchronic rules of metathesis are found in only the most abstract phonological descriptions where the history of the language is essentially recapitulated. However, even when rules of metathesis can be motivated synchronically, as for example in Hungarian, they appear to be the result of another constraint as well, such as a syllable structure constraint.

This paper will examine in detail the only example of metathesis given in SPE, namely the Kassem problem, and show that Kassem does not have a metathesis rule. The independently motivated Kassem rule of vowel truncation proposed by Chomsky and Halle is defective as stated. When this rule is extended as it must be even within the Chomsky-Halle formulation, it accounts for the forms which are given as evidence for a metathesis rule. An added advantage of doing away with the metathesis rule is that it then becomes unnecessary to establish an underlying segment order for some forms which does not match the surface segment order.
The current phonological literature is overflowing with evidence that the naturalness of commonly observed sound patterns and processes is not adequately accounted for when represented using the traditional distinctive feature notation even with the addition of marking conventions. Much of this difficulty can be avoided by dropping the requirement that the natural representation of natural rules be done using the same format and features supposedly appropriate for representing psychologically real phonological rules. (Granted, due to their long experience with sound systems, linguists intuitively know what natural sound processes are, but it does not follow that all speakers share these intuitions or that natural rules will have a simpler representation in their mental grammar.)

In order to represent or model a given sound pattern in a way such that its expectedness or unexpectedness will be naturally accounted for we must abandon (1) the presentation of the sounds in a two-dimensional feature matrix (which quite effectively obscures the complex interconnectedness between many of the features) and (2) the use of exclusively articulatory or exclusively acoustic-auditory features in specifying the sounds. Instead we must have recourse to physical models of speech in which are incorporated all of the physiological, acoustic, and perceptual parameters (or features) relevant to a given sound pattern. The value of such a physical model of velar activity in explaining, quite naturally, the expectedness of certain sound patterns involving nasals will be demonstrated.

Natural generative (NG) phonology is a theory of phonology which synthesizes into one coherent system the transformational generative phonology of Chomsky and Halle 1968; the implicational universals for segment inventories of Jakobson 1941, extended to segment sequences ("natural rules") in Chomsky and Halle 1968, Postal 1968, Schachter, Schane, Stampe, Vennemann (all 1969); the theory of syllabic phonology of Hooper 1971, Vennemann 1971b; the theory of analogy of Schuchardt 1885, Vennemann 1971a; and the theory of basic and derived phonological features of Ladefoged (Ladefoged 1971, Ladefoged and Vennemann 1971).

All natural phonological processes are catalogued in the theory, with information on the nuclear part and the succession of possible generalizations of each (Schuchardt 1885). Each language employs a large number of these processes unrestricted, e.g. English (but not Hindi, Gujarati) has Murmur → Nat(ural); English (but not German) has Round → Nat. The first step in the phonological description of each language is to determine those universal processes which do not operate unrestricted, and to block them by means of "anti-rules", e.g. Hindi, Gujarati (but not English) have Murmur ≠ Nat; German (but not English) has Round ≠ Nat. The second step is to determine which of the universal processes so blocked apply in a restricted form (restricted by either environmental conditions or ordering, Stampe 1969), e.g. Hindi (but not Gujarati) has Murmur → Nat / [___, V]; German has Round → Nat / [___, C], [___, V, +back]). A classification of, and notation for, natural phonological processes is presented. Most processes can be described as MANNER, PLACE, or SEQUENCE → Nat / X, e.g. vowel nasalization in French is represented as MANNER → Nat / [___, V] [+nasal]; nasal assimilation in Spanish is PLACE → Nat / [___, C, +nasal] [+obstruent]; metathesis in Faroese is SEQUENCE → Nat / [___, (sk)t]tS ($: syllable boundary). Finally, natural phonological processes are recognized as leading to loss, with the goal of creating a grammar of CV words. All other phonological processes, e.g. those motivated by the principle of maximal differentiation (Jakobson}
1941, Schane 1969), are recognized as not phonetically but conceptually motivated and therefore as outside the domain of natural phonological rules.

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Matthew Chen, University of California, San Diego

ON THE FORMAL EXPRESSION OF NATURAL RULES IN PHONOLOGY

The realization of the failure of simplicity metric as an evaluatory measure of phonological descriptions has prompted a series of discussions centered around the notion of markedness. The author will argue that both simplicity metric and markedness theory fail to reflect the 'naturalness' of phonological processes and will propose a descriptive model that will mirror more accurately the plausibility of phonological rules.

Specifically: (i) Simplicity criterion presupposes that the optimal or the most natural phonological processes involve 'natural classes'. There is evidence that certain processes typically apply to sound units that constitute a 'natural class' not in Halle's sense, but in terms of physio-acoustic parameters. (ii) Marking conventions are, strictly speaking, pre-phonological and can play a role in the evaluation of phonological rules only when they function as 'linking rules'. It is obvious that certain phonological rules change only one feature, and consequently the formal relation of 'linkage' cannot obtain. In such cases marking conventions cannot function as linking rules. Subsequent attempts to extend markedness theory (by Postal, Schachter, Stampe, among others) entail serious problems. (iii) The author proposes to state phonological processes in terms of a finite set of 'metarules' each attached with universal constraints. These metarules and universal constraints define the outer limits of 'natural' human behavior in its phonological aspect.
Larry Nessly, University of Michigan  
SIMPLICITY AND EXPLANATORY ADEQUACY IN SOUTHERN PAIUTE

Current phonological theory evaluates a grammar according to a simplicity criterion. The implication is that the grammar that is easiest for the speaker is the one with the fewest elements. I argue instead that the easiest grammar for a speaker is the one that is the most motivated phonologically.

For purposes of phonology, we can specify descriptive adequacy as the grammar's ability to organize the facts. We can then specify explanatory adequacy as the grammar's ability to provide phonological motivation for the posited change. We can also posit that the more elements that are necessary to motivate a change, the more rare the change will be in the world's languages. If we try to analyze language according to universals of phonological motivation, then the number of motivating elements will provide a marking measure for the occurrence of processes.

To illustrate this approach, I discuss three of Chomsky and Halle's rules for Southern Paiute (in their The Sound Pattern of English). The following treatment illustrates the method.

To account for geminate reduction, Chomsky and Halle (page 348) posit rule (a).

(a) \([-\text{son}] \rightarrow \emptyset / [-\text{son}]_A \quad \geq \quad +\text{voc} \bigg[ +\text{cons} +\text{stress} \bigg] \]

If we introduce syllables into the discussion, adopt the notion of stress "strengthening" a syllable, and observe which of the segments is marked in the syllable, then we find that the wrong segment is deleted. I would instead posit rule (b), where "-" stands for a syllable boundary, and where the subscripts help to identify the segments in question.

(b) \([-\text{son}] \rightarrow \emptyset / +\text{voc} \bigg[ +\text{cons} +\text{stress} \bigg] \quad \rightarrow \quad [-\text{son}]_A \quad +\text{voc} \bigg[ +\text{cons} +\text{stress} \bigg] \]

The first segment ends a weakened, unstressed syllable (in the marked position), while the second segment begins a strengthened, stressed syllable (in the unmarked position).

Notice that my rule has redundant elements in it, violating the simplicity criterion. Yet I would claim that it has greater phonological motivation, making the rule more natural in the speaker's grammar. The simplicity criterion does not allow marking of processes, nor does it provide the best way of evaluating the grammar.
Simplicity and Explanatory Adequacy in Southern Paiute

(1) [- son] - $\phi$ / [- son] $\lambda$ $\phi$ [ + voc + cons + stress]
(2) [- son] - $\phi$ / [- son] $\lambda$ $\phi$ [ + voc + cons + stress]
(3) [- son] - $\phi$ / [- son] $\lambda$ $\phi$ [ + voc + cons + stress]
(4) [- son] - $\phi$ [ + voc + cons + stress] / [- son] $\lambda$ [ + voc + cons + stress]
(5) V - [- voice] / $\phi$ \{ [- son] $\lambda$ V\}
(6) V - [- voice] / [- son] V
(7) V - [- voice] / [- son] V
(i) matonita -- mAtOnIta
(ii) example 12 -- mawfawA
(iii) example 16 -- mawfAphA
(9) more - [- voice] / [- stress + cons + cons] [+ voc - cons - voice]
(iv) example 17 -- MAPAHA
(10) [+ cons] - [+ long] / [- cons + voc + voice + stress]

Charles R. Stratton, University of Idaho
THE PATHOLOGICAL CASE

Fillmore suggests, following Bennett, that a case category of Path ought to be included in the conceptual case framework for verbs of motion. In this paper, I summarize the needs for some kind of syntactic machinery for verbs of motion to account for descriptions of the space intervening between sources and goals and agree that positing Path as a case is a desirable way to provide such machinery. I go on to point out, however, that Path as a case exhibits behavior that is significantly deviant from that of all other cases.

Although Path is well-behaved with respect to a centralized meaning and a set of characteristic prepositions associated with it, this case is pathological in the following ways:

1. Verbs that incorporate notions of Path can take overt expressions of Path with little or no restriction, while with other cases, incorporation of the case notion into the verb usually precludes overt expression of the case.
2. Path cannot be coreferential with Agent, while other cases can be.
3. Path is typically (always?) inanimate, while Source and Goal often are animate.
4. Path, unlike Source and Goal, can readily stand in direct object relationship with verbs of motion.
5. When Path is eligible for Accusative Marking, it can undergo it or not optionally, while other cases must undergo Accusative Marking whenever they are eligible.
6. Path alone among all the cases can be repeated within a simple clause. Moreover, it can be repeated indefinitely many times.
7. There are certain temporal and spatial restrictions on the order in which repeated instances of Path can appear in a sentence.

That Path should be implemented as a case for verbs of motion is, I contend, indisputable; but any attempt to implement rules and structures for Path is going to have to take into account these pathologies.
The Pathological Case

I. \[\_\_ (A)O(L)\]

II. \[\_\_ (A)O(S)(G)\]

where: the blank is filled by a verb of motion

A = Agent
O = Object
L = Locative
S = Source
G = Goal

the parentheses indicate that surface realization is optional.

(1) Sam ran in the building (because it was cold outside).
(2) Sam ran out of the building (because it caught fire).
(3) Sam ran into the building (because it started to rain).
(4) Sam carried the garbage from the kitchen to the alley.
(5) The bullets were fired from the Hunter College campus through the Russian diplomat's window.
(6) Jim threw the watermelon over the fence.
(7) Sam carried the garbage from the kitchen through the back yard to the alley.
(8) The bullets were fired from the Hunter College campus through the diplomat's window into the wall of the room.
(9) Jim threw the watermelon over the fence to Sam.

III. \[\_\_ (A)O(P)(S)(G)\]

(10) Nixon will go to Moscow via Peking.
(11) McCawley came to St. Louis along Interstate 55.
(12) Kissinger went through Pakistan to Peking.
(22) a. Harry crossed over the bridge. (Cf. examples in 21 and 19)  
   b. Salmon swim up the Columbia every year.  
   c. Have you ever driven along Interstate 80?  
   d. Go climb up a tree.  

(23) The ball flew through the air, through the window and into the room.  

(24) Sam went from Chicago via St. Louis and Reno to San Francisco.  

(25) Jim went out the door, over the hill, along the river, to grandmother’s house.  

(26) Sam went from Chicago to San Francisco via Joliet, Bloomington, Springfield, St. Louis, Kansas City, Salinas, Denver.  

(27) Sam was sitting in the park under a tree on a bench.  

(28) Jim put the stamp in the corner on the front of the envelope.  

(29) The kitten was on the rug under the table in the hallway.  

(30) Jim put the stamp in the envelope’s front’s corner.  

(31) The kitten was on the rug (which was under the table (which was in the hallway)).  

(32) Jim was in Chicago in Boston.  

(33) Sam moved the rock from the yard from the street to his basement.  

(34) The plane flew to Chicago to Kansas City to Denver.  

(35) The plane flew to Chicago and to Kansas City and to Denver.  

(36) The ball flew (thru the air), (thru the window) and into the room.  

(Cf. example 23)
A speaker may use a wide variety of sentences to make the same request for non-verbal action by the hearer. For example, the sentences

a. I request that you pick up the clothes
b. Pick up the clothes (please)
c. Will/would you pick up the clothes
d. Can/could you pick up the clothes
e. I would like it if you would pick up the clothes
f. It is now time for you to pick up the clothes
g. Why don't you pick up the clothes
h. The clothes are still not picked up

are each different in syntactic form and in semantic interpretation but each one, when uttered under the appropriate conditions, can count as the performance of the illocutionary act of requesting non-verbal hearer action, in this case that the hearer pick up the clothes.

In this paper I will present a general specification of the class of English sentences which are standardly used to make a request for hearer non-verbal action and the conditions under which the utterance of such a sentence standardly counts as the performance of this type of request.

I will argue that the class of sentences can be defined as a function of the sentence meaning and the way in which the sentence relates to the following features associated with the act of requesting:

i) Utterance specifies a future voluntary action by the hearer
ii) Speaker believes hearer is able to carry out the action
iii) Speaker wants the action carried out
iv) There are reasons for having the action carried out
v) It is not obvious that the hearer will carry out the action

For example, example (d) questions the hearer's ability but its utterance standardly counts as a request for hearer non-verbal action if it is obvious to both parties that the speaker has the ability. On the other hand, the sentence "You can pick the clothes up" can be used to give permission (which does not entail the speaker believing in the hearer's ability) but can also be used as a request for non-verbal action when both parties know of the hearer's ability and the speaker is in the position of institutionalized authority. And sentence (g) which questions the reason(s) for which the hearer has not yet picked up the clothes can be used as a request for non-verbal action if both parties recognize that there is no good reason worth replying, i.e. the question was rhetorical.

The work reported on in this paper is but a small attack on the general problem of relating sentence meaning and sentence use. The thrust is orthogonal to the question of whether there are highest performative verbs underlying every sentence and raises once again the unresolved question of what constitutes linguistic competence and thus should be accounted for by a grammar of the language.
A componential reanalysis of the personal prefixes of Sayula Popoluca, a Zoquean language of Mexico, improves upon the tagmemic solution of Lawrence Clark, summarized in Figures 1-5; instead of five overlapping sets of prefixes there is one, instead of four persons there is a distinction between a speaker and an other, and instead of his distinction between descending order, where the subject person is numbered lower than the object person, and ascending order, where the object person is numbered lower, there is a distinction between afferent and efferent orientations, depending on the flow of action toward or away from the speaker himself or his surrogate, as summarized in Figures 7-8. Clark's use of 'third' and 'fourth' persons is made to fit his ascending / descending scheme; it has nothing to do with the familiar proximate / obviative distinction (see Figure 6). His solution also leaves a puzzling ambiguity in the use of ʔi-ʔ for either '3-2' or '2-1' combinations of subject and object persons. These shortcomings are eliminated by the restatement, which questions the priority given in tagmemic descriptions to 'function' over form.

Figure 7 presupposes a structure based on Erving Goffman's analysis of face-to-face interaction and his two basic participation units, the single, an individual, and the with, composed of a few people participating as a unit or single in interactions; in Figure 7 the two withs are enclosed by ovals. Efferent orientation inside a with is unmarked; across with boundaries it is marked by the -n element. Afferent orientation is marked by the -i element within or across with boundaries.

Further details of the Sayula restatement and a brief review of some features of other systems suggest important advantages of the interactional model over other approaches to the analysis and typology of pronominal systems.
Figure 5. Predicated substantives: 'statives', 'possessives', and 'equationals'.

1. mi-hayav 'You are a man.' 2 is R
2. mi-ayé 'You are the one.' 2 is R
3. háyav '(It's) a man.' 3 is R
4. ?i-n-táhm 'your house' 2-3 has R
5. aye-oh kahau-na 'It's a rabbit.' --- R is R
6. mi-oh te-way 'You are my son.' 2, 1-2 (2 is R)(1 has R)
7. a-oh te-way 'I am his son.' 1, 3-1 (1 is R)(3 has R)
8. a-oh ?i-s-way 'I am your son.' 1, 2-1 (1 is R)(2 has R)
9. he-te-way 'He is my son.' 3, 1-3 (3 is R)(1 has R)
10. mi-ih ?i-s-way 'You are his son.' 2, 3-2 (2 is R)(3 has R)

Figure 6. Uses of the prefixes in discourse (Clark 1961:62-3).


And the witches, as they are witches, they know how they turned themselves into jaguars. 8. Two jaguars, -- witches, were going to enter [her] house. 9. They saw [that] the woman's husband walked here.

14. And when they heard [that] the jaguar comes growling, one of her children said, 'Mama, what do you think, we will do?' 15. That jaguar will come here and that [jaguar] will eat us.

[60]
The goal of this paper is to show the plausibility of G. Lakoff's (1971:340) claim that "the principles governing the distribution of morphemes will involve presuppositional information". In other words, the applicability of transformational rules depends on the speakers' presupposition: either obligatory or blocked if the speakers share certain presupposition concerned about a sentence in question; optional if such sharing is absent among speakers.

One of the major processes in Korean syntax (also in Japanese and many other languages for that matter)—the deletion of reflexive pronouns—illustrates this point. Three cases are considered: 1. where the deletion is blocked; 2. where the deletion is obligatory; 3. where the deletion is optional or up to the individual.

Case 1. There seem to be two uses of NP on the surface, depending on whether it was an argument (Geach calls this materially-used NP) or a predicate (formally-used NP) in the logical structure. John in 'John is a genius.' spoken with normal declarative sentence intonation is an example of the former, and John in 'John is a genius.' as when one is answering such a question as 'Who is a genius?' is an example of the latter. Only formally-used NP's carry new information of a sentence. When a Korean reflexive pronoun stands for a formally-used NP, it is never deleted. And this can be explained only in terms of the sharing of the presupposition among speakers that its deletion will bring about ambiguity as to the reference.

Case 2. There are verbs which require the coreferentiality between their subjects and the subjects of embedded sentences, such as siphta 'feel like'. One cannot feel like someone else's doing something. The speakers of Korean presuppose that because of the like-subject constraint for such a verb, the ambiguity is not possible as to the reference of the embedded subject once one knows the reference of the matrix subject. This seems to make the deletion obligatory.

Case 3. When there is no such sharing of presupposition, the deletability is left up to the judgment of individual speakers. If the speaker makes the presupposition that the ambiguity as to the reference of a reflexive pronoun is likely, he will mandatorily leave it; otherwise, he will obligatorily delete it. So, the applicability of the so-called optional rules is not left to the speaker's unconditioned arbitrary choice. In most cases of optional rules, the speaker is actually forced to choose either or not the application of a rule, and this not by a shared presupposition but by the situational judgment of each individual.

Both in case 1 and 2, grammaticality judgment rarely varies. But in case 3, we see many variations of grammaticality judgment, which seem to come from the informant's different range of presupposition at the particular moment.
(1) a. I get my paycheck tomorrow.
   b. *I get a cold tomorrow.

(2) a. The astronauts return to the earth tomorrow.

(3) a. Sam gets a day off tomorrow.
   b. *Sam enjoys his day off tomorrow.

(4) a. *John-nān caki-ka Shakespeare-lāl caki-ey chinku-tāl-
   John-T (him)self-S Shakespeare-O self-of friend-PL-
eykey ilkecu-ki-lll cohahanta
   to read-NOM-O likes
   'John likes to read Shakespeare for his friends.'
   cohahanta

   John-T Mary-O send-instead of self-S go-will-QT
   malhayessta
   said
   'John said that he would go himself instead of sending
   Mary.'
   b. *John-nān Mary-lāl ponay-nān taysin ka-keyssta-ko
   malhayessta

(6) a. John-nān caki-ka ecey cecilī-n silsu-ey kayhayese
   John-T self-S yesterday made-REL mistake-about
   salwahayessta
   apologized
   'John apologized for the mistake that he made yesterday.'
   b. *John-nān ecey cecilī-n silsu-ey kayhayese salwahayessta

   ilkecu-ki-lll cohahanta
   read-NOM-O likes

(5') John-nān John-ka Mary-lāl poney-nān taysin John-ka
   John-T John-S Mary-O send-instead of John-S
   ka-keysts-tako malhayessta
   go-will-QT said

(6') John-nān John-ka ecey cecilī-n silsu-ey kayhayese
   John-T John-S yesterday made-REL mistake-about
   salwahayessta
   apologized

(7) REFLEXIVIZATION:
   U NP T (X, NP, Y) 3 1, caki, 3
   1 2 3

(8) a. *John-nān caki-ka Mary-lāl salhayha-n hyemky-lāl
   John-T self-S Mary-O murdered-REL suspicion-O
   patassta
   received
   'John was suspected to have murdered Mary.'
   b. John-nān Mary-lāl salhayha-n hyemky-lāl patassta
(9) a. John-nin caki-ka Shakespeare-lîl ilkey-toy-ki-lîl palanta
   John-T self-S Shakespeare-O read-become-NOM-O hopes
   'John hopes that he will be appointed to read Shakespeare.'

   b. John-nun Shakespeare-lîl ilkey-toy-ki-lîl palanta

(10) a. John-nûn caki-ka Mary-lîl salhayha-n yayki-lîl hayessta
    John-T self-S Mary-O murdered-REL story-O did
    'John told the story of (his) having killed Mary.'

   b. John-nûn Mary-lîl salhayha-n yayki-lîl hayessta

(11) a. ?*John-nûn caki-ka chaw-ta-ko malhayessta
     John-T self-S cold-QT said
     'John said that he was cold.'

   b. John-nun chawta-ko malhayessta

(12) a. ?*John-nûn caki-ka suyeng-lîl ha-ko siphla-ko
     John-T self-S swimming-O do-NOM want-QT
     malhayessta
     said
     'John said that he wanted to swim.'

   b. John-nûn suyeng-lîl ha-ko siphla-ko malhayessta

(13) a. ?*John-nûn caki-ka enehak-lîl cenkongha-keyssta-ko
     John-T self-S linguistics-O major-will-QT
     malhayessta
     said
     'John said that he would major in linguistics.'

   b. John-nûn enehak-lîl cenkongha-keyssta-ko malhayessta

(14) a. ?*John-nûn caki-ka chayk-lîl sacu-ma-ko Mary-eykey
     John-T self-S book-O buy-qill-QT Mary-to
     yaksokhayessta
     promised
     'John promised Mary that he would buy a book for her.'

   b. John-nûn chayk-lîl sacu-ma-ko Mary-eykey yaksokhayessta

(15) If the subject of the embedded sentence is required to be
    correferential with that of the matrix sentence either
    because of the matrix verb or because of the embedded
    verb, the embedded subject is obligatorily deleted.

(16) John-nûn caki-ka suyeng-lîl ha-ko siphla-ko malhayessta
     John-T self-S swimming-O do-NOM want-QT said
     'John said that he wanted to swim himself.'

(17) a. John likes to see Mary.

   b. John likes to see Mary.

(18) a. John-nûn Mary-lîl ponay-nûn taysin ma-ka kakeysta
     John-T Mary-O send-instead of I-S go-will
     hako malhayessta
     QT said
     'John said, "I will go myself instead of sending Mary."'

   b. John-nûn Mary-lîl ponay-nûn taysin na-nûn ka-koysta
     hako malhayessta

(19) a. John-nûn na-ka suyeng-lîl ha-ko siphla' hûc
     John-T I-S swimming-O do-NOM want QT
     hako malhayessta
     said
     'John said, "I want to swim myself."'
LOGICAL MODELS FOR THE INTERPRETATION OF ATOMIC PREDICATES IN GENERATIVE SEMANTICS

In recent work by George Lakoff, James McCawley, and others of the Generative Semantics school it has been claimed that semantic representations resemble formulae in formal logic, consisting of quantifiers, variables, constants, and a number of "atomic predicates," including a finite subset (CAUSE, COME ABOUT, REMAIN, NOT, etc.) which take propositions as arguments. In classical logic the representation of "timeless" states is straightforward; however, events, actions, processes, all of which involve changes of state in time, cannot be directly represented. Hence the development of "tense logics," "logics of action," "logics of change," etc., by logicians such as A.N. Prior and G.H. von Wright. These systems allow one to represent an event or action as a combination of stative propositions in a semantic model consisting of a set of world-states which are temporally ordered. I will argue that from the linguist's point of view as well, no theory gives an adequate account of the semantics of the atomic predicates COME ABOUT and REMAIN in natural language unless the temporal change-of-state relationships underlying them are somehow further defined in that theory. The purpose of the paper is to show how a logical system can provide the linguist with the kind of mathematical model he needs to capture these relationships in a semantics-based theory; the possibility of applying this method to other atomic predicates is clear.

G.H. von Wright observed that an event consists essentially in one state of affairs being replaced by another. Thus "the door closed" is true when the state in which "the door is not closed" is followed in time by the state in which "the door is closed." To represent this formally, he devised a logic with the dyadic operator N (which is read "and next"). In this system there are four basic kinds of formulae: (pNp) "the state p remains unchanged," (pN-p) "the state p is destroyed," and (pN-p) "the state p fails to come about." By equating the semantic representation COME ABOUT(p) with von Wright's (pNp) and REMAIN(p) with pNp), we not only specify the logical relationship between the two atomic predicates, but we also specify their
relationship to the simple stative p. This also explains the fact that a sentence like "John closed the door at 10 PM" entails "(Just) before 10 PM the door was open." It is shown that all aspectual verbs (such as begin, continue, stop, finish, etc.) show a parallel patterning with respect to their entailments.

This analysis serves to enlighten another problem in the semantics of aspect. There is a class of verbs, which includes recognize, find, discover, arrive, die, etc., which are called achievement verbs by philosophers Gilbert Ryle and Zeno Vendler. This class can be characterized by well-defined semantic and syntactic criteria; the criteria fail, however, just in case the verbs occur in a sentence with any non-specific NP. If these verbs are analyzed as having COME ABOUT as highest atomic predicate, then their semantic properties are explained and the peculiar fact about non-specifics follows automatically from the above analysis.

The significance of this kind of study is twofold: (1) It shows how linguistic semantics can benefit from research already done by logicians: e.g. the mathematical properties of these systems are known. (2) Since it suggests that certain proposed 'atomic predicates' must be defined in terms of even more primitive semantic notions, it questions the basis on which linguists argue for concepts such as atomic predicates.

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**Logical Models for the Interpretation of Atomic Predicates in Generative Semantics**

(1) a. The soup cooled.
   b. The soup is cool.

(2) a. The door closed.
   b. The door is closed.

(1') COME ABOUT(cool(the soup))

(2') COME ABOUT(closed(the door))

A tense-logical model set may be defined informally (for our purposes) as a set of temporal world-states \{t₁, ..., tₙ\} ordered by the transitive, asymmetrical relation R, the "earlier-than" relation. A given proposition p may be either true or false in any given world-state tᵢ. Quantifiers may range over individuals or times (world-states).

The basic tense operator T:

(3) \( T(p, t₁) \) "proposition p is true at time t₁"

definitions of other tenses, F "future" and P "past;" in terms of T:

(4) \( F(p) \) is true at \( t₁ \) iff \((\exists t_j)(T(p, t_j) & R(t_j, t₁))\)

\( F(p) \) is true at \( t₁ \) iff \((\exists t_k)(T(p, t_k) & R(t_k, t₁))\)

Von Wright's And Next operator:

(5) \( pNq \) is true at \( t₁ \) iff \( T(p, t₁₋₁) & T(q, t₁) \)

the four basic formulae in Von Wright's system:

(6) a. \( (\neg pNp) \) "the state p comes about"
   b. \( (pNp) \) "the state p remains"
   c. \( (pN\neg p) \) "the state p ceases to be"
   d. \( (\neg pN\neg p) \) "the state p fails to come about"

definitions of aspectual atomic predicates in terms of And Next:

(7) COME ABOUT(p) =def. (\neg pNp)

STOP(p) =def. (pNp)

REMAIN(p) =def. (pNp)
various surface manifestations of COME ABOUT ("incohotative aspect")

(8) a. The soup cooled.
b. The wax hardened.
c. John began to run.
d. It started to snow.
e. John came to believe that the earth is flat.
f. John went crazy.
g. John got drunk.
h. John sat on the bench. (ambiguous)
i. He thought about it, and suddenly he knew the answer.

coloristics of achievement verbs:

(9) a. do not occur with durative adverbials (for an hour, etc.)
b. do not occur as complement of aspeotial verbs (begin, stop)
c. do not occur as complement of finish
d. do not occur with studiously, attentively, conscientiously, etc.

plural indefinites: cases where achievement verbs behave like non-achievement verbs:

(10) *John discovered the buried treasure in his yard for six weeks.
(11) John discovered fleas on his dog for six weeks. (crabgrass in his yard)
(12) *John discovered that picturesque village for years.

(10') (Vt t e six weeks)(T(GOME ABOUT(John knows...)),t1)

mapping onto model set: ....tI-2, tI-1, tI, ...

*~ P p contradiotion

(11') (Vt t e six weeks)(T((3x) COME ABOUT(John knows...x...)),t1)

mapping onto model set: ...tI-2, tI-1, tI, ...

(3x)-f(x), (3x)f(x)

(3x)-f(x) (3x)f(x)* no contradiction

Alan Bell, University of Colorado
AGAINST THE DISTRIBUTIONAL SYLLABLE

In the past 20 years, Kurylowicz, O'Conner and Trim, Arnold, Haugen, Greenberg, and Pulgram have advocated theories of the syllable having in common two assumptions: the syllable can and should be defined formally, without reference to phonetic realization; and the syllable is derivable solely from the distributional properties of segments. Hence the term distributional syllable.

These theories deserve opposition because, largely ignored by linguists who reject them, they are sometimes accepted as fact in descriptive work; and because the issues pertain to the development of syllabic theory in generative phonology.

The distributional syllable is defined by procedures for determining the syllabic and syllabification of segments. O'Connor-Trim and Greenberg's procedures for distinguishing nuclei work for most languages, but they fail for many types of languages containing syllables without margins and/or syllabic consonants. The failures are not just dismissible exceptions, but illustrate that the procedures are based on invalid assumptions about the distribution of syllabicity.

The syllabification procedures are based on the Word-terminal Condition: roughly, syllable margins do not violate the distributional constraints of initial and final margins. A counterexample to this presumed universal is given. Where the Word-terminal Condition does not determine the point of syllable division, a common occurrence, the distributional theories differ on syllabification procedures. Even granting the validity of the Word-terminal Condition, the procedures' results are unsatisfactory in many cases. As with syllabicity above, the failures derive from invalid assumptions about syllabification.

The failures of past theories of the distributional syllable suggest that it is a dead end in the maze hiding the explanation of the organization of segment strings. The nature of the failures indicates that the syllables which have a nonarbitrary connection with the phonetic level and which are not derivable entirely from segment characteristics are a more promising construct.
A grammar without autonomous phonemics fails to account fully for contrast and repetition (the absence of contrast) using the only way proposed so far, Postal's criterion relating NP (narrow or "systematic" phonetic) and MP (morphophonemic) representations (chs. 1 and 9 of his Aspects). There are problems for 1) complete repetition, and 2) partial repetition.

1) Postal's formulation is unclear. For two NP strings to repeat, it could mean that (a) they can be assigned to the same MP representation by the P-rules, or (b) taking a particular derivation for each, they are both paired with the same MP representation. But both fail: (a) wrongly predicts that, in the dialect mentioned by Postal on p. 222, they (=[dey] or [dey]) and day (=[dey] only) never contrast. (b) wrongly predicts that German [bunt] from MP /bunt/ and [buntʰ] from /bund/ contrast. Defining one free variation set for each MP representation works better but requires matching whole sets, which is implausible for performance when there are many possible free variants.

2) There is intuitive reality to a nonphonetic notion of partial repetition as manifested, e.g. in most rhyme. Complete repetition is related to and may be viewed as a special case of partial repetition. The fact that conditioning may come from the contrasting portions makes it impossible to predict partial repetition using a relational criterion like Postal's. This is shown by the impossibility of differentiating a pair of examples like:

<table>
<thead>
<tr>
<th>MP</th>
<th>NP</th>
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<tbody>
<tr>
<td>English:</td>
<td></td>
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</table>
| ministerial | /minister|-
| partial     | /part-|-
| Russian:    |             |
| "mother"    | /mat'/     | [mat'] The underlined portions contrast. |
| "five"      | /p'ac'/    | [p'ac'] The underlined portions repeat (and rhyme). |

The evidence given in this paper requires that we reconsider autonomous phonemics, since it is the only theory so far proposed that succeeds fully in characterizing all repetition.
However, partial repetition does depend on the morphophonemic rules: partial /i/ becomes /y/ by rule (16), ch. 5, SPE (Chomsky & Halle), and /y/ is deleted after /s/ by rule (38), ch. 5. ministerial The change of /i/ to /y/ by rule (16) is prevented by the /r/ in minister.

(iv) At AP: English: /ministr/ry/ /pars/el/ Russian: /mat'/: /p'ar/el/

(v) We can define partial repetition directly as partial AP identity and partial contrast as partial AP nonidentity. Note that this claims that dey in (ii)(a) above is ambiguous between either of two contrasting representations, since it can have either of two AP sequences. Alternatively, we could use interpretation (b) of Postal’s definition of free variation set (given on the abstract), replacing MP with AP.

Frank Heny, University of Massachusetts
PITCH-ACCENT IN SHONA AND OTHER BANTU LANGUAGES

This paper reports results from a study of the grammatical significance of pitch in Shona and related languages. The results are shown to support a particular theory of pitch-accent.

Pitch can function in very different ways in a grammar. In Mandarin Chinese, vowels include segmental pitch features; yet in Japanese pitch changes appear to function like English stress to mark particular syllables — a phenomenon that has been called “pitch-accent”. Attempts to formulate a theory of pitch-accent have not met with notable success and we still understand very little of the nature of those rules that introduce, move, modify and realize such an accent. We know nothing of the constraints that must be placed upon a pitch-accent system in natural language.

It has been argued that while Luganda (a Bantu language) has pitch-accent, Shona (another Bantu language) has a rather special kind of “tone”, i.e. pitch is a segmental feature somewhat as in Chinese. That analysis may still be viable, although it leads to a number of problems since, for example, Shona and Luganda are otherwise very similar. Moreover, it is now clear that too much emphasis was placed, in reaching and justifying that analysis, on the existence of forms like kaza6r6dz (a three-syllable verb stem with prefixes — participial), where high and low pitch appear to alternate, and there seems to be no justification for postulating that a change in pitch level serves to mark any syllable, as it does in Japanese and, arguably, in Luganda. It turns out that four and five syllable stems analogous to our example are realized thus: katu6kirl4 and katu6rurnur1. The apparent alternation observed earlier was purely an artifact of the short examples hitherto considered adequate. The longer forms indicate that first and last stem syllables are marked by a change in pitch level.

These, and other fresh results from a newly-studied dialect provide clear evidence for analysing Shona as having pitch-accent, and for revising the theory of pitch-accent to include the language. A definition is required which makes crucial reference to the output of a pitch-accent
system: it marks certain syllables in each construction by a change in level. A limited set of "ordinary" phonological rules can affect pitch features within such a system, but they appear to be subject to severe (and probably universal) restrictions of the sort that have come to be called "conspiracies".

The theory of pitch-accent outlined here is very briefly shown to be further supported in that it motivates a single, rather unexpected analysis of pitch in Luganda nouns and verbs, which differ superficially from each other in quite striking ways.

Standard Literary Yiddish (SLY) is unusual among West Germanic languages in that it lacks any surface vowel length. It is the purpose of this paper to demonstrate that this is only an apparent anomaly and that vowel length must be postulated in the underlying phonological structure.

SLY has, of course, no real existence — it is a compromise dialect developed to serve the needs of all the speakers of Eastern Yiddish. It lacks surface vowel length because the dialects of Northeastern Yiddish (NEY) also lack surface vowel length. We shall demonstrate that NEY too has underlying vowel length and also that, in those dialects of Yiddish which have surface length, this is not underlying vowel length but rather the result of the operation of a secondary lengthening rule.

The crucial evidence lies in the facts of umlaut, as shown by the words /hoyz/ 'house' and /boym/ 'tree'. Both of these words form their plurals by the addition of /-er/ which causes umlaut. The plural of /hoyz/ is /hayzer/ while that of /boym/ is /beymer/. It is therefore obvious that the underlying form of /hoyz/ is different from that of /boym/. The facts of umlaut lead us to the conclusion that the form underlying /hoyz/ is || hüz || while that underlying /boym/ is || bóm ||. In dialects with surface length /hoyz/ and /hayzer/ occur as /höz/ and /hüzer/; we shall argue that these dialects have the same underlying forms as those postulated for SLY and undergo a secondary process of monophthongization and lengthening.

We shall maintain that all Eastern Yiddish dialects share an identical phonological structure and differ from each other only in the order and number of rules rather than having two different underlying structures (one for NEY, another for Central and Southern Yiddish) as is postulated by Herzog in The Yiddish Language in Northern Poland (IJAL 34.2 part 3, 1965).
Few morphophonemic alternations of English have been offered as many alternative analyses as the alternation of inflectional endings. The problem is how to represent the plural and the preterit in the lexicon, and how to account for the well-known phonetic facts. Different analyses have been offered within both structuralist and generative frameworks, yet currently available evaluation measures fail to choose a unique solution. The present paper first discusses the theoretical issues of the problem, and then shows that the notion of surface phonetic constraints, which I introduced to this Society a year ago, provides another basis for evaluating alternative analyses, so that we can pick the right solution to the problem.

The paper also touches upon a much more general problem of why particular P-rules have the forms that they do. This discussion includes evidence from recent findings in sociolinguistic studies.
The Lithuanian accentual system is characterized by the fact that in inflectional and derivational paradigms a given stem may undergo changes not only in the location of the accented syllable but also in the nature of the accent (e.g. falling / rising). It will be shown that those fairly complex alternations can be handled in the following fashion:

a) long vowels are viewed as sequences of short vowels

b) each word has a tone contour where the initial portion is neutral pitch and the terminal portion is of high pitch

c) the onset of high pitch is marked by supplying high pitch to some vowel in the word (this is done either in the lexical entry of the stem or by special rules)

d) a phonological rule (H-DISTRIBUTION) subsequently distributes the high pitch to all vowels that follow the vowel with high pitch

e) the accent is located on the syllable containing the first vowel with high pitch. When this syllable has two mora high pitch can be on both morae or only on the second. In the former case we say that the syllable has the acute accent (traditionally marked with ‘ as in kāja); in the latter case we say that the syllable has the circumflex accent (traditionally marked with - as in zūdis)

f) certain specifically marked word-forms are subject to the minor rule of H-DELETION which removes the high pitch from the stem. Such forms are subject to a late rule which assigns high pitch to the last intonable mora in the word

g) words with high pitch onset on the penult mora are subject to METATONY which moves the high pitch onset to the last mora.

The presentation will motivate the rules sketched above, as well as the assumptions underlying them.
<table>
<thead>
<tr>
<th>Class 1</th>
<th>Class 2</th>
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<tr>
<td><strong>Ns</strong> smulkmena</td>
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<tr>
<th>Underlying form</th>
<th>N-REMOVAL (Gs and Dp only)</th>
<th>H-DISTRIBUTION</th>
<th>METATONY</th>
<th>H-ASSIGNMENT</th>
<th>ORTHOGRAPHY</th>
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<td>Stem-final + H-onset</td>
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<td>gāusiu</td>
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<tr>
<td>2s</td>
<td>mbokysiu</td>
<td>gāusiu</td>
</tr>
<tr>
<td>1p</td>
<td>mbokyssim</td>
<td>gāusīm</td>
</tr>
<tr>
<td>2p</td>
<td>mbokyssit</td>
<td>gāusīt</td>
</tr>
<tr>
<td>3p</td>
<td>mbokys</td>
<td>gāus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(36)</th>
<th>Stem-final + H-onset</th>
<th>Non-stem-final + H-onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1s</td>
<td>ļām</td>
<td>gām</td>
</tr>
<tr>
<td>2s</td>
<td>mbokysiu</td>
<td>gāusiu</td>
</tr>
<tr>
<td>1p</td>
<td>mbokysim</td>
<td>gāusī</td>
</tr>
<tr>
<td>2p</td>
<td>mbokyssit</td>
<td>gāusīt</td>
</tr>
<tr>
<td>3p</td>
<td>mbokys</td>
<td>gāus</td>
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</tbody>
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<table>
<thead>
<tr>
<th>(38)</th>
<th>Stem-final + H-onset</th>
<th>Non-stem-final + H-onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1s</td>
<td>ļāusiu</td>
<td>gāusiu</td>
</tr>
<tr>
<td>2s</td>
<td>mbokysiu</td>
<td>gāusiu</td>
</tr>
<tr>
<td>1p</td>
<td>mbokysim</td>
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<td>gāusīt</td>
</tr>
<tr>
<td>3p</td>
<td>mbokys</td>
<td>gāus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(41)</th>
<th>Stem-final + H-onset</th>
<th>Non-stem-final + H-onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1s</td>
<td>ļāusiu</td>
<td>gāusiu</td>
</tr>
<tr>
<td>2s</td>
<td>mbokysiu</td>
<td>gāusiu</td>
</tr>
<tr>
<td>1p</td>
<td>mbokysim</td>
<td>gāusīm</td>
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<td>mbokyssit</td>
<td>gāusīt</td>
</tr>
<tr>
<td>3p</td>
<td>mbokys</td>
<td>gāus</td>
</tr>
</tbody>
</table>
In the analysis of metaphoric proverbs, subjects need to disregard their quasi-descriptive appearance in order to arrive at their traditional meanings. The central processes important to adequate paraphrase are superordinating and disambiguation. These processes are related primarily to two aspects of linguistic structure, to semantic features, and to case relations. A study of twenty subjects’ paraphrases of ten proverbs helped to clarify the nature of this relationship.

Superordinating is a process by which one can establish governing categories of semantic features to account for the meanings of proverbs. Since proverbs are fixed utterances, almost like words themselves, these categories of semantic features appear to apply to them as a whole. In the paraphrases studied, three principal categories of semantic features were dominant: (1) Human or Indefinite; (2) a category based on types of attitude or actions such as Achievement, Persistence, Anticipation, Competition, Desirability, and Reciprocation; and (3) a feature of Evaluation.

Disambiguation is a process by which one distinguishes the literal, quasi-descriptive sense of proverbs from their use as utterances circumspectly offering advice, consolation, or warning. One way to disambiguate is to establish semantic categories. Another, complementary method is to recognize that the case relations among the nouns, verbs, and adjectives of proverbs may alter depending on the sense one gives to them. As quasi-description Big fleas have little fleas signals the relations of Agentive and Factive. As a proverb suggesting an instance of disagreeable competition or antagonism, the relevant cases are Dative and Agentive. These differences are evident in the paraphrases "People have children" and "Annoying bigshots have to put up with the barbs of their underlings." Thus disambiguation serves implicitly to sort out appropriate case relations, as well as the governing semantic features.

The superficial and pertinent aspects of proverbs are important to them; the very interplay between the quasi-descriptive and the advisory in so many of them is an aspect of their nature. But one has to recognize this dual nature, this fusion of two different kinds of speech act in Searle’s terms, if he is to produce an adequate paraphrase. The processes of superordination and disambiguation help to sort out the separate speech acts. Moreover, the study suggests that semantic features and case relations in proverb analysis are complementary: semantic relations apply to the proverb as a unit; case relations apply to its internal structure.
Table 1. Proverbs Submitted For Interpretation

<table>
<thead>
<tr>
<th>Proverb</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The best is the enemy of the good.</td>
<td></td>
</tr>
<tr>
<td>Big fleas have little fleas.</td>
<td></td>
</tr>
<tr>
<td>What is bred in the bone will not out of the flesh.</td>
<td></td>
</tr>
<tr>
<td>A chain is no stronger than its weakest link.</td>
<td></td>
</tr>
<tr>
<td>The cobbler should stick to his last.</td>
<td></td>
</tr>
<tr>
<td>Constant dropping will wear away a stone.</td>
<td></td>
</tr>
<tr>
<td>Four eyes see better than two.</td>
<td></td>
</tr>
<tr>
<td>There is no place like home.</td>
<td></td>
</tr>
<tr>
<td>It is better to have loved and lost than never to have loved at all.</td>
<td></td>
</tr>
</tbody>
</table>

A straw may show which way the wind blows.

Table 2. Sample Responses Exhibiting Patterns of Superordinates

(1) Proverb: Constant dropping will wear away a stone.
Response: Constantly making errors, constantly doing things that one shouldn't, is going to wear away the personality, the sharp points of your individuality.
Superordinates: Human-Social Concern-Persistence-Negative

(2) Proverb: The best is the enemy of the good.
Response: Like a high school situation when one person is really wanting to be valedictorian or something stupid like that and there are two who are very near to it, and only one is going to achieve it.
Superordinates: Human-Social Concern-Achievement-Desirability (2/3)-Negative

Table 3. Sample Responses Exhibiting Different Patterns of Case Relation

Proverb: A straw may show which way the wind blows.
Response 1: If it bends in a certain direction, it will bend in the direction that the wind is blowing. If everyone was going one way and you couldn't help yourself, you'd be swept up and be moved.
Case Relations: You in relation to the VP swept up is Dative.
Response 2: Any person, no matter what status or position, may at times show other people or guide them or make some useful contribution.
Case Relations: Person in relation to VP guide is Agentive.

Proverb: The cobbler should stick to his last.
Response 1: A sculptor uses a chisel. What if he used a screwdriver; it wouldn't be as good.
Case Relations: Chisel and screwdriver are related to the VP as Instrumental.
Response 2: In general, this indicates that a person should do the work that he knows.
Case Relations: Work in relation to the VP do is Objective.

Proverb: Big fleas have little fleas.
Response 1: It's like women have children.
Case Relations: Women as Agentive, children as Factive in relation to the VP have.
Response 2: The leadership of the South Vietnamese government as a parasite on the US has its own little parasites in village chiefs.
Case Relations: Leadership as Dative, parasites as Agentive in relation to the VP has.
In his 1968 paper, "Some generative rules for American kinship terminology" (Anthropological linguistics 10(6):1-6), Philip K. Bock presented 30 ordered rules for the generation of American kin terms. The primary aim of the present paper is to revise Bock's rules so as to (1) increase the number of linguistic intuitions accounted for by them, (2) bring them more into line with current work in so-called "generative" (actually transformational) semantics, and (3) make the entire formulation more relevant to the development of a theory of idealized linguistic performance.

The additional intuitions to be accounted for lie mainly in the area of terms referring to step, in-law, and half-sibling relationships. For example, Bock's rules generate the affinal terms 'father-in-law' and 'mother-in-law' completely independently of the corresponding consanguineal terms 'father' and 'mother'. The revised rules make the intuitions of a connection between such consanguineal and affinal terms completely non-accidental and explicit. The lexical terms 'brother', 'sister', 'father', 'mother', 'son', and 'daughter' are introduced by means of the same rules every time regardless of the modifying affixes which may occur with them.

Explicit formal recognition is also made of the prelexical nature of the transformational rules which are needed for kinship semantics. The distinction between "generative" (symbol-expansion) and "transformational" operations is represented clearly in the revised notation for the rules themselves. Various types of alternation and extension in the use of kin terms are then explainable as resulting from a perfectly straightforward application of the transformational rules to semantic structures which are not generated by the symbol-expansion rules.

Another result of this transformational semantic approach to the use of kinship terminology is that it enhances the relevance of the analysis for an integrated theory of idealized linguistic performance. Psycholinguistic experimentation (to be performed) indicates (hopefully) that the production of kinship terms is determined (and constrained) more by transformational rules than by "generative" rules, while their comprehension by listeners is more dependent upon the supposedly "generative" rules. These results follow naturally from a revised analytical framework in which such generative rules are stood on their heads to represent processes of lexical interpretation rather than generation.
The complexity of the relationship between linguistic competence and speaking and hearing sentences is made apparent by experiments which show that sentence perception and production are not simple operational analogues of grammatical description. It is demonstrated here that the processes of sentence production also are sensitive to potential perceptual difficulties not revealed by structural descriptions alone.

Sentences (1) and (2) contain the categorically ambiguous word base.

(1) The comedian's skit, which was neither stupid nor base, was attacked all night.

(2) The comedian's skit, which was neither base nor stupid, was attacked all night.

Gleitman (Ph.D. thesis, MIT, 1970) demonstrated that (1) is harder to recall than (2). He attributed the difference to the separation of the categorically ambiguous word, base, from a context in which the inappropriate category might be used in projecting partial (incorrect) analysis of the string.

Similarly, he predicted that separating words belonging to identical categories would prevent their confusion and aid recall. In sentences like (3) and (4), forgetting which verb goes with which phrase has a disastrous effect on the meaning of the sentence. In fact, such sentences are easier to recall when the two verbs were separated by an adverb as in (3).

(3) The man whom the woman watched often kissed the child.

(4) The man whom the woman often watched kissed the child.

Differences in performance on such memory tasks do not necessarily arise from memory processes. Unless special procedures are adopted during learning sessions, perceptual difficulties may persist as memory deficits.

The potential misinterpretation of (1) can be avoided by choice of word order. On the other hand, the order of verbs in (3) and (4) has no effect on processing difficulty; consequently, there is no reason to suppose that one or another is preferred. When subjects completed such sentences in which the critical phrases were replaced by a blank and a list of words to be used in filling the blank, they more often changed list order to the "easier" version of (1) and (2) (p < .05, t-test), but they did not favor either order of verbs in (3) and (4). (In a sorting task, yet to be completed, subjects are expected, quite literally, to prefer perceptually easier sentences.)

The structural difficulty of (1) and (2) must be identical; therefore, it seems clear that "complexity" is confined to processing the surface form; i.e., to performance, rather than competence. It seems equally clear that subjects avoided strings which permit the assignment of inappropriate substructures or are difficult to segment structurally in favor of structurally identical, but perceptually easier, arrangements of the same words.
Although stratificational theory has claimed that any linguistic description should be both a model of competence and a model of performance for its language, many stratificational descriptions of linguistic competence have not been usable as models of performance because of certain defects in their notation. This paper describes a revised stratificational notation which will allow every description of linguistic competence to be used as a rigorous transductional algorithm for linguistic performance.

This revised notation differs from the usual stratificational notation in two ways: (1) the realizations described by the network are regarded as logical "if-then" relationships, not as quasi-neurological relationships to be activated by impulses; (2) the relationships within each linguistic level are shown by separate symbols or linguistic elements, rather than by the order in which points in the network are activated.

The paper first demonstrates the proposed transductional algorithm by applying it to a given utterance. The description of that utterance on a certain level is given, and the necessary realization formulas between that level and an adjacent level of the language are also given. The realization of the given description onto the adjacent level is then illustrated.

The paper then demonstrates how the proposed algorithm can deal with certain problems of performance that have not been adequately dealt with by previous kinds of stratificational notation. These problems include: (1) portmanteau realizations which may be the priority realizations of points higher in the network; (2) points in the network which are realized by relationships between points lower in the network; (3) relationships which a tactics imposes on realizations from higher levels.
Realization formulas from the lower graphemic alternation pattern:

\[ /A/ \]

\[ /C/ \]

\[ /I/ \]

Realization which is conditioned by a following environment:

Data from French:
\[ \text{dans} + \text{la} = \text{dans la} \]
\[ \text{dans} + \text{le} = \text{dans le} \]
\[ \text{à} + \text{la} = \text{à la} \]
\[ \text{à} + \text{le} = \text{au} \]

Network with ORDERED AND nodes:

Network with taxemes:

Tactic formula

Realisation formulas

[98]

[99]
Realization of a point in the network by a relationship:

Data from Russian:

- p'at' rublej '5 rubles'
- rublej p'at' 'approximately 5 rubles'

Network with ORDERED AND nodes:

LN/rubles/ LN/5/ LN/approximately/ LN/p'at'/

Network with taxemes:

LN/rubles/ LN/5/ LN/approximately/ modif 'H | H'

Stanley F. Wanat, International Reading Association

WORD CLASS AND MARKED VS. UNMARKED FEATURES IN COMPREHENSION

The purpose of this paper is to explore the way in which information from the perceiver interacts with information from the text in the perception of language. A series of experimental studies involving written materials was developed to study this topic. These studies showed that two factors had an important effect on various components of the comprehension process. The two factors were the grammatical class of the word being processed and whether higher-order structures were marked or unmarked.

There has been continuing debate about the extent to which the perception of language is an "active" process and the extent to which it is "passive". The experimental studies to be reported here were designed to analyze "comprehension" into components. This was done to see if aspects of comprehension centering on the transmission of stimulus information could reliably be separated from aspects of comprehension centering on the transformation of stimulus information. Transmission of stimulus information entails relatively lesser interaction between information from within the organism and information from the text, and would support the view that comprehension is "passive". Transformation of stimulus information supports the view that comprehension is an "active" process, entailing greater interaction between information within the perceiver and information from the text.

The test materials were presented graphically rather than aurally so as to minimize the number of variables that had to be controlled. Although these experiments dealt with reading, it seems reasonable that the same kinds of structural factors are involved in the perception of speech, but this assumption remains to be tested.

"Comprehension" was divided into the following components:

(a) Attention: Scanning of the text to pick up information. Allocation of attention to the text was studied by monitoring the reader's eye movements.

(b) Parsing: Dividing the text into perceptual units for processing. This was studied by monitoring eye movements, and by studying the
distance between where the eye is and where the voice is in oral reading.

(c) Memory: Storing information in the text. Ability to recall different kinds of information in the text was studied by asking the subject to judge whether two sequentially presented texts were the same or different.

(d) Predictions: Information from within the perceiver consists of rules about the structure of texts. On the basis of these rules, the perceiver makes predictions about what he will encounter. These rules were studied by having subjects complete sentence frames with various parts deleted. Structures were classified as marked or unmarked on the basis of this procedure. (Each of these four experimental procedures will be demonstrated.)

As noted earlier, the grammatical class of the word being processed and whether higher-order structures were marked or unmarked affected comprehension. Two conclusions follow from the results of these studies:

(1) At the various stages of comprehension, even at the level of visually scanning the text to pick up stimulus information, information from within the perceiver affects processing.

(2) When there is a conflict between stimulus information and context information, the perceiver rechecks both the context and the particular stimulus item; however, there is far greater rechecking of the stimulus item than of the context. This suggests that comprehension is a process of accommodating new items to an evolving schema and checking their "fit", rather than a process of merely chaining individual meanings.

Rocky V. Miranda, University of Minnesota

HOW DO RULES GET ADDED IN THE MIDDLE OF GRAMMARS?

It is argued in this paper that there is such a thing as rule insertion. Some linguists have been skeptical about it because of the controversial nature of some of the examples, and because it was not made clear how rule insertion comes about. There are many relatively clear cases of rule insertion: (i) Indo-Iranian l → r and θ → I are inserted before the 'ruki' rule which retroflexes an s after ĭ, ĭ, r, etc. (ii) In some German dialects final θ deletion rule is inserted before the final obstruent devoicing rule. (iii) In some English dialects aw → aw is inserted before the rule that fronts velars before front vowels. (iv) In some Finnish dialects y → ö / e_e is inserted before ee → ie. (It is pointed out later on why this is not a case of rule reordering.)

Rule insertion is not really as odd a change as it appears once you observe how it comes about. It is brought about by the same processes of change that bring about rule addition. Let me show how rule insertion can occur through phonetic change. When a phonetic change occurs that impinges on an earlier compulsory phonetic rule one of the following developments can occur:

(i) It will push up the compulsory rule and get added after it. In that case rule addition will take place.

(ii) It will get superseded by the compulsory rule in which case in the reordering of rules it must take its place prior to the compulsory rule. In that case rule insertion will take place.

It is interesting to note that in the German and Finnish cases mentioned above some dialects have chosen the first alternative and some the second. Rule insertion through phonetic change is therefore as follows: when there is a compulsory rule in the language x → y / z_ and subsequently a phonetic change w → z including wx → zy occurs it is logically indispensable that it insert the rule w → z before x → y / z_ in an ordered rules format. The phonetic change wx → zy however need not occur segment by segment.
The implications of rule insertion for relative chronology are clear. When we have phonetic changes $x \rightarrow y / z$ and $w \rightarrow z$ including $wx \rightarrow zy$ the chronological order of the changes is either

(i) $w \rightarrow z$
(ii) $x \rightarrow y / z$

or

(i) $x \rightarrow y / z$
(ii) $w \rightarrow z$ including $wx \rightarrow zy$.

It is also claimed in this paper that one of the two types of reordering mentioned by Kiparski is non-existent, i.e. rule reordering characterised by a change of non-feeding order into feeding order. Rule reorderings of this type appear to be cases of rule insertion or contingent rule repetition. When in some Finnish dialects $eye \rightarrow ee$ it is odd to expect the rule $ee \rightarrow ie$ to wait patiently for sometime and then assert itself by reordering. It is more reasonable to expect the loss of $Y$ to be accompanied by diphthongisation.

Anthony J. Naro, University of Chicago and Instituto de Investigação Científica de Angola
SYNTACTIC CHANGE AS A SURFACE PHENOMENON

Syntactic change occurs in such a way as to increase regularity stated in terms of surface structure. On a deeper level such change can result in formal rules which are less general than before the change, producing a more complex grammar. In this respect syntactic change may differ from phonological change, which seems to be understandable in terms of formal rule generalisation.

The language learner constructs a grammar in stages of increasingly deep hypotheses. He postulates abstract structures different from surface structures and rules to relate the former to the latter only when forced to do so by the data to be accounted for. Since syntactic data are relatively less frequent than phonological data shallow syntactic hypotheses survive more easily than shallow phonological ones.

Examples are drawn from the syntactic history of English, Portuguese, Latin, Japanese, and other sources.
The purpose of this paper is to examine the historical source and implications of Aux deletions in Modern English questions.

If we take the full form of the question to be those utterances generated by fronting the first element of Aux, with DO insertion where Aux is tense only, then the actual questions people ask present a seemingly large and chaotic variety of deletions. For example:

- BE Deletion
  - "How ya put it in?"
  - "I (You) seen him lately?"

- DO Deletion
  - "Where ya been?"
  - "Whatcha been doing?"

- HAVE Deletion
  - "(You) seen him lately?"

These forms have in common the deletion of the first element of the Aux, namely, the tense carrier. There are two interesting restrictions: the tense carrier must be other than a Modal and the sentence must not be negative.

The following evidence suggests that the deletion option (which was not present in Shakespearean English) started with Yes-No questions and is now spreading to W-questions: (1) most tense carrier deletions are acceptable rapid Standard for Y-N questions, but W-question deletions are more restricted; (2) Non Standard dialects, such as Black English, have generalized this option so that it occurs widely with W-questions also, demonstrating the spread of the rule; (3) Y-N questions, but not W-questions, have developed a further optional deletion, that of the subject noun phrase 'you'.

This very general option to delete the first, fronted Aux element is significant in view of the history of English. An asymmetry which developed shortly after Shakespeare is being adjusted. Shakespeare had two present tense forms which were apparently equivalent: (A) I hear, and (B) I do hear, where the DO is unstressed. The corresponding interrogative forms were: (A) Hear you? and (B) Do you hear? Unexpectedly,
An important heritage from 19th century philology is the idea that only phonological factors can condition sound-change. Actually, there are instances in which morphological factors also play some role; however, these are distinctly exceptional, and any candidate for such interpretation must be severely scrutinized. With this in mind, I plan to discuss the Greek future. Other similar problems in Greek are less tractable to my analysis, and I do not handle them in detail.

The Greek future is formed as follows: stem + future formant + personal endings. For most verbs, the tense formant was once -s-, or, for a certain class of stems, -va-. Thus, the 1st sing. fut. forms from the typical stems trep-, lu-, and bal- were then trep-s-s-, lu-s-s-, and *bal-es-s-. The actually attested forms are trepsö, luso, and baleö. In baleö, we see the result of two phonological rules, whereby (1) -VhV- changed to -VhV-, and then (2) -VhV- changed to -VhV-. For some reason, though, luso and many other forms managed to contravene these rules.

According to the traditional explanation, the sound-changes took place without exception, but *luho or *lùo subsequently reverted to luso, because of the analogy of unchanged trepsö, etc. According to Kiparsky (Language 1967, 627), luso and its fellows were always exempt from rule (1). Neither explanation tells us why -s- was permanently lost from *baleö but not from luso.

It is best to steer a middle course between the old and new explanations. At one time, some speakers said luso and *baleö, and others said *luho and *balehö. At that time, children learning Greek generally adopted rule (1); all else being equal, they found intervocalic -h- preferable, perhaps because it was easier to pronounce. They also generally analyzed the future formant of trep- and lu- as -ss-, so as to retain the maximum possible regularity in the surface phonetic forms. This analysis was possible, because (a) Greek then had the geminate simplification rules -Csc- to -Cs- and -Vsc- to -Vs-, and (b) nearly all vocalic stems in Greek show a long vowel (or diphthong) in the future. Thus, from the child's underlying *trep-ss-ö and *lùu-ss-ö the surface forms would still be trepsö (the only form which he heard from adult speakers) and luso (which he heard from some speakers). There was not, however, any way of keeping the -s- of *baleö, since any surface occurrence of a short vowel before -av- was at this time incompatible with rule (1).
Analogic retention of Intervocalic -s- in the Greek Future

1. *geuoso  *geuhō  geuō (cf. Eng. choose)
2. genos  genos  genos (cf. Lat. genus)
3. *genesos  *geneshos  geneos (cf. Lat. generis)
4. trepsō  trepsō  trepsō
5. dōsō  ?  dōsō (Note do-se and do-so-si in Mycenaean)
6. *balesō  *balehō  baleō (Stem is bal-)
7a. luō  luō  luō {Homerica paradigm is generally
7b. lusō(?)  ?  lūsō  luō, lūpō, elūsa, just like
7c. elusa(?)  ?  elūsa  philēō, philēso, ephilēsa
8. *ēssoi  ..........  hēssai  (cf. Skt. āsaya)
9. *ōssō  ..........  oisō  (cf. oistos 'endurable')
10. *yōssai  ..........  zōssai  (cf. zōstos 'girded')
11. Cf. Knō(s)os, etc.
13. etelessa, epessi, etc., remain, except in Attic-Ionic and
Arcadian.
14a. stem + future formant + ending
14b. future formant = -s-/-Vs- (15a, 16a)
14c. future formant = -ss-/Vs-, or -ss-/Vh- (15e, 16d)
14d. future formant = -s-/V- (15f, 16e)

15. possible development, if sound changes were conditioned
only phonologically:
   a. trepsō  dōsō  lusō  philēos  balesō  ēssoi  geneos
   b. trepsō  dōhō  luhō  philēhō  balehō  ēssoi  genehos
   c. trepsō  "  "  "  "  "  "  "  "
   d. "  dōsō  lusō  philēos  "  "  "  "
   e. trepsō  dōsō  lusō  philēos  balehō  ēssoi  genehos
   f. trepsō  dōsō  lusō  philēos  baleō  (hēssai)  geneos
16. possible development, if sound changes were sometimes
morphologically conditioned:
   a. trepsō  dōsō  lusō  philēos  balesō  ēssoi  geneos
   b. trepsō  dōsō  lusō  philēos  balehō  ēssoi  genehos
   c. trepsō  dōsō  lusō  philēos  balehō  ēssoi  genehos
   d. trepsō  dōsō  lusō  philēos  balehō  ēssoi  genehos
   e. trepsō  dōsō  lusō  philēos  baleō  (hēssai)  geneos
17. Inscriptional evidence (Attic, etc.) for underlying
   -ss-, etc.:
   a. AXEHI  (i.e., akhēsi)  for  ἄξιε, which is normally
      considered to be ἄσει.
   b. ἘΠΑΘΕΝ  (i.e., egraphαν)  for  ἔπραθεν, which
      is normally considered to be ἔπραθαν.
   c. ΧΕΝΟΣ  (i.e., kʰsenos)  for  ξένως, which is
      normally considered to be κενος.
Concerning the historical origin of this formation, a great number of frequently controversial theories have been proposed. For reasons of time, this paper cannot discuss all of those theories but will rather narrowly focus on what appears to me the most plausible hypothesis proposed so far and on a possible way of expanding it.

That hypothesis was first proposed by Pedersen (cf. 1926:10-1 with reference to an earlier version). Pedersen correctly observed that there are (at least from the synchronic point of view) two types of -preterits in Lithuanian. The first type is exemplified by the set pres. laikau, in£. laik€ti, pret. sg. 1 laikiau, 3 laiskai, pret. pple. laikius-; the second type by peikiu, petkti, peikiau, petke, peikus-; that is, the two types differ by the fact that the first has a suffix ~1- in the infinitive and palatalization (marked by post-consonantal i) in the preterit participle, while the second has neither of these features. According to Pedersen, this indicates that the two types are historically of different origin, the second being an original real -preterit, while the first was originally a preterit in *-I- (with the -I- of the infinitive) > *-I< > -e (with perhaps some conditioned different outcomes and in that case subsequent leveling); similarly, the participle developed from *-I-us- via *-Ius- *-Ius- to -jus-. The original difference between the two types of preterits is in his opinion further indicated by the fact that in compound forms with preverbs, the two preterits show an accentual difference: iš-la†ke vs. iš-peikė.

This view has been accepted in essence also in the most recent handbook on the comparative linguistics of Lithuanian, namely Stang (1966: 382). However, as Stang correctly observed, the accentual argument is not very cogent, since the root-accentuation in forms like iš-la†ke can be considered to have been taken over from the corresponding presents which also show constant root-accentuation (cf. iš-la†ko). One might add that also in the other class of verbs, the accentuations of present and preterit are identical, both being of the 'mobile' kind.

Considering that the preterit participle is in origin the perfect
participle and thus originally not part of the preterit system, even the argument that the two types differ in the presence or absence of *-I- in that formation cannot be considered necessarily cogent. For it might be argued that originally, rather than agreeing with the preterit stem, the perfect participle agreed in structure with the infinitive: *-I-ti : *-I-us- = -P-ti : -P-us-.

In that case, it is possible to derive also the type petkë (inf. petk<e>-ti) from an earlier -e-preterit. For by and large (with the exceptions explainable by analogy), this -e-preterit corresponds to the je-present. In addition, where possible, the e-preterit of this type shows lengthened root vocalism, i.e. heavy syllables preceding the suffix. Under the assumption that Sievers-Edgerton's Law continued to operate until the origination of this preterit, it is possible to postulate the following development:


The difference between the preterit participles would then be due to the fact that thematic formations do not keep their suffix in the infinitive (cf. petkë : petk<e>-ti just like sukë : suk<e>-ti vs. laikë : laik<e>-ti) and in the formations agreeing with it in structure, including the old perfect participle.

This would then lead to the (to my knowledge) novel conclusion that all Lithuanian preterits (except for blt(i) 'was') can be derived from an original formation in *-a-.

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TRA LA PERDUTA GENTE: FRENCH /u/ REVISITED

Few phenomena in the development of French have had so much written about them as the change of Latin /u/ to /ü/, although indeed the change is not coterminous with French. The commonest explanation is that which traces this development to substratum influence. Pointing out the considerable coincidence of this change with former Celtic speaking areas, proponents of this hypothesis see the fronting of /u/ to /ü/ as arising from pre-Latin pronunciation habits, probably during a period of bilingualism, although some have suggested inherited physiological or psychological factors permitting emergence of this pronunciation considerably later.

Another common explanation sees fronting of Latin /u/ to /ü/ as a result of increased pressure exerted on it by the greater number of back vowels arising in Western Romance as a consequence of loss of vowel length. According to this view, four degrees of aperture for back vowels taxes the articulatory apparatus so that relief is gained by fronting /u/, permitting /o/ then to rise into the spot vacated, thereby yielding the more desirable three degrees of back vowel aperture.

It is the thesis of this paper that neither of the above is the case. Rather, the change in question is quite late, and arises as a transparent instance of generalization of a phonological rule by simplification, well into the period of Old French literary documentation. Further, the phonological developments which necessarily precede this change are also not only late and well documented, but also rest on such 'conditioned' changes as assimilation.
There is considerable disagreement as to what grammatical features determine the peculiar behavior of the preposition "a" before Direct Objects in Spanish. It is widely acknowledged that the function of this "accusative a" is that of distinguishing Direct Objects from Subjects. But most rules implicit in traditional analyses (e.g., Bello, 1847), and current in modern textbooks (e.g., Bolinger et al., 1960), are based solely on properties ("humanness", "definiteness") of the head Noun in the Direct Object, ignoring the Subject head Noun.

Appropriate counterexamples demonstrate that these analyses are incorrect. I will show that an adequate account must be based on transformational rules whose structural indices include not only the underlying Object but the Subject as well. I will further show that these rules must be ordered in the transformational cycle. Finally, I will show that an important class of apparent counterexamples springs from an homophonous preposition a which behaves exactly like other prepositions governed by verbs, and quite unlike the accusative a which it superficially resembles.

It has been argued that ordinary sentences are the complements of 'higher' sentences with performative verbs and that some adverbs come from 'higher' sentences. Here it will be argued that otherwise inexplicable phrases morphologically identical with phrases used in parseable comparisons indicate that there are comparisons being made at a higher level which is similarly involved with hypothetical verbs of saying and thinking and with truth finding.

Ordinary comparison between two structures (involving adjectives, adverbs, and nouns) is constrained as in 2 and 4:

1. John is [even more stupid stupider] than he is mean.
2. *John is stupider than mean.
3. John is [even more angry angrier] with Mary than she is with him.
4. *John is angrier with Mary than vice versa.

But sentences 5 (nonsynonymous with 1) and 6 (nonsynonymous with 3) are not so constrained:

5. John is [*even] more stupid than mean.
6. John is [*even] more angry with Mary than vice versa.

And 5 and 6 are paraphrases of 7 and 8 respectively:

7. John is stupid more than mean.
8. John is angry with Mary more than vice versa [she is with him].

More than, equally, as much as, et al. behave similarly. Hypothesizing a higher level of structure in which such elements express a true comparison involving qualities of statements can best account for them; 9 might be a paraphrase of 5 and 7 and 10 of 6 and 8:

9. John is more aptly described as stupid than as mean.
10. [Saying] [that] John is angry with Mary more aptly describes his feeling toward her than [that] Mary is angry with John describes her feeling toward him.

After rather is identified as a comparative and is related to non-temporal soon and lief, a similar distinction in the use of rather than,
as soon as, et al. will be made. 11 below presupposes that the speaker believes John made a choice; 12 and 14 have no such presupposition; 13 is ambiguous as to such a presupposition; and 15 shows no acceptable choice, unless an avalanche is granted purpose:

(11) John shot Bill rather than get shot by him. [sooner than]
(12) John shot Bill rather than got shot by him. [*sooner than]
(13) John had coffee rather than tea.
(14) John shot Bill rather than [Bill John
vice versa]. [*sooner than]
(15) The avalanche killed Bill rather than Harry.

I argue that rather than in sentences like 11 relates two choices which are structurally noun phrases; the surface structure of 16, for example, indicates more obviously the kind of deep structure which underlies both:

(16) John preferred to shoot Bill rather than [to] get shot by him.

I argue further that in sentences like 12, where choice is not so easy to track down, rather than still relates two choices, here those of the speaker, as suggested in 18:

(18) I prefer to make this true statement: John shot Bill rather than [to] make this untrue one: John got shot by Bill.

Making these facts fit with facts from other higher sentence analyses gives a more exact idea of the 'higher reaches' of syntax; this strong evidence of higher structure should encourage more research on conjunctions, conjunctive and sentence modifiers, and other 'sentential' phenomena; and, in general, developing a hypothetical structure which matches unexplained semantic facts on the one hand to unaccounted-for morphological 'coincidence' on the other is better established as an approach to syntactic research.

Postal has suggested that sentences like the following involve a type of deletion rule:

(1) Sam weighs 250 pounds.
(2) Hanoi has refused to cooperate.
(3) IBM is overpriced, but I bought [it anyway].

In these sentences, Sam refers to Sam's body, Hanoi, to the government whose capitol is Hanoi, and IBM, to the stock of the IBM Company. Postal would have the surface structure NP's Sam, Hanoi and IBM in the sentences above derived from their underlying semantic representation by a rule which he refers to variously as body-deletion, euphemistic genital deletion, government-deletion, stock-deletion, etc., depending on the semantic material involved. Accepting Postal's analysis, I refer to all such deletions as head deletions, calling the NP's remaining after such deletions beheaded NP's.

When two NP's beheaded by deletions of different underlying structures are coreferential in their position in underlying structure, they often function as coreferential in derived structure with regard to rules like pronominalization, relative clause formation, Equi NP deletion and reflexivization. However, NP's coreferential in their pre-head deletion position do not always behave regularly with respect to these rules, and this paper explores the difficulty of predicting in what cases they do and do not function as coreferential. Many unacceptable sentences with beheaded NP's can more easily be given an alternate interpretation than others, but the question of why some alternate interpretations occur more readily than others and in general when beheaded NP's act as coreferential is difficult and does not seem explainable purely in terms of surface structure facts, what syntactic rules are involved and what underlying material has been deleted.
Handout
Coreference and Beheaded NPs

1. Sam weighs 250 pounds.
2. Hanoi has refused to cooperate.
3. IBM is greatly overpriced.
4. a. Turn up the hi fi.
   b. Turn up the sound of the hi fi.
5. a. I'm parked in a no-parking zone.
   b. My car is parked in a no-parking zone.
6. a. Chomsky is too complicated for freshmen to read.
   b. Chomsky's work is too complicated for freshmen to read.
7. a. This can is contaminated.
   b. The contents of this can are contaminated.
8. Max is playing with himself again.
9. Norman Mailer doesn't mind being read under the influence of drugs.
10. Because Boston is so dirty, it will soon enact a new anti-litter law.
11. a. The campus of the university at Berkeley, whose students took to the streets in a pitched battle with police last spring, will soon be all glass and steel and concrete.
   b. Berkeley, which took to the streets in a pitched battle with police last spring, will soon be all glass and steel and concrete.
12. a. The government of North Vietnam wants the city of Hanoi to become more spacious.
   b. *Hanoi wants to become more spacious.
13. a. The people whose work is connected with the Stock Exchange threw ticker tape all over Wall Street.
   b. Wall Street threw ticker tape all over itself.
14. a. All the people who live in the apartment house have hepatitis, and it badly needs a new coat of paint.
   b. *The whole apartment house has hepatitis, and it badly needs a new coat of paint.
15. a. *Norman Mailer is reading himself on a nationwide TV broadcast.
   b. Norman Mailer wants to be read on a nationwide TV broadcast.
   c. Norman Mailer, who is seldom read on nationwide TV, will be reading someone else's work on NBC Sunday.
   d. Did Norman Mailer hear Richard Burton reading him aloud on the BBC?
16. a. *The hospital decided to have itself repainted.
   b. The hospital wants to be repainted.
   c. The hospital that was completely repainted last week has since reported four cases of patients being poisoned from lead fumes.
   d. *The hospital fired Sam several weeks after it was repainted.
   b. *Wall Street wants to cross Fifth Avenue.
   c. *Yesterday my cab stalled on Wall Street, which seems to be getting panicky.
   d. I drove along Wall Street last Friday afternoon, and I had a hard time realizing that it was in a panic.
18. a. *Monaco realizes that it is charming.
   b. ?Monaco boasts that it is charming.
   c. Monaco regrets that it is too small in area to accommodate more millionaires.
19. a. *Right after Kingston sat down at the conference table, it slid into the water.
   b. ?The Vatican didn't join in the festivities because it was flooded.
   c. Even if Monaco were larger in area, it wouldn't accept deserters.
20. a. Harry wanted to merge, but the rest of the board voted for continued separation of the two companies.
   b. Harry merged.
21. a. Sally is really a hawk; she even wants to bomb Hanoi.
   b. Sally bombed Hanoi last night.
22. a. Lila voted to disband.
   b. *Lila disbanded.
23. a. Nixon wants to bomb Hanoi.
b. Nixon tried to bomb Hanoi.

24. a. Mary wants to bomb Hanoi.
b. Mary tried to bomb Hanoi.

25. a. Nixon decided to bomb Hanoi
b. Nixon decided to walk on the moon.

26. a. Dylan Thomas listened to himself being read by Richard Burton for about two minutes, and then he stood up and lumbered out of the theatre.
b. *Dylan Thomas always liked to read himself aloud to an admiring audience.
c. *I once heard Dylan Thomas read himself.

27. a. Sam is redecorating the club that refused to take him as a member.
b. *The church that refused to take Sam as a member stands on the corner of Hollywood and Vine.
c. *Sam is building a steeple on the church that refused to take him as a member.

28. a. Andy Warhol is worth more on the open market than he was before Valerie Solanas shot him.
b. *Chagall is worth more than Pollock on the open market because he is Jewish.

29. a. The hospital contracted to be rebuilt without glass windows.
b. *The hospital refused to be rebuilt without glass windows.
c. *The hospital refused to be painted green.

30. I disagree with Hanoi and I hope we bomb it if we can spare the surrounding countryside.

31. Washington gives me all my grants, but I wouldn't want to live there.

32. a. Homer is difficult to read, isn't he?
b. Sappho is difficult to read, isn't she?

33. The museum has decided to rid itself of cockroaches.

34. Washington refused to negotiate, didn't they?

35. Homer [which] I can't read in the original Greek, is still to be found unopened on my book shelves.

36. Homer [who] I can't read in the original Greek, was a blind, wandering poet.

37. The United States, [which] refused to negotiate last July, is now trying to reopen peace talks as quickly as possible.

38. The United States, [who] is extremely large in area, would no doubt refuse to allow India to colonize Alaska.

39. Sam can read Homer, [who] does not have a pompous prose style.

40. Evtushenko can read Capote, [who] does not have a pompous prose style.

41. a. Proust expected most readers to finish reading him.
b. Proust expected most readers to finish him.
c. Proust expected most people to finish him.

42. Because Proust was an illustrious homosexual novelist, he takes up a shelf of the Gay Liberation National Library.

43. *Because Genet is a homosexual, he takes up a shelf of the Gay Liberation National Library.

44. *If you keep playing with yourself, you'll fall off.

45. If you keep playing with yourself, you'll go limp forever.

46. *You'll fall off your body.

47. Red-eyed people should conceal them with dark glasses.

48. The best baeam meat comes from young ones.

49. *Soccer players should really own several of them.

50. *The best pork comes from young ones.

51. *Soccer players should really own several of them.
52. Joe Namath doesn't like football; in fact he doesn't even own one.
53. Rich learned to speak Vietnamese soon after he was sent there.
54. That church is full of cobwebs and dirt, but it preaches against impurities of the soul.
55. The hospital went on a picnic after it was repainted.
56. IBM went on strike today, so I'm going to sell mine.
57. Sanskrit will not meet today, but Japanese, which is an equally interesting language, will.
58. a. All those who own IBM stock rejoiced at its high earnings.
   b. IBM rejoiced at its high earnings.
59. Betty is Jewish.
60. Betty is attractive.
61. Betty knows judo.
62. Max thinks he's too small to satisfy Betty.
63. Max thinks he's too poor to satisfy Betty.
64. Max admires Betty, and Betty admires Max.

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UNACCEPTABLE AMBIGUITY

In most dialects of English, sentence (i) is unambiguous:
(i) Jack wants Mike to wash himself, and Arnie to shave himself.
and has the same meaning as
(ii) Jack wants Mike to wash himself, and Jack wants Arnie to shave himself.
indicating, as noted in Jackendoff ("Gapping and Related Rules"), that the rule of *Gapping* must be blocked from applying in
(iii) Jack wants Mike to wash himself, and Arnie wants Mike to shave himself.
since such *Gapping* would yield (i), but then (i) should be ambiguous between the readings (ii) and (iii), which it is not.

This paper is an attempt to account for the unambiguity of (i) and similar but unrelated cases where ambiguity might be expected but does not occur. It is shown that a restriction on the rule of *Gapping*, as proposed by Jackendoff, cannot account for other cases of unacceptable ambiguity, and that all such cases can be accounted for only by an extension of the requirement on recoverability of deletions to the effect that certain kinds of deletion may not result in ambiguity. Such a constraint is, of course, transderivational. The implications of this conclusion for linguistic theory, in particular the problem of limiting the class of possible transderivational constraints, are briefly considered.
The passive voice in English is multiply ambiguous in ways that cannot be resolved within the context of Chomskyan syntactic deep structure. That is, the semantic result of the passive construction may be one of Agent Emphasis (These pyramids were built by the Mayas), Agent De-emphasis (This house is cleaned twice a month), or Direct-Object Emphasis (That story has been told too many times). An extension of Fillmore's case grammar analysis provides a hypothesis for resolving this ambiguity, and establishes at the same time an independent motivation for positing the deeper level of case structure in the underlying representation of sentences. An analysis of the Spanish passive voice and of the "reflexive substitute for the passive", in which the latter construction is shown to be neither a reflexive nor a substitute nor a passive, provides real-language support to the hypothesis, e.g. Estas pirámides fueron construidas hace mil años por los mayas. Se limpia esta casa dos veces al mes, and Esa historia ha sido contada demasiadas veces.
7. *Estas pirámides se construyeron hace mil años por los mayas.* (These pyramids were built 1000 years ago by the Mayas.)

8. Las pirámides se edificaron por esclavos. (The pyramids were built by slaves.)

9. Estas obras se venden por todos los librerones. (These works are sold by all booksellers.)

10. *Se rompieron las ventanas por Juan.* (The windows were broken by John.)

11. (Diagram)

12. (Diagram)

13. (Diagram)

14. *El río fluye.* (The river flows.)

15. Apparently the same as 13.

16. construir [(Agentive) Objective (Instrumental)]

17. fluir [Objective]

18. *El río se fluye.*

19. That window was broken by John.

20. This house is cleaned twice a month.

21. That story has been told too many times.

22. The oil should be changed every thousand miles.

23. Studies are begun daily that are greeted with initial enthusiasm only to be forgotten later on.

  (1) *Estas pirámides fueron construidas hace mil años.*

  (11) These pyramids were built 1000 years ago.

24. *Se construyeron estas pirámides hace mil años.*

25. (Diagram)

26. (Diagram)

27. Se me olvidaron los libros. (I forgot the books.)

28. The window was broken yesterday.

29. Somebody broke the window yesterday.

30. The window got broken yesterday.
CAT-KILLING: ON "by"-PHRASES IN PASSIVE SENTENCES

In passive sentences, certain superficially similar prepositional phrases are usually interpreted as indicating the direct cause of the action denoted by the verb, e.g. the "by"-phrases of (1), (2), and (3).

1) The cat was killed by George.
2) The cat was killed by arsenic.
3) The cat was killed by poisoning.

It is argued that the prepositional phrases exemplified in (1) and (2), usually termed "Agents" and "Instrumentals", respectively, do not have the same underlying structures. This argument is not new, and is based on facts about co-occurrence in passives (4), co-occurrence limitations in nonpassives (5) and (6), and preposition restrictions (7) and (8), among others.

4) The cat was killed by John with arsenic.
5) John killed the cat with arsenic.
6) *Arsenic killed the cat by John.
7) The cat was killed with John.
8) The cat was killed with arsenic.

Similar facts of co-occurrence restriction and preposition restrictions are presented to show that the prepositional phrases exemplified in (3) can be neither Agents nor Instrumentals.

4a) *The cat was killed by John with poisoning.
4b) *The cat was killed by arsenic by poisoning.
5a) *Poisoning killed the cat with arsenic.
6a) *Poisoning killed the cat by John.
9) The cat was killed with poisoning.

It is proposed to term such prepositional phrases "Consequentials" and an underlying source and derivation is proposed. Apparent counter examples, e.g. 10, are presented, and shown to be spurious, by arguments providing further support for the proposed underlying source.

10) The cat was killed by poisoning with arsenic.

It is finally argued that the basic distinction between Consequential phrases and the more familiar Agent and Instrumental phrases is the derivation of the former from underlying S, i.e. their status as derived nominals as opposed to lexical nominals. It is then seen that the co-occurrence restrictions between Consequentials and Agent and Instrumental phrases in passives require a knowledge of the derivational history of the constituent NPs, supporting the hypothesis that Global Derivational Constraints are necessary to transformational grammars.
HANDOUT
Cat-killing: On "by"-phrases in Passive Sentences

1. The cat was killed by George.
2. The cat was killed by arsenic.
3. The cat was killed by poisoning.
4. The cat was killed by George with arsenic.
5. George killed the cat by arsenic.
6. arsenic killed the cat by George.
7. The cat was killed by George with arsenic.
8. The cat was killed by arsenic.
9. a. The cat was killed by George with arsenic.
   b. The cat was killed with arsenic by George.
10. a. The Pentagon was destroyed absentmindedly by Filbert with a bomb.
    b. The Pentagon was destroyed by Filbert absentmindedly with a bomb.
    c. The Pentagon was destroyed with a bomb by Filbert absentmindedly.

11. a. *The cat was killed by George with poisoning.
    b. *The cat was killed by arsenic by poisoning.
12. *Poisoning killed the cat with arsenic.
13. *Poisoning killed the cat by George.
14. The cat was killed by poisoning with arsenic.
15. The war was lost by incompetence with artillery.
16. The economy was ruined by overexpansion.
17. a. *The cat was killed by George with poisoning.
    b. *The cat was killed by arsenic by poisoning.
    c. *Poisoning killed the cat with arsenic.

18. a. *The cat was killed with arsenic by George.
    b. *The cat was killed by poisoning.
    c. *The cat was killed by the neck by hanging.
20. The economy was ruined by mismanagement.
21. The war was lost by incompetence with artillery.
22. a. See 11b above.
    b. *The cat was killed by the neck by hanging.
    c. *The war was lost by artillery by incompetence.
23. a. *(by hanging) [by the neck]
   prep p prep p prep p prep p
b. *(by poisoning) [with arsenic]
   prep p prep p prep p prep p
c. *(by incompetence) [with artillery]
   prep p prep p prep p prep p

24. a. [by (hanging [by the neck])]
   prep p NP prep p prep p NP prep p
b. [by (poisoning [with arsenic])]
   prep p NP prep p prep p NP prep p
c. [by (incompetence [with artillery])]
   prep p NP prep p prep p NP prep p

25. The war was lost by Westmoreland by incompetence.

26. The economy was ruined by Nixon by mismanagement.

27. The glass was broken by Caruso by his singing.

28. a. *(by incompetence) [by Westmoreland] = [by Westmoreland]
   prep p prep p prep p prep p prep p
   [by incompetence]
   prep p prep p
b. *(by mismanagement) [by Nixon] = [by Nixon]
   prep p prep p prep p prep p prep p prep p
   [by mismanagement]
   prep p prep p
c. *(by his singing) [by Caruso] = [by Caruso]
   prep p prep p prep p prep p prep p
   [by his singing]
   prep p prep p

29. a. [by (incompetence by Westmoreland)]
   prep p NP
   by Westmoreland's incompetence
b. [by (mismanagement by Nixon)]
   prep p NP
   by Nixon mismanagement
c. [by (his) singing by Caruso]
   prep p NP
   by Caruso's singing

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SOME EVIDENCE FOR THE HYPOTHESIS OF SIMPLEX-FEATURE REPRESENTATION

This paper will be concerned with the distinguishing implications and relative values of the simplex-feature hypothesis, which requires the representation of all linguistic objects by strings of minimally independently-interpretable elements such as (NASAL, HUMAN, VERBAL, ...) and the alternative hypothesis of complex-feature representation, which permits linguistic representations to include complex two-element minimal constructions such as [+Nasal], [-Human], [+Verbal], etc. It will be shown that when these two representational hypotheses are explicitly formulated and compared, the simplex-feature hypothesis is found to have consistently greater explanatory value than its less restricted complex-feature alternative.

Specific evidence will be presented to show that the simplex-feature hypothesis not only permits the distinct representation of distinct objects by means of a smaller vocabulary of theoretical terms and a simpler system of empirical interpretation, but also determines a much more restricted class of possible grammatical rules and possible languages than can be determined by the complex-feature hypothesis. It will be suggested that these restrictions are consistent with the known facts about natural language, and hence that the simplex-feature hypothesis is a necessary principle of natural language grammar.

An example of the type of confirming evidence that will be discussed concerns the fact that there are languages in which all word-final true consonants are voiceless (e.g. German, Thai), but none in which all final consonants are voiced. This fact can be explained only by theories that determine possible phonological rules that devoice final voiced consonants but no rules that voice final voiceless consonants. Theories that permit complex-feature representation are inherently incapable of providing any principled differentiation of these two rule-types, however, since there is no general principle from which it would follow that a rule like ([+Cons] [-Voiceless]/_ #) is a possible rule while ([+Cons] [+Voiceless]/_ #) is not. For theories that incorporate the simplex-feature hypothesis, on the other hand, the natural rule of final devoicing would...
necessarily have to be expressed as an element deletion transformation, (\text{VOICED} \rightarrow \emptyset/\{\text{CONS, \_\_}\} \#), while the unnatural rule of final voicing would necessarily have to be expressed as an element adjunction transformation, (\emptyset \rightarrow \text{VOICED}/\{\text{CONS, \_\_}\} \#). The possibility of the former rule and the impossibility of the latter would then follow naturally from the general principle that elements which are equivalent to null are universally addable but not deletable in constituent-initial position and deletable but not addable in constituent-final position. This principle is independently motivated with respect to a wide range of other facts about prothesis, apocope, and the differences between the initial and final distributions of spirants, aspirates, and nasals in various languages, and it is thus capable of serving in simplex-feature theories as an otherwise unavailable explanation of the given facts about final devoicing.

Similar evidence of the greater restrictive and explanatory powers of the simplex-feature hypothesis will be presented with respect to facts about reflexivization, superficial subjecthood precedence, nasal assimilation and vowel-contraction processes, and the quality relations between the apocopated and unassimilated prothetic and epenthetic vowels of particular languages.

Within the basic framework provided by Chomsky and Halle in Part IV (especially chap. 9 on markedness) of the Sound Pattern of English, this paper will argue that the forcing of binary features into the deeper levels of phonology leads to a distortion and complication which can be avoided if trinary features are allowed at the deepest levels of the grammar. The C-H theory is interpreted as allowing deep level marked-unmarked phonological features in which the marked features may be ± (general marked) or + or −. These marked-unmarked rules are converted by a largely universal set of rules into a system of features marked exclusively plus or minus. Later rules can further convert these to an n-ary stage on the phonetic level. This paper will argue that a better phonology is derived with a marked-unmarked system (where marked may be ±, +, or −) which is converted by a set of explicit rules into a trinary (+, 0, −) system which is later converted to an n-ary phonetic system and that this can be done without loss of formality. This modification results in alteration of some features; paired features (high-low, front-back) are reduced to one three-valued feature. Some features (round, tense, length, voice) gain in descriptive power with three values; others (lateral, nasal, all major class features) are inherently binary (marked ± or 0). The 0 value is particularly useful in defining the neutral position. This theory is based on and demonstrated by the phonology of Malayalam which has six consonantal positions with contrasting stops and nasals, and extensive fricatives and liquids.
Trinary Features in Generative Phonology

**TABLE A** Trinary Features with SPE Binary Equivalents

<table>
<thead>
<tr>
<th>Feature</th>
<th>+ High</th>
<th>- Low</th>
<th>0 Back</th>
<th>+ Back</th>
<th>- Anterior</th>
<th>- Back</th>
<th>+ Anterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labials</td>
<td>+ 0 0</td>
<td>a a</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentals</td>
<td>0 + 0</td>
<td>a</td>
<td>a</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alveolars</td>
<td>0 0 +</td>
<td>0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retroflexes</td>
<td>0 +</td>
<td>0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Palatals)</td>
<td>0 0 0</td>
<td>+ 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Velars</td>
<td>0 0 0</td>
<td>0 +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

+ Labial—Labial closure sufficient to cause frication
0 Labial—no such closure
+ Retroflex—Apex of tongue decidedly turned back
0 Retroflex—Apex position normal
(+ Retroflex) = [+Coronal]

**TABLE B** Trinary Features with no Simple Equivalents

<table>
<thead>
<tr>
<th>Feature</th>
<th>+ Length</th>
<th>- Length</th>
<th>+ Tense</th>
<th>- Tense</th>
<th>+ Voice</th>
<th>- Voice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Taps</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Flaps</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>+ Voice</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>0 Voice</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

**TABLE C** Variables

A rule of the form

\[ A F_1 - B F_2 \]

where \( A \) is a non-variable, \( B \) is a variable, and \( F_1 \) has a trinary interpretation is not allowed.

**TABLE E** Markedness Conventions

I. Using a rule of the form

\[ [u \text{ feat}] - [+ \text{ feat}] \]

implies the cooccurrence of a rule of the form

\[ [m \text{ feat}] - [0 \text{ feat}] \]

II. Whereas using a rule of the form

\[ [m \text{ feat}] - [+] \]

implies the cooccurrence of a rule of the form

\[ [u \text{ feat}] - [+] \]

It is to be understood that version II cannot be used for binary features unless \([u \text{ feat}] - [+ \text{ feat}] \).
Lyle Campbell, University of Missouri

PHONETICAL FEATURES: PROBLEMS AND PROPOSALS

This paper has two purposes: 1) to point out inadequacies in the phonological feature system proposed by Chomsky and Halle in the Sound Pattern of English, and 2) to suggest solutions to these inadequacies.

The inadequacies are in unattained natural classes and unattained underlying contrasts. An example which demonstrates the inability of the proposed feature system to account for some very common natural classes involves labials. In many languages vowels are rounded in the environment of labial consonants, e.g. Cakchiquel Mayan a - o / labial (p, b', m). In many languages round vowels and glides are interchanged with labial consonants in certain rules, e.g. w > v in several Germanic, Indo-European, Uto-Aztecan, Mayan languages, etc.; Finnish ü - v / V, V; Spanish b > v / C (e.g. cibdad > ciudad, bautismo > "city" and "baptism" respectively); etc. These are natural rules (of which many examples will be presented), but there is nothing in the feature system to explain why [+anterior, -coronal] consonants (labials) should cause [+round] vowels, or why [+round] vowels and glides should become [+anterior, -coronal] consonants. Thus the class which involves labial consonants and round vowels and glides is unattained in the proposed system. There are several other such unattained natural classes.

One example of an unattained underlying contrast involves velars and palatalized velars. Velars are [+high, +back], and palatalization is represented by [+high]. Therefore, it is impossible to specify a palatalized velar, since velars are inherently [+high]. (Consonants specified as [+high, -back] cannot be palatalized velars, for they are true palatals.) Another example of a contrast not provided for by the proposed feature system involves [+back, -round] vowels. Efe and Ngwe are languages reported to have an underlying contrast between [high unrounded central V] and [high unrounded back vowel], and between [mid unrounded central vowel] and [mid unrounded back vowel]. In the feature system these are all categorically [+back] vowels, and hence the contrast is unattained. (It should be noted that scalar values could

9 background for rules 4-6: all geminate consonants and long vowels are [-length], all strident fricatives are [+tense], (Sanskritic) aspirate stops are [+harp], (Sanskritic) voiced stops are [-voice].

Note: The marked-unmarked rules are used as a format. No claims are made for these rules necessarily being universal.

4a. [u length] → [- length] // ([ - cons] [+ cor] [- cons] [+ high]
   {                       [ + cons]
   \ [ + voc]           [ 0 lat]}
   [0 length]

4b. [m length] → [0 length] // (as above) [does not occur]
   [/ + length]  

5a. [u tense] → [+ tense] // [+ harp]
   { 0 tense} // [+ voice]
   [/ u tense] // [a length]

5b. [m tense] → [0 tense] // [+ tense] // (environments as above)
   [/ m tense] // [+ a length]

6a. [u voice] → [- voice] // [+ tense], [+ WB]
   { 0 voice}

6b. [m voice] → [0 voice] // (as above) [does not occur]
   [+ voice]

[140]
designate degrees of backness, but scales are to be restricted to a phonetic function, not to the specification of underlying contrasts.)

Two possibilities are available for revising the feature system to account for natural classes and contrasts not attained. The first is to add new features, such as labiality. In such an alternative, round vowels would be in a natural class with labial consonants because both would be [+labial]. Round vowels would also be in a class with labialized consonants (a class needed in the rules of many languages) since both would be [+round]. Unfortunately, any increase in the number of features, however well motivated, automatically produces greater numbers of intersecting and cross-classifying classes. It is desirable to avoid increasing the number of distinctive features available if possible.

The second alternative is to introduce the "complex symbol" in phonology whereby all primary points and manners of articulation are specified by the features of the existing system, but secondary manners of articulation are specified by features of a second matrix associated with the matrix of the primary manners and points of articulations, and representing the independent and only partially simultaneous articulatory gestures of the secondary manners of articulations such as palatalization, labialization, etc. This alternative allows for all the contrasts and natural classes previously unattained without the undesirability of added new features which function rarely but are needed to attain classes and contrasts not now attained. The concept of this "complex symbol" will be described, defended, and illustrated.

Daniel A. Dinnsen, University of Texas at Austin

CONSTRAINTS ON DERIVATIONAL HISTORY IN PHONOLOGY

Evidence has been advanced recently in favor of incorporating a generalized version of derivational history into phonological theory. The innovation of this theoretical device constitutes a significant departure from current theory and vastly increases the range of possible formal grammatical relationships. However, any theory that incorporates the generalized version of derivational history characterizes a wider range of relationships than need be ascribed to natural language. It will be shown in this paper that the evidence motivating derivational history is characteristically restricted to insertion and deletion phenomena. The restricted nature of this evidence permits a highly constrained version of derivational history which derives as a natural consequence of the 'null segment hypothesis'. This hypothesis does require the selection of a derivational marker, i.e. the 'null segment'. However, the null segment hypothesis obtains as a logical extension of current theory and narrowly defines the set of all and only those processes that can introduce the marker into a string. The role of this hypothesis is shown further to have implications for representing certain information in lexical items and for stating conditions on historical change.
I. The problem

II. Consideration of constraints

A. Lightner's 'look-ahead' rules

B. Recoverability condition on deletion in phonology

C. Null segment hypothesis

1. The extent to which a rule may need access to derivational history is restricted to the output string of deletion rules.

2. Deletion rules (and only deletion rules) introduce into a string (by despecification) a uniquely recoverable marker, i.e. the null segment which is specified minus (-) for all features including the feature 'segment'.

III. Falsifiability

The null segment hypothesis may be falsified if it can be shown that some rule in a grammar needs access, in some sense, to any rule other than a deletion rule. That is, the hypothesis is false if, for example, there is:

A. a rule that needs to distinguish a basic vowel from an inserted (epenthetic) vowel, or

B. a rule that needs to distinguish between an inherently (phonemic) long and derived (predictable) long vowel, or

C. a rule that needs to distinguish between a phonologically palatalized consonant and a phonemic palatal.

IV. Evidence for derivational history from Klamath as reported by Kisseberth in his recent unpublished paper, "A Global Rule in Klamath Phonology."

Reduplication (R) The distributive form of the verb is obtained by reduplicating the initial consonant (cluster) of the stem and making a short copy of the first stem vowel after the reduplicated consonant(s).

Vowel Copy (VC) The critical part of the rule makes a short copy of the stem vowel in certain prefixes (including those derived from (R)) and deletes the stem vowel if short.

n-deletion (n/∅) Morpheme-final n is deleted in the environment C-V/.x.

Vocalization (VOC) Glottalized and plain semi-vowels are vocalized (with glottalization neutralized) in the environment C(S) [∅]. The optional semi-vowel (S) has the effect of vocalizing the second of two contiguous semi-vowels.

a-replacement (a-replc) Epenthetic a is inserted in the environment before a consonant cluster provided that a stem vowel occurred before that cluster prior to the application of (VC).

Kisseberth demonstrates (1) that (VC) and (a-replc) must be separate rules, (2) that one or more rules are ordered between (VC) and (a-replc), and (3) that (a-replc) requires access to derivational history, i.e., the input to (VC).

Sample derivations

1. (n/∅) must follow (VC):

\[
\begin{align*}
\text{(n/∅)} & \quad \text{must follow (VC)} : \\
\text{/snV*-ken-a/} & \quad \text{snV*} \\
\text{(R)} & \quad \text{snV*} \\
\text{(VC)} & \quad \text{snV*} \\
\text{(n/∅)} & \quad \text{snV*} \\
\text{(VOC)} & \quad \text{snV*} \\
\text{(a-replc)} & \quad \text{snV*} \\
\text{output: [sneka] morphophonemic alternate: [kena]} & \\
\text{but not: *[snekena], *[snekena]} & 
\end{align*}
\]
2. (VOC) must follow (n/¥):

\[ /\text{swin-a}/ + D \]

(R)  
swV*-swin-a  
(VC)  
swi-sw n-a  
(n/¥)  
swi-sw -a  
(VOC)  
---------  
(a-replc)  
---------  
output: \[ [\text{swiswa}] \] morphophonemic alternate:  
[swina]  
but not: *\[ [\text{swis}o:na] \]

3. (a-replc) must be separate from (VC) and must follow (VOC):

\[ /\text{siwg-a}/ + D \]

(R)  
sv*-siwg-a  
(VC)  
si-s wig-a  
(n/¥)  
---------  
(VOC)  
si-s og-a  
(a-replc)  
---------  
output: \[ [\text{siso:ga}] \] morphophonemic alternations:  
[siwga], [hiso:ga]  
but not: *\[ [\text{sisaw}ga] \]

4. (a-replc) requires derivational history:

\[ /\text{sV*-ltoq-a}/ \]

(R)  
---------  
(VC)  
so-lt q-a  
(n/¥)  
---------  
(VOC)  
---------  
(a-replc)  
---------  
Note: (a-replc) does not apply since a consonant cluster does not follow the slot from which the stem vowel was deleted.

output: \[ [\text{soltqa}] \] morphophonemic alternate:  
[ltoqa]  
but not: *\[ [\text{solatqa}], *[\text{soltqa}] \]

\[ /\text{sV*-sip}^c-a/ \]

(R)  
---------  
(VC)  
si-s pč-a  
(n/¥)  
---------  
(VOC)  
---------  
(a-replc)  
si-sapč-a  
output: \[ [\text{sispča}] \] morphophonemic alternate:  
[sipča]  
but not: *\[ [\text{sispča}] \]
5. Miscellaneous:

/\w\-w\-\tk/ +D  

(R)  
wV*-\w\-\w\-\tk  

(VC)  
we-w \n\w\-\tk  

(a/#)  
  

(VOC)  
we-w \n\w\-\tk  

(a-replc)  
we-wan\w\-\tk  

output: [\w\-\w\-\\tk] morphophonemic alternations: [\w\-\\tk], [\w\o:ya]  

but not: *\[\w\-\w\-\\tk\]

IV. Implications of the null segment hypothesis for lexical representations

Kisseberth introduces ad hoc the symbol V* in certain prefixes (1) to trigger the vowel copy rule and (2) to designate the position in the prefix where the copied vowel is to appear.

snV*- causative prefix with short copy following n.

hV*s- causative prefix with short copy between n and s.

sv*- reflexive prefix with short copy following s.

s- transitive prefix with no copied vowel.

James E. Hoard, University of British Columbia
Clarence Sloat, University of Oregon

THE INTEGRATION OF MARKEDNESS INTO PHONOLOGY

Incorporating markedness considerations into phonology directly yields a more explanatory system. As has been suggested by Chomsky and Halle in SPE, lexical entries are over markedness values. In addition, the set of morphological rules, which specify symbolic processes and basic allomorphs of affixes, are also over markedness values. The set of strictly phonological rules, those which make no use of syntactic or semantic features, are to be divided into two groups. One of these two groups of rules is written over markedness values; the other group is over phonetic values. These two groups of rules can be distinguished in a principled way. The rules written over phonetic values are essentially the assimilatory processes; the other group comprises the context free processes.

The evidence in favor of incorporating markedness into morphological rules includes ablaut and umlaut in English and historical developments in Sanskrit, Germanic, English, and in Northwest Indian languages. Further evidence is provided by the naturalness of affixal allomorphs with respect to markedness.

The group of P-rules which requires markedness formulation includes the English vowel shift rule and the vowel contraction rules of Nootka and Swahili. An explanatory account of these processes cannot be formulated over phonetic values augmented by 'linking' rules. P-rules that must be formulated over phonetic values include both the progressive and intervocalic voicing rules of English and the Coeur d'Alene vowel assimilation rule. The fact that P-rules divide themselves into two groups leads us to the view that the rules over markedness values have a psychological basis, whereas those over phonetic values have a physical basis.

Markedness can also be brought to bear on the problem of characterizing productive and unproductive processes. Those rules which are unproductive can be considered marked; productive rules can be considered unmarked. A typical case is the English plural which manifests several unproductive basic allomorphs and one productive basic allomorph. Of
alternative basic allomorphs for the same morpheme only one is ordinarily chosen. These observations allow a principled empirically based theory of irregularity, unlike the formal system of Chomsky and Halle (extended by Lakoff), which fails to distinguish satisfactorily productive from unproductive processes.

This paper argues that disjunctive ordering holds between phonological rules of the form:

\[
\begin{align*}
(1) & \quad A - B / P \quad Q \\
(2) & \quad C - D / R \quad S
\end{align*}
\]

if the context PAQ is a subset of RCS. I term this the elsewhere convention. Chomsky’s and Halle’s observation that disjunctive ordering holds between rules that can be collapsed with parentheses or angled brackets is essentially the special case where \( B = D \). The idea of generalizing their convention was first proposed by Stephen Anderson.

The supporting evidence is of two sorts:

(A) The elsewhere convention enables us to express linguistic regularities which cannot be expressed in the present theory. For example, consonant assimilation and deletion processes are often disjunctively related (examples 2 and 3 on the handout). In Slavic, the "circumflex" rule must be disjunctive with respect to the other accent assignment rules (example 4).

(B) Phonological derivations conforming to the elsewhere convention (but not to the present theory of phonology) are required by metrical evidence in Vedic Sanskrit (example 5).

In conclusion, the paper discusses the possibility of extending the convention still further so as to require disjunctive ordering between rules (1) and (2) if \( P \quad Q \) is a subset of \( R \quad S \). Example 6, from Sanskrit external Sandhi, provides evidence for this generalization.
"Elsewhere" in phonology

(1) Middle English (Anderson, 1969)

\[ \begin{align*}
V \rightarrow [-long] / _{-}CVC \_ \& V \\
[ V ] \rightarrow [-long] \\
[ -hi ] \rightarrow [-hi] / _{-}CV \\
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(2) Western Finnish

\[ \begin{align*}
k \text{ (or h)} & \rightarrow \left\{ \begin{array}{l}
C_{1} / _{-}C_{1} \\
\emptyset / _{-}C_{1}
\end{array} \right. \\
\text{pause}
\end{align*} \]

(3) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni-gam-gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji +mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

(4) Western Finnish (Anderson, 1969)

\[ \begin{align*}
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(5) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni+gam+gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji+mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

(6) Western Finnish (Anderson, 1969)

\[ \begin{align*}
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(7) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni+gam+gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji+mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

(8) Western Finnish (Anderson, 1969)

\[ \begin{align*}
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(9) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni+gam+gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji+mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

(10) Western Finnish (Anderson, 1969)

\[ \begin{align*}
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(11) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni+gam+gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji+mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

(12) Western Finnish (Anderson, 1969)

\[ \begin{align*}
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(13) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni+gam+gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji+mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

(14) Western Finnish (Anderson, 1969)

\[ \begin{align*}
\text{sun} \sim \text{sones} \\
\text{wik} \sim \text{wakes} \\
\text{evel} \sim \text{iveles} \\
\text{saker} \sim \text{sikerli} \\
\text{somer} \sim \text{sumeres}
\end{align*} \]

(15) Diola-Fony (Sapir)

"Consonant reduction is achieved by eliding the first of two adjacent consonants. If the first consonant is nasal, it assimilates where possible without eliding."

Examples:

a. ni+gam+gam > nigragam
   'you (pl) will know'
   'you (pl) will know'

b. na+maJl+manJ > namajmanaj
   'he returned'
   'he returned'

c. tan+ji+mbi... > takumbi...
   'he must not...'
   'he must not...'

d. na+maJl+manJ > nallalJ
   'he returned'
   'he returned'

Solution A

1. Assimilation

\[ \begin{align*}
[ C ] & \rightarrow [-0 \text{ place}] /_+ \left\{ \begin{array}{l}
(\emptyset) [+\text{obs}] (a) \\
[+\text{nas}] (b)
\end{array} \right. \\
[ +\text{nas}] & \rightarrow \emptyset /_+ \left\{ \begin{array}{l}
[-\text{obs}] (a) \\
\emptyset (b)
\end{array} \right. \\
[ C ] & \rightarrow \emptyset /_+ (\emptyset) C (d)
\end{align*} \]

2. Deletion

\[ \begin{align*}
[ C ] & \rightarrow [-0 \text{ place}] /_+ \left\{ \begin{array}{l}
(\emptyset) [+\text{obs}] (a) \\
[+\text{nas}] (b)
\end{array} \right. \\
[ +\text{nas}] & \rightarrow \emptyset /_+ \left\{ \begin{array}{l}
[-\text{obs}] (a) \\
\emptyset (b)
\end{array} \right. \\
[ C ] & \rightarrow \emptyset /_+ (\emptyset) C (d)
\end{align*} \]

Solution B (conjunctive ordering)

1. Deletion (as in solution A)

2. Assimilation

\[ \begin{align*}
[ C ] & \rightarrow [-0 \text{ place}] /_+ (\emptyset) C \\
-\text{salt} & \rightarrow \emptyset (\text{be dirty}') \\
-\text{arti} & \rightarrow \emptyset (\text{negative suffix}') \\
na+maJl+manj & \rightarrow (\text{Del.c}) \rightarrow na+maJl+manj \\
na+maJl+manj & \rightarrow (\text{Del.d}) \rightarrow na+maJl+manj
\end{align*} \]

Solution C (disjunctive ordering by elsewhere convention)

1. Assimilation (as in solution A)

2. Deletion

\[ \begin{align*}
C & \rightarrow \emptyset /_+ (\emptyset) C
\end{align*} \]
(4) **Slavic (Halle)**

Various rules accenting stems and endings:

Circumflex rule: any word which has not been accented by the previous rules gets an initial accent.

\[ V = [+\text{acc}] / \emptyset C \_ X \emptyset \]

\[ X \text{ contains no } [V + \text{acc}] \]

(5) **Rigvedic meter**

Surface distribution of glides and vowels:

\[
\begin{align*}
\text{env. } G: [y,v] & \quad \text{env. } V: [l,u] \\
\{V, V\} & \quad \_C \\
\{\emptyset\} & \quad \{V, \_C, V\} \\
\end{align*}
\]

Solution A (conjunctive)

/\text{ütī}+\text{ā} \text{ ṛcī}+\text{ā} \text{ ayug}+\text{dhvam} a\text{ują}+\text{dhvam} /

\[
\begin{align*}
\text{[+syl]} \quad \{+\text{cont}\} \\
\text{[+syl]} \text{ in env. } G \\
\text{[+syl]} \text{ in env. } V \\
\end{align*}
\]

Solution B (conjunctive)

/\text{ütī}+\text{ā} \text{ ṛcī}+\text{ā} \text{ ayug}+\text{dhvam} a\text{jualan}+\text{dhvam} /

\[
\begin{align*}
\text{[+syl]} \quad \{+\text{cont}\} \\
\text{[+syl]} \text{ in env. } G \\
\text{[+syl]} \text{ in env. } V \\
\end{align*}
\]

Solution C (disjunctive by elsewhere convention)

/\text{ütī}+\text{ā} \text{ ṛcī}+\text{ā} \text{ ayug}+\text{dhvam} a\text{jualan}+\text{dhvam} /

\[
\begin{align*}
\text{[+syl]} \quad \{+\text{cont}\} \\
\text{[+syl]} \text{ in env. } G \\
\text{[+syl]} \text{ in env. } V \\
\end{align*}
\]

(6) **Sanskrit external sandhi**

A. \([+\text{cor}] \rightarrow [\alpha \text{ pos}] / \emptyset \) \quad \text{[+pos]} \quad \text{obl}

B. \([+\text{cor}] \rightarrow [\alpha \text{ pos}] / \emptyset \) \quad \text{[0 pos]} \quad \text{opt}

C. \([+\text{cor}] \rightarrow \beta / \emptyset \) \quad \text{[+cont]}

\[\text{pause}\]

C. \([+\text{cor}] \rightarrow \beta / \emptyset \) \quad \text{[+cont]}
The language situation in the deaf community is a diglossic situation, with the H variety being Standard English and the L varieties being a variety or varieties of Deaf Non-standard English and/or a variety or varieties of American Sign Language. All members of the deaf community do not know all the varieties on the diglossic scale. This paper attempts to outline possible and much-needed sociolinguistic research among the deaf in several areas. The areas are listed below. Research design and problems will be expanded in the presentation.

1) Social and Linguistic Variables. Certain social factors influence language choice and variation among the deaf. These factors seem to be social class, educational level of parents and self, date and degree of hearing loss of parents and self, type of school attended (oral or manual), and possibly several other factors.

2) Language Attitude Studies. There are several conflicting attitudes toward the use of American Sign Language in different social situations. However, attitudes toward Deaf Non-standard English seem to be uniformly negative.

3) Pidgins and Creoles. Certain varieties on the deaf diglossic scale (Signed English) have the characteristics of pidgins and creoles. A number of redundancies on various levels are omitted, e.g. "I am go" is used for "I am going".

4) Sociolinguistics and Education. The sociolinguistic language situation among the deaf (as sketched above) suggests a modified TESOL approach for language training for the deaf. This would necessitate a revolution in the traditional approach to language education for the deaf.

This paper investigates the address avoidance of second person personal pronouns in Swedish in terms of language universals and the relationship between deviation from a universal linguistic feature and social structural change. The hypothesis proposed is that if a language universal exists, and if a language possesses this universal language feature but under specific conditions systematically avoids this feature with circumscriptions, then this particular language usage contains clues to the socio-cultural-economic conditions in that social structure.

The language universal examined is Hockett's "Among the deictic elements of every human language is one that denotes the speaker and one that denotes the addressee" to which I have added "In questions which elicit a response about the addressee's opinion, want, feeling, or experience, there is a tendency to formally denote the addressee." Eleven ways of expressing "What do you want?" in Swedish, only two of which denote the addressee, are examined and the contextual conditions which tend to elicit the various forms are discussed. The assumption given to account for this address avoidance is that it reflects a stage of development from the non-reciprocal power semantic to the solidarity semantic in the terms of the Brown and Gilman study "Pronouns of Power and Solidarity"; that it reflects the dichotomy between a still highly stratified community in terms of social class and the social democratic ideology of equality which has been the dominant political ideology since 1932. As a corollary it is suggested that if there is a casual relationship between social equilitarian ideology and address avoidance of pronouns of address, and if social-democratic ideology continues to influence Swedish social structure, this will be reflected in language customs in an increased use of du. Evidence based on informants' language behavior to support these assumptions is presented.
A number of recent studies have discussed the subtle grammatical
differences which exist within groups which speak essentially the same
dialect. Two main methods have been employed. The procedure of Elliott,
Legum, and Thompson (1969) and of Carden (1971) has been to classify
informants by subtype; e.g. Carden divides his informants into five dif­
ferent categories, according to their judgments about the grammaticalness
of several English sentences. The method of Labov (1969) and Fasold
(1971) is essentially to treat the group as homogeneous, expressing
variability as quantificational indices on optional grammatical rules.

This paper argues that, in general, the former method is superior,
and that the failure of quantificational indices to take note of sub­
types can lead to erroneous conclusions. For example, Fasold asserts
(1971:360) that 'the absence of the Z suffixes is a syntactic phenomenon'
in Black English. Dividing up the informants shows, however, that while
Fasold's assertion may be true of some suffixes for some Black English
speakers, it is equally untrue of others.
The purpose of this paper is to present data from Jamaican Creole as empirical evidence against an assumption upon which much of the generatively-oriented work in sociolinguistics is based: that a grammar describing the language of a speech community is necessarily the optimum grammar of the competences of the individuals of that community.

The behavior of two informants with regard to English /h/ comprises the data. Relevant forms are presented and analyzed, first in a standard generative partial phonology for each informant, and then in a community grammar based on data from both informants. The analyses are contrasted: it is pointed out, first, that the informants seem to have different rules generating their surface forms, although these surface forms differ minimally from one informant to the other. It is also pointed out that the community grammar is different from either of the two individual grammars, and, while it reflects the fact that the informants' surface forms are nearly identical, it obscures the differences in individual behavior. All of which suggests that, just as the goals of sociolinguistics and generative theory are not identical, neither should we expect community grammars to be identical with competence grammars.

<table>
<thead>
<tr>
<th>Data</th>
<th>Form</th>
<th>Informal</th>
</tr>
</thead>
<tbody>
<tr>
<td>hole</td>
<td>?uol</td>
<td>uol</td>
</tr>
<tr>
<td>happy</td>
<td>?api</td>
<td>api</td>
</tr>
<tr>
<td>hear</td>
<td>?iër</td>
<td>io</td>
</tr>
<tr>
<td>open</td>
<td>uopn</td>
<td>uopn</td>
</tr>
<tr>
<td>asleep</td>
<td>aslip</td>
<td>aslip</td>
</tr>
<tr>
<td>Angela</td>
<td>a'jeľ</td>
<td>a'jeľ</td>
</tr>
</tbody>
</table>

2. Analysis

Underlying forms: happy /?api/ hole /?Œl/ open /?opn/ asleep /aslip/

Rule D:

\[ ? \rightarrow \emptyset / + \text{Inf} \]

Derivations: hole For. Inf.

<table>
<thead>
<tr>
<th>UF.</th>
<th>?Œl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule D:</td>
<td>-</td>
</tr>
</tbody>
</table>

Others: ?uol uol

open For. Inf.

<table>
<thead>
<tr>
<th>UF.</th>
<th>?opn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule D:</td>
<td>-</td>
</tr>
</tbody>
</table>

Others: uopn uopn
Thomas L. Markey, Harvard University

GRADUALITY, GENERALITY AND SIMPLIFICATION IN DIALECTOLOGY

The recent claim that the gradual view of phonological change is untenable is controverted by examples from dialect geography where X and Y differ along continuous articulatory dimensions: e.g. Slavic devoicing, realignment of Netherlandic long vowel systems and diphthong adjustments rules in Southern Swedish and West Frisian dialects. Graduality is fundamental to rule ordering in such changes. Diachronic correspondences are abrupt, but the transmission of phonetic change and change itself are not exclusively abrupt. Spatial, temporal and phonetic graduality are basic principles of dialectology in the diffusion of change. In this paper non-discreteness in temporal and areal patterns and discontinuous transmission are shown to be observationally irreconcilable in dialect geography.

The notion of simplification, generalization by analogy or loss of constraints in rule application, has been introduced in recent discussions of the typology of phonological change. Simplification is here defined as greater generality in rule application and is cited as a primary factor in the transmission of change. Gradual change (drift) and simplification (also reordering) have been typified by some generative phonologists as invoking "abnormal" sound change vs. "normal" sound change invoked by rule addition. This distinction is shown to be purely ad hoc. Generality resulting from simplification is demonstrably a major factor in the diffusion of change from expansive innovation areas, but the further claim has been made that rules are never narrowed in scope in borrowing. This further claim conflicts with generality gradients, formulated as a fundamental principle of dialectology: changes decrease in intensity along the periphery of expansion centers. Adherence to this claim has led generative phonologists to conclusions unsupported by empirical fact; e.g. the High German consonant shift was initiated in the north and gradually generalized in the south.

In this paper evidence from dialectology is advanced to refute the non-gradual and non-narrowing claims, generality (simplification) is
realized as typical of expansion centers and it is shown that reversal of the course of expansion reveals the course of change.

peripheral area A
gradual acceptance
[-general, +narrow]

isogloss(es)

expansion center A'
gradual change
generality=simplification
[+general, -narrow]

course of expansion

course of change
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